

Third Edition

Clearing, Settlement and Custody



David Loader



CLEARING, SETTLEMENT, AND CUSTODY

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Third Edition

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Introduction

The financial markets are constantly undergoing change.

This change has and continues to happen across both the front office side, trading, investment, sales and brokerage as well as the operational areas of post trade, asset servicing, fund administration, custody and of course clearing and settlement.

Historically major change occurred with for example the dematerialization of securities, the switch from paper/physical securities to electronic book-entry securities and the move from settling trades over a period to rolling settlement.

The growth of financial derivatives was another significant development and the introduction of both CLS Bank in the FX settlement flow as well as Target 2 Securities (T2S) in the settlement of Euro denominated securities has changed the landscape considerably for operations teams.

On a general note considerable change occurred as manual processes became replaced by automated processes.

Change in the current environment revolves around the development of distributed ledger technology (DLT), sometimes called blockchain, part of the Fintech impact.

The expectation of these changes has been mainly related to efficiencies, including costs, and capacity as global continue growth.

DLT however has potentially more wide reaching impact creating not just change but perhaps the death of some institutions and key processes that have served the industry for many, many years.

This is not a new phenomenon, the demise of open-outcry trading of many financial instruments to be replaced by electronic markets removed much of the confirmation work that teams needed to do as the electronic market meant the trade details between the two parties was automatically matched.

Market infrastructure has evolved with more products, even over-the-counter (OTC) bilaterally negotiated ones, now centrally cleared rather than settling directly between the parties to the trade.

Of course, internally there is still the need to verify the trade was correct and so for example client clearing, reconciling the trade in the market matched the client trade details, still exists.

Perhaps one of the biggest drivers for change has been the growth of the global markets encompassing both mature and emerging markets with many new products and variants on existing products.

To this we can add the emergence of cryptocurrencies such as Bitcoin which are challenging “traditional” structure of central bank managed currencies that has been the way for centuries.

However, it the changing approach to regulation and risk that has been the biggest change with which firms have been challenged.

Demands on management, people skills and technology has been massive, time consuming and in many cases expensive and given it relates to regulation and risk there is no option to ignore the requirements.

With transparency being a major part of the regulatory structure, reporting of all transactions including those as a result of securities lending, has placed an onerous challenge for the firm's systems.

No one escapes as the changes impact all the major players, banks, brokers investment funds, investors etc. including in some cases corporate businesses as well.

The comment on centrally cleared OTC trades above is an example. For example, under EU regulation, the regulator requires it for all products that can be cleared such as swaps and options.

Managing risk has also been a major driver and so the impact of margining and collateral management has been immense and again wide reaching.

Change is a challenge and of course operations managers and teams should, and usually do, embrace the challenge.

The importance of the operations teams, middle and back office has grown in the last 10 years driven to some degree by the aftermath of the global market crash which of course also prompted the regulatory changes and increased emphasis on managing risk.

The new phase of DLT/blockchain developments in the market infrastructure will present another perhaps greater level of change and thus challenge for probably all players in the markets and yet ----.

The following article in the UK Guardian newspaper suggests that expectation is not universally accepted.

Predictions that bitcoin and other cryptocurrencies will fail typically elicit a broader defense of the underlying blockchain technology. Yes, the argument goes, more than half of “initial coin offerings” to date have already failed, and most of the 1500-plus cryptocurrencies also will fail, but blockchain will nonetheless revolutionize finance and human interactions generally.

In reality, blockchain is one of the most overhyped technologies ever. For starters, blockchains are less efficient than existing databases. When someone says they are running something on a blockchain, what they usually mean is that they are running one instance of a software ap.

<https://www.theguardian.com/business/2018/mar/05/bitcoin-is-based-on-the-blockchain-pipe-dreamplication> that is replicated across many other devices.

Meanwhile the Australian Stock Exchange, ASX has initiated a major project to replace its securities settlement system CHESS with a DLT based solution.

ASX has been working since January 2016 with its technology partner Digital Asset to examine and test the ability of a distributed ledger technology (DLT) based system to underpin the replacement of CHESS. This process led to the decision in December 2017 to proceed with a DLT-based solution.

As well as providing a solid foundation for the provision of clearing, settlement and other post-trade services, it has become clear that DLT's highly secure environment, where permissioned users have real-time access to the data to which they are entitled, will enable ASX's customers or third-parties engaged by them to build new services across the market to generate significant value for customers.

The industry benefits of the DLT-based solution include: reduced risk, cost and complexity through improved record keeping; reduced need for reconciliation between multiple databases; more timely transactions and better quality source of truth data. Digital Asset's smart contract modelling language (DAML), combined with the DLT-based solution will over time, drive industry innovation and enable customers to develop an exciting new generation of products and services based around multi-party automated and simplified workflows.

file:///C:/Users/dalay/Documents/DLR/response-to-chess-replacement-consultation-feedback.pdf

Bring it on!

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CHAPTER 1

The structure of clearing and settlement

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What is clearing and settlement?

An interesting question and one that, on the face of it, could be answered by a simple definition and yet in the financial markets it is often a very little understood but vital process.

For every transaction that takes place in the markets there is a process that concludes the transaction, the finality of settlement. In general terms that will mean some kind of exchange taking place between the two parties to the trade. The exchange may be cash for a security or the netted outcome of more than one transaction, for instance the end result of a purchase and sale or a series of purchases and sales.

Clearing is a term that is easily associated with banking so that we have the “clearing banks.” In this instance the item being “cleared” is money and, historically, cheques. When a cheque is drawn it has a value that is only realized when the receiving bank has presented it to the drawing bank and received the value, hence the term “value date.” As most people know, the time to obtain the value may be three or even more days from the paying into the account of the cheque. Today the somewhat antiquated process of cheques being cleared has been largely replaced by automated processes or

electronic banking. The payment systems that allow electronic transfer of money are usually owned and operated by the Central Bank of the country of the currency. Examples of payment systems are FedWire and CHIPS in the USA, BACS and CHAPS in the UK and TARGET2 for the Euro. There are also other ways of making a payment for example via SWIFT, Paypal or Western Union or in the UK the Faster Payment System (FPS) however with the exception of SWIFT these are generally small or low-value payments.

In the financial markets there is not only cash but also near cash or money market instruments like treasury bills. A transaction in these bills is settled in the UK through the CREST system at Euroclear. Euroclear UK and Ireland (Euroclear) provides via CREST the UK securities settlement service for both money market instruments and also UK and international securities and bonds. This includes equities, bonds, unit trusts and shares in open-ended investment companies (OEICs).

In the USA treasury instruments are cleared via the Government Securities Clearing Corporation (GSCC), securities via the National Securities Clearing Corporation (NSCC) and in Europe via TARGET2Securities (T2S) for euro denominated securities.

So we know that money is cleared and settled in banking and so are securities including treasury instruments, equities, debt as well as commodities and derivatives; although the processes may be very different.

We looked at clearing and settlement in the overview so we can look again at what the two terms mean.

The process of clearing can be defined as:

The preparation through matching, recording and processing instructions of a transaction for settlement.

Settlement can be defined as:

The exchange of cash or assets in return for other assets or cash and transference of the ownership of those assets and cash.

In each market around the world transactions in financial market instruments follow the same basic principle of clearing and settlement. The process of clearing and settlement is often linked with another process, the holding of the records of securities, in electronic form or sometimes in physical form. When this occurs we find a key player in the central securities

depositories or CSDs for short. CSDs hold securities centrally on behalf of their members to speed the process of clearing and settlement. This is particularly relevant where physical securities still exist as the selling party does not have to send the securities to the buying party who may be resident overseas. The risk in moving physical securities is the possibility of the loss of the securities. As noted, this is extremely important in the case of for example bearer securities where there is no evidence of ownership recorded. However the markets are always changing and in response to worries about money laundering, bearer instruments in many countries can no longer be issued.

We should also note at this point that CSDs and International Central Securities Depositories (ICSDs) like Euroclear, Clearstream and DTCC only operate in instruments they have approved as “eligible.” We cannot forget that a wide range of instruments cannot be processed via a CSD or for that matter a CCP, for example private equity, which are shares in small unlisted or privately owned companies.

The clearing house

It is important to note that the clearing process is carried out by a designated function, and the organization that performs this function is often called a clearing house. The clearing house operates either completely independently from or to a significant degree as part of the exchanges or market it serves. The responsibility for managing and overseeing the trading process is therefore quite separate from the process of controlling the transactions through to settlement. The clearing house does not make the rules and regulations pertaining to carrying out transactions, but it does establish the rules, in conjunction with the regulator and the exchange, by which its members will clear and settle the business they do.

[Fig. 1.1](#) shows the process associated with an equity transaction on the NYSE whilst [Fig. 1.2](#) shows the process for a trade on NYSE Euronext in Paris.

We can see where some of the participant organizations that we have mentioned are located in the trade and post-trade clearing and settlement process, including the CSD and payment systems.

The relationship between the clearing house and its members is that the clearing house settles trades on a net basis between itself and its members. Netting means that bought and sold trades are offset and the cash position across trades is also netted. The opposite to netting is gross settlement, which

Securities Settlement Flow-2

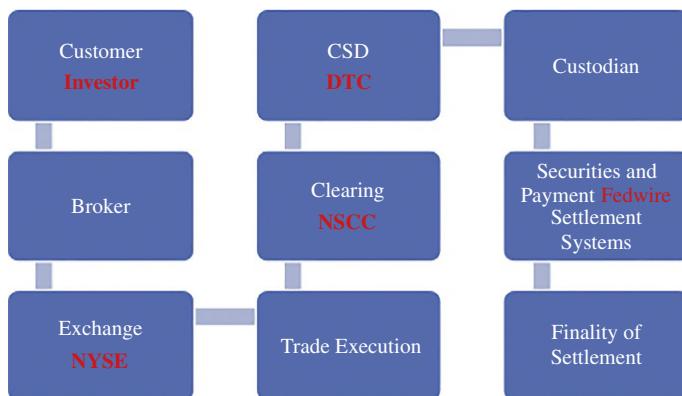


Fig. 1.1 The process associated with an equity transaction on the NYSE. (From *The DSC Portfolio Ltd.*)

Securities Settlement Flow-3

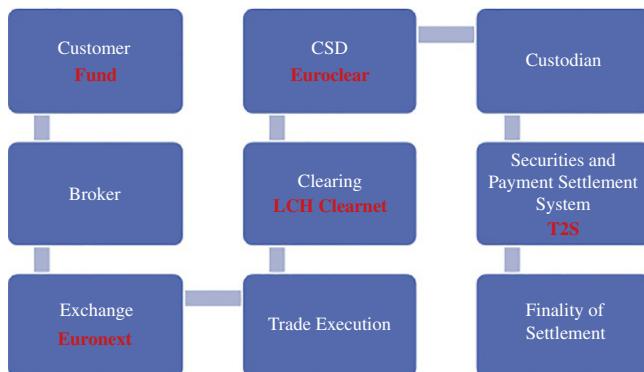


Fig. 1.2 The process for a trade on NYSE Euronext in Paris. (From *The DSC Portfolio Ltd.*)

is where every trade will settle separately. Fig. 1.3 below illustrates this and as we can see not only is netting applied, but also settlement takes place on a delivery versus payment (DVP) process, which again helps to reduce the risk of failed settlement on one side or leg of the trade.

Changes in clearing

We noted in the overview that today, as with so much of the financial markets, change is taking place in the way in which activity on markets is cleared and settled.

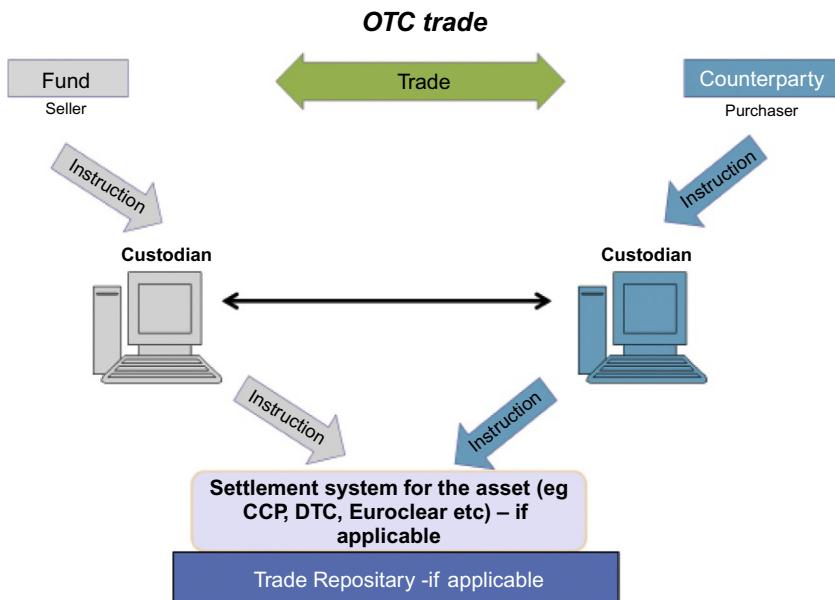


Fig. 1.3 The flow for an OTC transaction. (From The DSC Portfolio Ltd.)

Let us recap on this and explore further.

The central clearing counterparty (CCP), essentially a process of not just facilitating settlement but guaranteeing it, is becoming common in securities markets and thus the clearing and settlement of securities is moving towards the same process as that used for derivatives.

In the UK, the London Clearing House (LCH), a major clearer of derivatives for many years, joined with CREST to provide a central clearing process for equities called EquityClear.

In Figs. 1.1–1.3 above we saw the possible relationships between the trading, clearing and settlement and the relationship with the CCP. Note that there need not necessarily be a one-to-one relationship between the trading member as legal entity and either the clearing member or the settlement entity.

We look at the CCP again in more detail later in the book but it is important to remember that the changes in clearing and settlement are impacting on operations teams and, of course, the procedures and controls they use. There are many benefits, as we have already determined of the CCP structure, but there is also a need to ensure that firms and clients are aware of what the changes mean to long-established procedures, particularly in areas like some OTC derivatives where the concept and introduction of central clearing is more recent.

We also need to focus on the fact that clearing and settlement processes in different markets are covered by local conventions and in turn these differ sometimes considerably from jurisdiction to jurisdiction and also from one product to another.

Development of the clearing structures

The introduction of many initiatives over the years has led to a more streamlined process and yet one that is by no means uniform across countries. These initiatives include those set out by the Group of 30, an industry body made regarding issues surrounding the settlement of securities in the late 1980s. The International Securities Services Association (ISSA) later took on board the recommendations that they made, updated them and monitored markets to ascertain the extent of their implementation. Today we see many of the recommendations as standard practice in most, but not all, markets. Times have changed, and ISSA issued more recommendations in 2000 that sought to build on those of G30 and improve the whole settlement environment from the angles of both efficiency and risk. It is worth looking at the G30 and ISSA 2000 recommendations and the key points follow:

Insight

Group Of 30 Recommendations

1. All comparisons of trades between direct market participants (i.e. brokers, broker dealers and other exchange members) should be accomplished by T+0. Matched trade details should be linked to the settlement system.
2. Indirect market participants (such as institutional investors, and other indirect trading counterparties) should achieve positive affirmation of trade details on T+1.
3. Each country should have in place an effective and fully developed central securities depository, organized and managed to encourage the broadest possible direct and indirect industry participation. The range of depository eligible instruments should be as wide as possible. Immobilization or dematerialization of financial instruments should be achieved to the utmost extent possible.
4. Each market is encouraged to reduce settlement risk by introducing either Real Time Gross Settlement or a trade netting system that fully meets the “Lamfalussy Recommendations.”

5. Delivery versus payment (DVP) should be employed as the method for settling all securities transactions. DVP is defined as simultaneous, irrevocable and immediately available exchange of securities and cash on a continuous basis throughout the day.
6. Payments associated with the settlement of securities transactions and the servicing of securities portfolios should be made consistent across all instruments and markets by adopting the “same day” funds convention.
7. A rolling settlement system should be adopted by all markets. Final settlement for all trades should occur no later than T + 3.
8. Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transaction. Existing regulatory and taxation barriers that inhibit the practice of lending securities should be removed.
9. Each country should adopt the standard for securities messages developed by the International Organization of Standardization (ISO Standard 7775). In particular, countries should adopt the ISIN numbering system for securities issues as defined in the ISO Standard 6166.

It is readily apparent from these recommendations that certain issues pertaining to clearing and settlement did, and in some cases still do, have a significant impact on the efficiency of the process and, therefore, the efficiency of the market as a whole.

In 2006 the G30 published its final monitoring report for global clearing and settlement^a executive summary

This report presents the assessment by the Group of Thirty (G30) Global Monitoring Committee (GMC) of developments in the clearing and settlement arena since the publication of the G30 report, *Global Clearing and Settlement: A Plan of Action*, in January 2003. It identifies places where progress is being made as well as areas where little or no progress is apparent. A great deal has already been achieved, but many recommendations require further work. The Global Monitoring Committee notes that the clearing and settlement objectives and goals set out only 3 years ago remain achievable and, in many cases, are already being progressively implemented. The Committee underscores that the improved infrastructure that would result from full implementation of the G30 recommendations would help enhance confidence in the markets themselves and ensure that the vision of a safer, more efficient global clearing and settlement system can be brought to fruition.

^a<https://www.ecb.europa.eu/paym/t2s/about/html/index.en.html>

Insight

The key points of the ISSA 2000 recommendations

1. Securities systems have a primary responsibility to their users and other stakeholders. They must provide effective low-cost processing. Services should be priced equitably.
2. Securities systems must allow the option of network access on an interactive basis. They should cope with peak capacity without any services degradation, and have sufficient standby capabilities to recover operations in a reasonably short period within each processing day.
3. The industry worldwide must satisfy the need for efficient, fast settlement by full adherence to the International Securities Numbering process (ISO 6166) and uniform usage of ISO 15022 standards for all securities messages. The industry should seek to introduce a global client and counterparty identification methodology (BIC—ISO 9362) to further facilitate straight-through processing. Applications and programs should be structured in such a way as to facilitate open interaction between all parties.
4. Each market must have clear rules ensuring investor protection by safeguarding participants from the financial risks of failed settlement and that listed companies are required to follow sound policies on corporate governance, transfer of economic benefits and shareholder rights.
5. The major risks in securities systems should be mitigated by five key measures, namely:
 - the implementation of real delivery versus payment
 - the adoption of a trade date plus one settlement cycle in a form that does not increase operational risk
 - the minimization of funding and liquidity constraints by enabling stock lending and borrowing, broad-based cross-collateralization, the use of repos and netting as appropriate
 - the enforcement of scripless settlement
 - the establishment of mandatory trade matching and settlement performance measures.
6. Convergence of securities systems, both within countries and across borders, should be encouraged where this eliminates operational risk, reduces cost and enhances market efficiency.
7. Investor compliance with the laws and regulations in the home countries of their investments should be part of their regulators' due diligence process. Investors, in turn, should be treated equitably in the home country of their investments especially in respect to their rights

to shareholder benefits and concessionary arrangements under double-tax agreements.

8. Local laws and regulations should ensure that there is segregation of client assets from the principal assets of their custodian; and no possible claim on client assets in the event of custodian bankruptcy or a similar occurrence. Regulators and markets, to further improve investor protection, should work:
 - to ensure clarity on the applicable law on cross-border transactions
 - to seek international agreement on a legally enforceable definition of finality in a securities transaction
 - to ensure that local law fully protects the rights of beneficial owners
 - to strengthen securities laws to secure both the rights of the pledgee and the protection accorded to client assets held in securities systems.

Interoperability

Progress is being made in achieving the interoperability agenda, which seeks to facilitate clearing and settlement across different national and international systems. This is most evident in Europe, but advances are under way between the USA and Canada. In other regions, the G30's recommendations are being acted upon, but mainly at the level of domestic markets. The longer-run aim remains the achievement of interoperability on a global basis.

Concerning specific recommendations of the original G30 report:

- Coordinated timing between systems is well advanced in domestic markets and in certain regions. The USA and Canada are largely synchronized. In Europe, the introduction of the TARGET2 integrated infrastructure will allow better coordination of securities settlement and payments systems. In the Asia-Pacific markets, some barriers remain and further synchronization is needed. By far the most significant long-term challenge will be synchronizing payment and securities settlement systems on a global scale. Progress to date on that front has been limited.
- The goal to have central counterparties in place and functioning in all major securities markets is almost fully implemented.
- The availability of securities lending is implemented at a basic level in all major markets. However, the supportive framework of law and regulation necessary to make the process an attractive economic proposition is not uniformly available in all markets. This is an area requiring further improvement.

- Significant progress on immobilization and the elimination of paper from clearing and settlement has been made, but paper and manual processes are still being used in some areas. Fully achieving this goal requires changes in law, business processes, and culture. Dematerialization remains the ultimate goal.
- The adoption of uniform messaging standards and communication protocols is under way, but not on a wide enough basis. While all large financial intermediaries have moved to adopt common international standards, most infrastructure providers still operate proprietary standards.
- Automated institutional trade matching schemes exist in all major European markets, the USA and Canada, but not yet in Asia-Pacific markets, with the exception of Japan.
- Efforts to automate and standardize asset servicing processes, including corporate actions, tax relief arrangements, and restrictions on foreign ownership, are long-term goals that have yet to be achieved.

Mitigating risk

The G30's risk management agenda and recommendations center on financial, operational, and legal risks. Overall, there has been considerable progress in implementing the G30's recommendations in many areas, but in some cases the record is more mixed:

- On business continuity and disaster recovery planning, the news is positive. The implications of a large-scale market disruption have been carefully considered and improvements have been made in all major markets. The September 11, 2001 terrorist attacks, more recent acts of terrorism, epidemics of disease, and natural catastrophes have highlighted the stark consequences of inadequate and insufficiently tested disaster response plans. Business and government actors have undertaken planning exercises aimed at preparing for such circumstances.
- Risk management awareness among clearing and settlement services has clearly increased, but monitoring the extent of implementation among users of these services is beyond the scope of the G30 monitoring exercise. At present, the business models of individual service providers are not open enough. The G30 called for each provider to publish an outline of the risk framework, including underlying risk management

processes and standards. In many markets this is a vital step where further action is required.

- Scenarios for dealing with a key market player that is disabled have yet to be addressed in most markets. An appropriate response to such a scenario remains to be formulated. Greater international cooperation will be needed to coordinate the response to failure of international intermediaries.
- Limited progress has been made in some markets on ensuring the final simultaneous transfer and availability of assets. Although all major markets generally offer some variant of delivery versus payment (DvP), in many markets users are still exposed to ambiguity.
- All of the target 15 securities markets looked at by the GMC have generally adequate conditions of legal enforceability with respect to contracts.
- The G30's call to advance legal certainty over rights to securities, cash, or collateral raised complex legal issues regarding "conflict of law" and "substantive law" matters. Both of these are being addressed by work on The 2002 Hague Securities Convention and the future UNIDROIT Convention on Intermediated Securities.
- On the issue of better valuation and support for closeout netting arrangements, there have been a number of significant improvements. These include more flexible close-out netting methodologies and the passage of EU statutes that provide momentum for convergence of close-out netting laws in the European Union. On a global scale, the ISDA Model Netting Act provides a good template against which to measure national legislative fixes.

Improving governance

On governance, the GMC reports progress in a number of areas and notes that boards and senior management are increasingly recognizing the critical importance of governance. Nonetheless, challenges remain; continued focus and effort are required on governance matters:

- Boards and management have an increasingly clear understanding of the need for experienced board membership and certain infrastructure providers are adopting appropriate guidelines.
- There is a clear regulatory framework in place within each of the 15 target markets to provide oversight of clearing and settlement activities.

- There is a continued lack of clarity around fair access to services for users in some markets, particularly in the case of cross-border users.
- Further effort will be required to ensure that user and other stakeholder interests are given equitable attention. As with a number of the risk recommendations, these are matters for implementation by the industries concerned and by individual firms.

Conclusion

The members of the Global Monitoring Committee are heartened by the significant progress that has been achieved on many of the G30's recommendations during the last 3 years. But the Committee notes that a great deal remains to be done if the full efficiency gains of a truly global clearing and settlement system are to be achieved, while mitigating risk and ensuring sound governance. The GMC urges those involved to maintain their commitment to the goals laid out in 2003 and to the national, regional and global efforts designed to achieve those goals.

So what can we determine from the ISSA/G 30 perceptions and recommendations in the past, and the situation that we have today?

In later chapters we look at issues like delivery versus payment, netting and stock lending, but from the recommendations we can see that where these facilities are not available or not used the overall settlement process is likely to be at a higher level of risk. We need to be clear, however, that, for instance, the absence of stock lending does not mean that trades will fail to settle on the due settlement date. What it does mean is that certain activities like market-making, where the trader can sell short in the market, i.e. the trader does not own the stock they have just sold, would be severely curtailed if the ability to borrow stock to settle short sales was not possible. That in turn would potentially affect liquidity in the particular security and perversely probably cause settlement problems.

Short selling hedge funds have to be able to borrow securities to implement the strategy.

However, short selling and securities lending have attracted a great deal of attention from the regulators.

The G30 and ISSA recommendations, and, indeed, those of other industry organizations and representative bodies are designed to improve the clearing and settlement process and it would be fair to say that the

implementation in part or full of some of these recommendations prior to 2008 probably helped when the market crash and subsequent economic issues occurred.

Clearly some of the points raised have been much more aggressively pursued since 2008, notably the introduction of the CCP concept in OTC derivatives. Governance and risk management have also become hot topics.

The regulatory changes and improvement and or adjustments to the processes and market practice take time to be implemented and may also create a period of increased challenges for organizations, particularly the technology and operations teams, before the benefits take effect. What is vital is that operations managers and teams are alert to the need to not only react efficiently to these challenges, but also actively participate in their design and implementation.

The clearing and settlement conventions we find in countries today are a mix of regulatory driven, traditional market practices and participant driven.

The current convention in the UK market is an example of how change has affected the process and that some of that change needed regulatory approval or a change to the law.

Settlement in the UK was on a period basis such that a Stock Exchange Account Period of ten business days existed. All trades carried out in that period would settle on an 'Account Day' a week later. Settlement was by scrip or paper, in either registered or bearer form and in the case of registered securities required the completion of a transfer form to accompany the registered certificate.

The change to dematerialized settlement by electronic book entry recording of securities as per the G30 recommendation 3 required not only the introduction of a central system for settlement, but also the permission of shareholders of companies whose securities would be settled in dematerialized form. Such was the concern of brokers operating for private clients at the loss of the certificate as evidence of ownership that they successfully lobbied the authorities for retention of the option to have a security settled in certificated form. In most other countries where dematerialized settlement now exists it is the only permitted format. The settlement convention for equities in the UK is T + 2. Other securities have a different convention for example T + 1 for government bonds, T + 3 for corporate bonds.

It will be almost impossible for the settlement to take place 1 day after the trade where a physical certificate is required to move from

one party to another to complete the settlement, e.g. the transfer of ownership, unless both parties had the asset held in their account at the same CSD.

Objectives of clearing houses

So far we have looked at the structure of clearing and settlement focusing on the relationship between the exchange, the clearing and the settlement process through the matching of trades, as implied by [Figs. 1.1–1.3](#).

It is interesting to look at the objectives and mission statements as stated by a selection of different clearing organizations.

Insight

ICEClear

With approximately 4 million contracts cleared every day across multiple asset classes, ICE Clear Europe is one of the world's most diverse and leading clearing houses. It provides central counterparty clearing and risk management services for *interest rate, equity index, agricultural and energy derivatives*, as well as European credit default swaps (CDS).

As part of our strategy to provide clearing services in the regulatory jurisdictions and time zones where you do business, we offer secure, capital-efficient clearing, *risk management* and physical delivery services through ICE Clear Europe. To help mitigate systemic risk and protect the interests of our clearing members and customers, ICE Clear Europe holds \$35 billion in its financial guarantee package (guarantee fund) and is regulated by the Bank of England in the U.K. and by the SEC and CFTC in the U.S.

Source: <https://www.theice.com/clear-europe>

ICE US

Established in 1915 as the New York Cotton Exchange Clearing Association, today ICE Clear US provides secure, capital-efficient counterparty risk management and post-trade services across a wide range of asset classes. To help mitigate systemic risk and protect the interests of our clearing customers, ICE Clear US holds margin and guaranty funds including our own contribution (“skin-in-the-game”) and is a CFTC-registered Derivatives Clearing Organization (DCO).

Source: <https://www.theice.com/clear-us>

Insight

The London Clearing House (UK)

We are a leading Rates and multi-asset clearing house that provides proven risk management capabilities across a range of asset classes, including OTC and listed Interest Rates, Fixed Income, FX, CDS, Equities, and Commodities.

As a clearing house, we stand as a central counterparty (CCP), acting as a buyer to every seller and a seller to every buyer. Put simply, we make financial markets safer.

It's not only the breadth of our product offering that sets us apart from our competitors, it's also our commitment to working with our members, partnering to develop the services and tools you need to make your business more efficient and to make financial markets safer for us all.

Our passion for and dedication to providing the highest standard of risk management are manifest in everything we do at LCH.

You can see it in our innovative compression tools and in solutions such as LCH Spider, our automated portfolio margining service, which delivers greater capital efficiencies for our members. And you can read it in our thought leadership on the most pressing issues facing our industry, such as standardized clearing house stress testing and CCP recovery and resolution.

As the markets' partner, LCH operates an open access model, offering a range of execution venues and delivering unprecedented choice and efficiencies to the marketplace. LCH Group operates of some the largest and most-sophisticated clearing services operating in financial markets today.

Some are the undisputed leader in the markets they operate in, such as SwapClear, our clearing service for OTC interest rate swaps.

Others are distinguishing themselves by rapid growth, such as our FX clearing service ForexClear, which is taking the non-deliverable forwards market by storm.

And some are defined by visionary innovation, such as CDSClear, the market's first credit derivatives clearing service to offer clearing of single-name CDS referencing financial names.

All of our clearing services are situated within LCH Group's two clearing houses: LCH Ltd., which is our UK-based clearing house, and LCH SA, which is our clearing house registered and located in France.

Source: <https://www.lch.com/about-us>

Insight

The Depository Trust and Clearing Corporation—DTCC(USA)

DTCC, through its subsidiaries, advances industry-leading solutions that help secure and shape the future growth and development of the global financial marketplace.

Today, we stand at the center of global trading activity, processing trillions of dollars of securities transactions on a daily basis.

DTCC subsidiaries National Securities Clearing Corporation (NSCC) and Fixed Income Clearing Corporation (FICC) deliver highly efficient clearing services across the U.S. equities and fixed income markets, reducing risk and cost for clients, while ensuring safety and reliability in the marketplace.

Source: <http://www.dtcc.com/about>

For more information download:[file:///C:/Users/dalay/Documents/training%20Materials/DTCC/DTCC_Capabilities%20\(3\).pdf](file:///C:/Users/dalay/Documents/training%20Materials/DTCC/DTCC_Capabilities%20(3).pdf)

Insight

Euroclear (International)

As a global provider of Financial Market Infrastructure (FMI) services, we help you to be more successful by making it easier for you to settle domestic and cross-border securities transactions and safekeep your investments. We also help you manage the risks and exposures arising from your transactions.

The assets we hold for you are valued at €28.6 trillion. The total value of securities transactions settled for you by the Euroclear group is over €733 trillion per annum. Our multi-lingual, highly trained team of professionals based in Europe, Asia, the Middle East and the Americas are committed to providing personalized support.

For more detail on Euroclear download

[https://www.euroclear.com/dam/Brochures/About/code-of-business-conduct.pdf's](https://www.euroclear.com/dam/Brochures/About/code-of-business-conduct.pdf)

Insight

Clearstream (International)

The world's entire financial system is built on trust. When assets are traded, both parties must be sure they will receive their part of the transaction. Given the complexity, speed and quantity of assets involved, a fast, secure and trusted third-party is absolutely essential for settling transactions.

Clearstream is a leading European supplier of post-trading services. The wholly owned subsidiary of Deutsche Börse ensures that cash and securities are promptly and effectively delivered between trading parties. It also manages, safekeeps and administers the securities that it holds on behalf of its customers. Over 300,000 domestic and internationally traded bonds, equities and investment funds are currently deposited with Clearstream.

Clearstream maintains relationships with around 2500 customers in over 110 countries. Its global network extends across 58 domestic markets. Backed by flexible securities lending and collateral management services, Clearstream offers one of the most comprehensive international securities services available, settling more than 250,000 transactions daily.

Clearstream International was formed in January 2000 through the merger of Cedel International and Deutsche Börse Clearing. The full integration of Clearstream was completed in July 2002.

Source: <http://www.clearstream.com/clearstream-en/about-clearstream/who-we-are>

From the above we can see how the organizations differ and yet in general terms are involved in the same process. Clearing, settlement, custody, payments and risk management are all services that form part or all of the function of these organizations. Often there is little to choose between them.

We need to note the significant impact of the Target2Securities project in Europe. TARGET2-Securities (T2S) is a European securities *settlement* engine, which went live over four waves between 2015 and 2017. It aims to offer centralized delivery-versus-payment (DvP) *settlement* in central bank funds across all European securities markets. The IT platform is owned and operated by the European Central Bank (ECB) and 17 national central banks in the euro area (which are collectively known as the Eurosystem). The fundamental objective of the T2S project is to integrate and harmonize the currently highly-fragmented securities *settlement* infrastructure

in Europe. It aims to reduce the costs of cross-border securities *settlement* within the euro area and participating non-euro countries, as well as increase competition and choice among providers of post-trading services.

It should be noted that T2S is a critical step forward in the creation of a single market in financial services in the European Union, fulfilling one of the goals of the Lisbon agenda.^a

We will look at various aspects of clearing and settlement in more detail as we move through the book, however, it is also important to look at clearing and settlement not just from the process point of view, but also from the business angle.

Clearing and settlement is a necessity, but it is also a cost. That cost can be significantly higher than it need be because of the inefficiency of the operations teams in banks, brokers and institutional clients. Elsewhere we will consider this in the light of the development of DLT/Blockchain.

Some of the cost is, of course, core cost set by the fees charged by CSDs and clearing houses. Those fees vary and often cross-border settlement is more expensive than domestic settlement because of the duplication of fees levied by the clearers involved. However, some settlement cost is nothing to do with the clearing organizations but is the cost incurred by the administration, safekeeping and sundry other functions and processes that are involved in the pre- and post-settlement environments.

The cost of developing a capability to handle some or all of these functions can be onerous such that for many organizations it is cheaper and more efficient to utilize the services of specialist providers. Into this category fall organizations offering custody, derivative clearing and fund administration. More recently the outsourcing of almost the entire operations function has become a possibility, as prime brokers and other similar organizations seek to utilize their own in-house functionality more efficiently by gaining revenue from other organizations. They are reluctant to commit to the expense of developing systems and people to meet ever more onerous regulatory and competitive requirements, as well as more and more complex products, trading and investment strategies.

To illustrate just how significant the costs and the risk can be we can look at how the number of banks offering custodian services has shrunk. Today many large banks are no longer offering custody to third parties and some do not even run the capability for themselves, preferring to utilize the services offered by the larger CSDs and international CSDs like Euroclear and Clearstream, who today offer custody services and act as repositories alongside their clearing and settlement services.

As technology and changes to settlement practices speed up the processes and real-time settlement in a straight through processing environment creates the need for sophisticated systems solutions to provide ever more complex services in-house and to clients, it is little wonder that the cost of clearing and settlement is becoming more and more of an issue for most organizations.

As a result the securities financing facilities that are offered and utilized are extremely important. Facilities like stock lending, repurchase agreements (repos) and collateral provision are utilized to generate additional income from securities. On the same principle, the CSDs and custodians recognize that the efficient and timely collection of income and benefits from securities held in a portfolio are important in the overall cost of the business equation and accordingly offer added-value services to achieve this for clients.

Thus the structure of clearing and settlement is very much a core activity concerning the matching and settlement of trades complemented by a range of services allied to these two functions. The clearing function can be independent from or part of an exchange or exchanges. Not surprisingly, the various clearers have their own industry bodies of which they are members. Organizations such as the European Central Securities Depository Association (ECSDA) and the Asia Pacific Central Securities Depository Association (APSCDA) are an example.

One thing that is certain with the structure of clearing and settlement is that it will undergo considerable change over the coming months and years. In the next chapter we look at the role of the clearing houses and central securities depositories, and later the custodians.

Summary

To summarize the structure of clearing and settlement that we have covered so far we know that:

- clearing is the preparation of a transaction for settlement
- settlement is the exchange of assets and cash as well as legal ownership
- clearing houses and central securities depositories provide the clearing, settlement and securities depository functions to the markets
- clearing houses have members who hold positions for themselves and sometimes clients
- this function covers securities such as equities, bonds, money markets, derivatives, commodities and cash
- clearing and settlement takes place under the conventions currently applicable to the country, market and product

- industry bodies make recommendations to improve the efficiency and risk management of securities settlement.
- key regulation surrounds the segregation of assets and client asset protection

CHAPTER 2

The role of the clearing house, trade repositories and central securities depositories

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In [Chapter 1](#) we determined that whenever a trade takes place in the financial markets there is an associated settlement process. That process involves several procedures ranging from matching transaction details to settlement instructions being actioned.

[Fig. 2.1](#) shows the high level structure of the markets:

We also saw that clearing therefore can be described as the process of matching and recording transactions prior to the settlement of those transactions. A clearing house or CCP is the organization that will deal with the logistics of this process and while it is often part of the exchange itself it provides an element of independence from the exchange.¹ The clearing function is a crucial one in terms of risk management and credibility for the exchange as well as a major contributor to the regulatory oversight mechanism through the reporting of exposures of the clearing members. It provides the mechanism for monitoring the trades and, where the clearing organization is providing a central counterparty clearing facility, a guarantee to the buying and selling counterparty removing that particular aspect of counterparty risk.

An exchange needs to establish a clearing house so that the trades executed by its members are routed successfully towards final settlement within the conventions for the product and market. [Fig. 2.2](#) shows the structure of a clearing organization, in this case the Depository Trust Clearing Corporation in the United States.

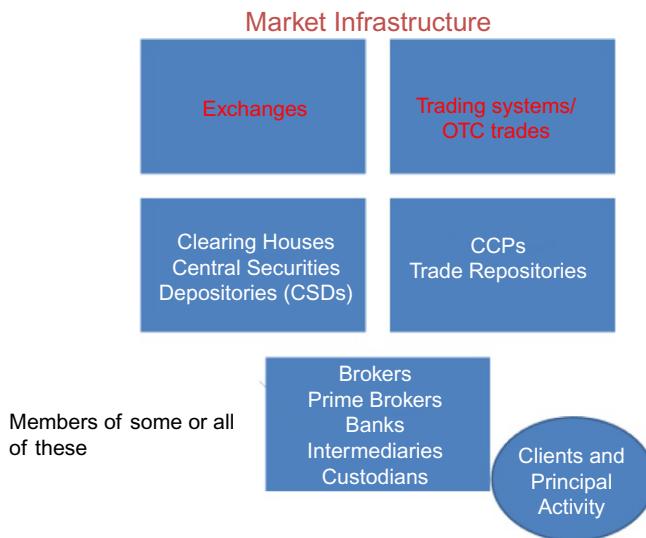


Fig. 2.1 Market infrastructure. (Source: *The DSCPortfolio Clearing Settlement and Custody training course.*)

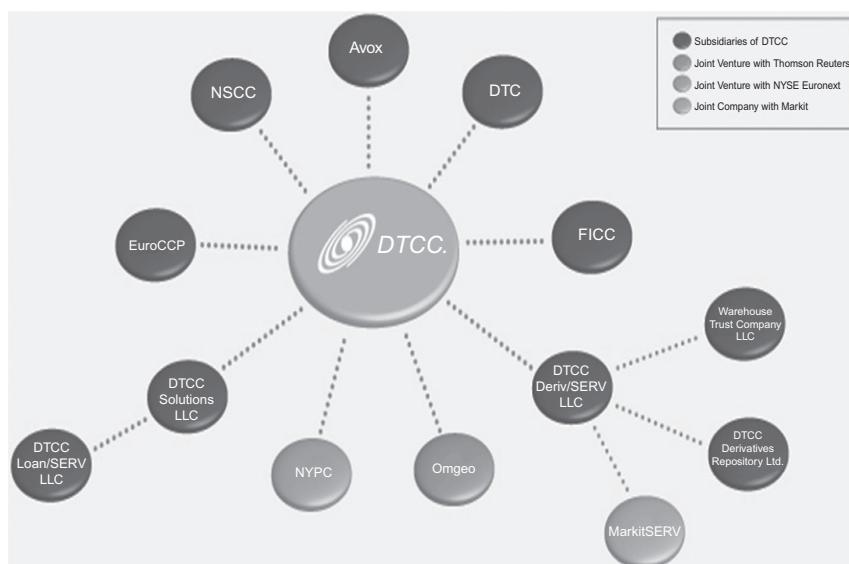


Fig. 2.2 Generic flow for a securities transaction. (Source: *The DTCC Portfolio*.)

The London Clearing House (LCH) and CREST are providing the clearing process for transactions in London, but each has a different role in that process. CREST is providing the CSD services including the matching and settlement facility for some instruments to its members whilst as a clearing house LCH is providing the central clearing counterparty facility for commodities, on and off exchange derivatives (SwapClear) and securities trades (EquityClear) plus the clearing of Repurchase Agreements (Repos) through RepoClear.

The history of the London Clearing House is interesting, as it provides us with an insight into the development of the clearing organizations. The forerunner of LCH was the International Commodities Clearing House (ICCH), an organization that, as its name implies, historically cleared commodities traded on many markets around the world. The clearing process was principally aimed at:

- ensuring contracts entered into would be honored
- guaranteeing that the quality of the commodity was to the standard set by the clearing house
- providing rules and regulations for the trading, settlement and delivery of the commodities.

As part of this process the ICCH became the guarantor of the contract traded and charged a margin as a deposit to ensure that obligations were honored. So successful was this concept that when member defaults through a failure to meet their obligations occurred, the clearing house was able to manage the situation without losses to other members.

This track record was an important consideration for the sponsors of financial derivatives and when ICCH then became involved in the fledgling options and then futures markets in London it changed its name.

Once again, the process was to be tested and came through with flying colors. Firstly, as LCH, the collapse of Barings Bank was managed with no cost to other members and then more recently the clearing house successfully managed the collapse in 2008 of Lehman's including the large swaps positions in its service SwapClear. Key elements of this were:

- on default on September 15, 2008, SwapClear initiated its default management procedures to neutralize its market risk
- the total notional value of Lehman's portfolio with SwapClear was \$9 trillion, 66,390 trades, five currencies

- between September 24 and October 3 the five hedged currency portfolios were successfully auctioned off to other banks.
- on October 8, 2008 LCH announced successful completion of position close out with no loss to LCH or its Default Fund; surplus Lehman margin was returned to the administrators. LCH has now been the subject of a takeover by the London Stock Exchange.

Source: The DSC Portfolio Ltd./LCH.Ltd.

The clearing process for commodities and derivatives is clearly a proven one and, as this process has been adopted into securities and other markets, operations teams have benefited in several ways, not least the reduction of settlement fails and therefore risk.

The role of the CCP

We have already determined that the prime role of the central clearing counterparty is risk management. The clearing house achieves this objective by using various techniques to manage the exposures taken by its members. The use of margin as a risk management tool requires the member to provide collateral against a deposit requirement designed to protect the clearing house against default by a member caused by a significant movement in the price of an instrument or instruments which creates a liability or obligation that the member cannot meet. This use of margin is made in conjunction with other requirements levied on members, which enables the establishing of a default or compensation fund.

CCPs have different structures but in general terms they have the same objectives. The LCH can be used as an example of the kind of structure that we find in a CCP ([Fig. 2.3](#)).

ICE Clear created a client clearing framework to enable members to comply with the EMIR client segregation regulations and readers should access and study the details of the framework at https://www.theice.com/publicdocs/clear_europe/Customer_Protection_Framework.pdf

Meanwhile Eurex in Germany created a CCP structure for securities lending reducing the counterparty risk between the borrower and the lender.

Eurex Clearing to act as CCP for EquiLend's global trading platform as of March 2016

EquiLend, the securities finance trading and post-trade service provider, and Eurex Clearing, one of the world's leading clearing houses and part of Deutsche Börse Group, agreed to connect EquiLend's securities lending platform to Eurex Clearing's Lending CCP service. The planned link, due to go live in March 2016, will

allow EquiLend's market participants to make use of their existing infrastructure to route transactions to Eurex Clearing's Lending CCP for novation and downstream processing.

Source: <http://www.equilend.com/equilend-and-eurex-clearing-to-cooperate-in-securities-lending/>

More details of the full range of Eurex clearing services can be found at <http://www.eurexclearing.com/clearing-en/>

The DTCC in the USA is a major clearing institution providing comprehensive services across many products through its Fixed Income Clearing Corporation (FICC) and the National Securities Clearing Corporation (NSCC) as we saw in Fig. 2.2.

Full details of the services offered can be found at <http://www.dtcc.com/about/subs/>.

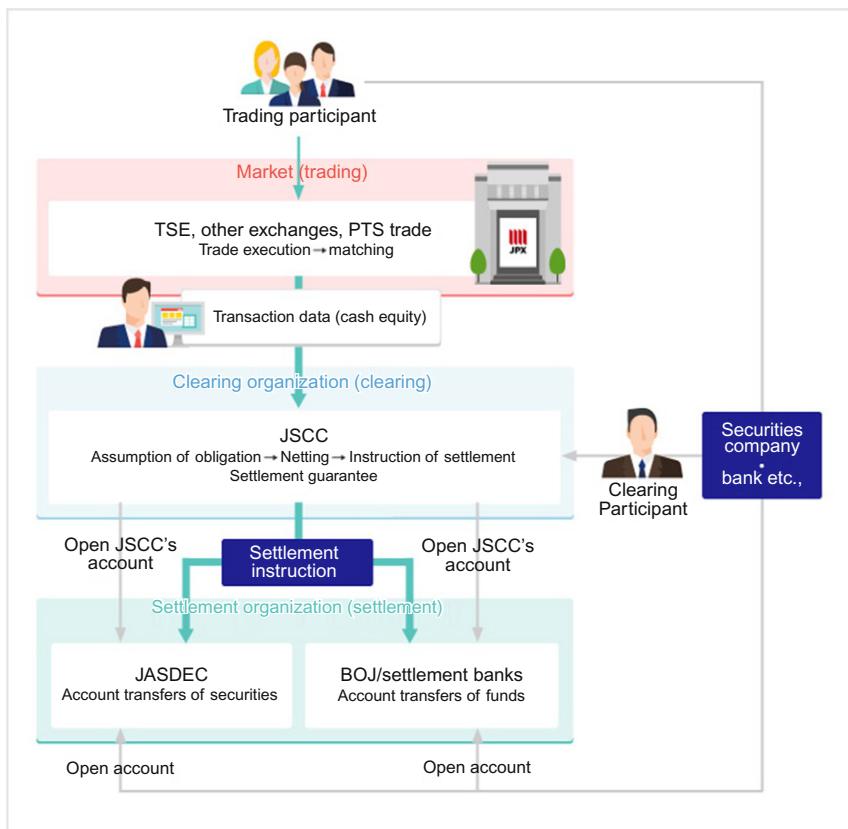


Fig. 2.3 The structure of a CCP. (Reproduced with permission from <https://www.jpco.jp/jsc/en> © Japan Securities Clearing Corporation All rights Reserved.)

In the Far East there are several major clearing institutions. In Hong Kong we find Hong Kong Exchanges and Clearing Limited (HKEx) which is the holding company of two Exchanges, The Stock Exchange of Hong Kong Limited (SEHK) and Hong Kong Futures Exchange Limited (HKFE) and three clearing houses, Hong Kong Securities Clearing Company Limited (HKSCC), HKFE Clearing Corporation Limited (HKCC) and The SEHK Options Clearing House Limited (SEOCH). It operates two clearing and settlement systems, Central Clearing and Settlement System (CCASS) and Derivatives Clearing and Settlement System (DCASS).

Full details of the services offered can be found at https://www.hkex.com.hk/eng/market/clr/dvclrng_hkccseoch/documents/hkcc.pdf.

In Singapore the SGX has The Central Depository (CDP), a wholly owned SGX subsidiary, which provides clearing for products listed for trading on SGX's securities market. These include shares, Exchange Traded Funds (ETFs,) Real Estate Investment Trusts (REITs,) Business Trusts, bonds, structured warrants and Extended Settlement contracts. CDP is now a Qualifying CCP (Central Counterparty).² Singapore Exchange Derivatives Clearing (SGX-DC) is also a Qualifying CCP. CDP acts as a central counterparty to all matched trades executed on the SGX-ST Trading Engine, as well as privately negotiated married trades that are reported to the clearing house for clearing on the trade date.

More details on the SGX structure is available at <http://www.sgx.com/wps/portal/sgxweb/home/clearing>.

The structure of the Japan Securities Clearing Corporation is shown in Fig. 2.3.

This as we can see follows the familiar pattern we saw in earlier examples of clearing and settlement structures including the clearing of OTC products. More detail on the JSCC can be found at <https://www.jpx.co.jp/jsc/en/cash.html>

Whilst in Australia the ASX Clearing Corporation clears securities and derivatives transactions for members of the exchange. ASX Clearing Corporation's has wholly owned subsidiaries, ASX Clear Pty Limited and ASX Clear (Futures) Pty Limited, which provide central counterparty facilities as well as risk management systems, securities collateralization services and electronic straight through processing of trades.

ASX is at the fore front of developments in Distributed Ledger Technology (DLT) or Blockchain with a project to replace its settlement system CHESS. This is covered further in Chapter 10.

More details can be also be found at <http://www.asx.com.au/clearing/asx-clearing-corporation.htm>.

There are numerous other clearing institutions around the global financial and commodity markets.

The role of securities depositories

Settlement of securities involves not just the clearing house, but the local and international central securities depositories and the settlement agents of various participants. Their role is to provide a mechanism to hold securities and to effect transfer between accounts by book entry. The main objective is to centralize securities in either immobilized or dematerialized form that will then permit the book entry transfer function to operate for the settlement of transactions.

The CSD in a country is known as a domestic CSD and they will often have links with other CSDs to allow streamlined access to cross-border settlement and custody facilities.

As we saw earlier in the book there are also international CSDs (ICSDs) and again local or domestic CSDs will link with the ICSDs and vice versa. ICSDs are organizations, of which DTCC, Euroclear and Clearstream are examples. Euroclear and Clearstream started life as settlement and depository service providers for internationally traded bonds. Today the likes of the big ICSDs provide through Group subsidiaries an expanded range of services (see Table 2.1). There have been many changes, not only in terms of the services and the role of CSDs and Group entities, but also in the way in which links and alliances have taken place. Clearing houses, custody providers and securities depositories are becoming less distinct from each other. Clearstream for example is linked to Deutsche Borse and Eurex

Table 2.1 Differences between ICSDs and CSDs.

ICSDs (including group companies, etc.)	CSDs
International client base	Local client base
Global securities	Local securities
Settlement	Settlement
Custody	Some additional services
Collateral management	Stock lending
Treasury and other services	Cover domestic activity
Securities lending	
Cover cross-border activity	
Corporate actions	

the derivatives exchange and associated the clearing house of the markets. This so-called vertical silo brings together market, clearing and depository including a wide range of custody services and also services to investment funds like the product Vestima.

Euroclear meanwhile is linked to the NYSE Euronext market and the London Stock Exchange and the clearing house LCH.Ltd. Like Clearstream the Group offers custody services and FundSettle a product for investment funds.

The role of clearing organizations, depositories and custodians is, as we have stressed, changing not least because exchanges themselves are changing and consolidating.⁴

The regulatory changes and general changes driven by needs for efficiency, risk control, etc., and the costs of re-engineering the operations process may well mean more consolidation amongst the larger CSDs, custodians and clearing houses as well as the creation of niche players with specific skills and services such as fund administration.

The role of trade repositories

As part of the regulatory changes trade repositories as well as CCPs⁵ for some types of OTC derivatives are a regulatory requirement in Europe and the USA.

A trade repository can be defined as an entity that will electronically maintain a register of OTC derivatives products and trades in those products.

In Europe the repository requirement comes under the European Markets Infrastructure Regulation (EMIR) and is defined and supervised by the European Securities Markets Association (ESMA).

In the USA the Dodd-Frank Act sets out similar requirements and this is supervised by the Commodity Futures Trading Commission (CFTC) and the Securities Exchange Commission (SEC).

We will cover this more in a later chapter on derivatives clearing and settlement, however, there are many issues associated with the repository requirement.

Summary

The role of the clearing house, depositories and repositories is varied, but all have some commonality, not least the audit trail for transaction which has become vitally important for regulatory oversight of exposures and risk.

The figure below summarizes the main central counterparties structure in the markets.

Central Counterparties



We will deal with the mechanics of the operational processes as we look at the clearing and settlement of various products later in the book.

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CHAPTER 3

Bond settlement and the role of treasury

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Introduction

In this chapter we will look at the debt markets and the clearing and settlement of these instruments.

A debt instrument represents a loan from the investor to the issuer and must in most cases be paid back to the investor. The debt instrument will either pay the investor interest at a fixed (hence the term fixed income) or floating rate. In some cases the instrument will instead of paying interest be issued at a discounted price, for example a zero-coupon bond.

There is a wide variety of debt types (i.e., bond, loan stock) each with its own unique features and settlement conventions. However, the bond markets can be divided into two distinct groups, namely international bonds and domestic bonds. The operations team needs to be aware of the characteristics of the instruments and their settlement convention.

International bonds

International bond issues are debt securities sold largely outside the country of residence of the borrower. This group may be sub-divided into Eurobonds, now often referred to as international bonds to avoid confusion with the Euro currency and foreign bonds. From an investor's point of view, the differences between a Eurobond and a foreign bond are largely technical. The main differences relate to the composition of the underwriting syndicates and the selling features as [Table 3.1](#) shows.

Foreign bond markets exist in several currencies and are given colloquial names as shown in [Table 3.2](#).

Table 3.1 The differences between Eurobonds and foreign bonds

Eurobonds or international bonds	Bonds are underwritten by an international syndicate of commercial and investment banks Bonds are sold principally in countries other than the country of the currency in which they are denominated An issuer with non-USA domicile wishes to raise US dollars outside the USA. The issue is underwritten by international syndicate and initially distributed and subsequently sold outside the USA
Example	An issuer with non-USA domicile wishes to raise US dollars outside the USA. The issue is underwritten by an international syndicate and initially distributed and subsequently sold outside the USA
Foreign bonds	Bonds are underwritten by a syndicate composed of commercial and investment banks from one country: <ul style="list-style-type: none">• Denominated in that country's currency• Sold principally in that country

Table 3.2 Colloquial names of foreign bond markets

Name	Currency of issue	Borrower	Market
Yankee bond	US dollars	Non-US	USA
Bulldog bond	Sterling	Non-UK	UK
Matador bond	Euros	Non-Spanish	Spain
Samurai bond	Yen	Non-Japanese via a public issue	Japan
Shibosai bond	Yen	Non-Japanese via a private placement	Japan
Daimyo bond	Yen	As a Samurai, except that they are held in book entry form by Clearstream and Euroclear	Japan

Domestic bonds

Domestic bonds are issued by borrowers, resident in the country of issue, denominated in their local currency and regulated by the local authorities. Some of the largest borrowers in the domestic markets are the governments and government agencies plus, to a lesser extent, corporate entities ([Table 3.3](#)).

There are two bond types which combine the attributes of International and Eurobond issues:

1. *Global bonds*—International bonds placed in both the Euromarkets and domestic markets at the same time and are freely tradeable in any of the major capital market centers. As the issuance of both dollar- and non-dollar-denominated global bonds is rapidly increasing, there might well be less of a distinction in future between a Eurobond and a domestic bond.
2. *Parallel bonds*—A parallel bond is a multinational issue consisting of several loans sold simultaneously among various countries each of which raises the loan in its own currency.

There are particular features of bonds that we need to understand as these features determine some of the settlement processes. The features of bonds can be identified by looking at the properties associated with interest payments and maturity requirements of the individual classes of bond.

Interest payments are a significant feature and will vary from instrument to instrument. Interest, also known as “coupon” after the fact that as predominantly bearer instruments, and, therefore, unregistered securities, the only means of the holder claiming the interest was to detach a coupon from the bond and present it to the issuer. The coupon of interest is payable by the issuer of a bond or loan stock to the holder. The rate of interest refers to the nominal amount rather than the market value of the bond.

Table 3.3 Comparison of domestic and international bonds

Characteristics	Domestic	Foreign	International bonds
Issued by Domicile of issue	Local borrower Local market	Foreign borrower Local market	Foreign borrower International Euro-markets
Issue led by	Syndicate of domestic banks	Syndicate of domestic banks	Syndicate of foreign banks
Denominated in	Local currency	Local currency	Any foreign currency
Regulated by	Securities laws of local country	Securities laws of local country	Not subject to the laws of any particular country

Fixed-rate bonds

Fixed-rate bonds pay interest once a year at the same rate of interest for the total life of the bond. Although most fixed-rate Eurobonds and convertible bonds pay interest once a year, there are some foreign bonds, such as US Treasury bonds, which pay twice a year.

Interest on convertible bonds is paid annually while the bond remains unconverted. Usually, once the bondholder elects to convert the bond into equity, the interest payments cease with effect from the date of the last interest payment and any accrued interest will usually be forfeited.

Fixed-income bonds offer investors a guaranteed rate of annual income and the assurance that they will receive the same amount every year until maturity of the bonds themselves. From an operations point of view the interest amount, payment convention and dates and the maturity dates are vital information and need to be held on the bond reference database.

Floating-rate notes

This type of instrument has an interest rate that is linked to a benchmark rate and is, therefore, not a fixed amount during the life of the instrument. Interest on floating-rate notes (FRNs) is usually payable twice a year and occasionally four times a year. The interest rate is changed periodically to match the timing of the interest payments and is usually based on a margin over a pre-specified money market deposit rate such as those illustrated in [Table 3.4](#).

These rates are determined by the major banks independently of each other at 11 am London time every business day.

Table 3.4 Money market deposit rates

Interest rate name	Description
London Interbank Offered Rate (LIBOR)	The rate at which banks offer funds in the interbank money markets. This rate is the usual basis for FRN interest rate calculations
London Interbank BidRate (LIBID)	The rate at which banks pay on deposits in the interbank money market
London Interbank Mean Rate (LIMEAN) For examples of other interest rates used in the markets see Appendix 1	The average of LIBOR and LIBID

The interest rate on a FRN is fixed in the following way:

- The paying agent for the issuer takes the LIBOR rates that had been determined by an agreed number of banks (often four) who had previously been nominated as reference banks at the time the FRN was first issued.
- The paying agent fixes the next FRN coupon rate by taking the average of the four reference banks' LIBOR rates and adding the margin. Note: as mentioned elsewhere in the book, following the LIBOR rate fixing scandal new benchmark rates are replacing LIBOR for many instruments

Example

XYZ issues FRN maturing on June 30, 2023. The interest will be fixed quarterly at LIBOR plus 25 basis points and the next fixing is due September 30.

Reference bank	3-month LIBOR quoted at
Bank A	1.94%
Bank B	1.95%
Bank C	1.95%
Bank D	1.93%
Average rate	1.94%
Margin	25 basis points

The interest rate is determined as being 2.19% (the average reference banks' rate of 1.94% plus the margin of 25 b.p.) from September 30 to December 30.

There are variations to this, for instance FRNs issued in Euros would use the Euribor (European Interbank Offered Rate) as the benchmark. Other types of FRN include:

- *Drop-lock FRN*—The rate of interest will fluctuate until such time as the deposit rate is at or below a pre-determined rate on an interest fixing date (or sometimes on two consecutive fixing dates). Once this “trigger” rate has been reached, the interest converts to a specified fixed interest rate for the remaining life of the bond.
- *Mismatch FRN*—With mismatched FRNs the interest rate is refixed on a more frequent basis than the interest is paid. The rate will still be based on the 6- (or 3-) month deposit rate linked to the payment frequency.

Example

XYZ issues FRN due 2020 with a nominal amount US\$100,000. The interest is fixed monthly at 6-month LIBOR plus 25 basis points next 6-monthly coupon period from 3 October to 3 April.

From	To	No. days	Coupon rate (%)	Coupon
October 3	November 3	31	5.25	452.08
November 3	December 3	30	5.75	479.17
December 3	January 3	31	5.50	473.61
January 3	February 3	31	5.75	495.14
February 3	March 3	28	6	466.67
March 3	April 3	31	5.25	538.19
	Total	182		2904.86

The average rate for the period amounts to approximately 5.75%.

Other FRNs are:

- *Mini-Max FRN* a FRN with a minimum and a maximum interest rate.
- *Capped FRN* a FRN with a maximum interest rate.
- *Flip-flop FRN* relates to the option of the bondholder to convert a FRN with a long maturity date or a perpetual (no redemption date) issue into a FRN with a short maturity date. The bondholder may convert back into the original issue before maturity of the short-dated issue. Although the short-dated FRN will pay a lower margin over LIBOR than the long-dated FRN, the bondholder will receive a capital repayment that much sooner.
- *Convertible rate FRN* a FRN that gives issuers and investors the option to convert from a floating rate of interest to a fixed rate or vice versa and in so doing, allowing them to hedge or speculate against future interest rate movements.

Zero coupon bonds

Zero coupon bonds do not pay interest; they are, however, issued at a deep discount to the par value of the bond and redeemed at the par value. The difference, or capital gain, reflects an effective yield on the bond and might even be taxed as “income” rather than “capital.”

Maturity

We can see that there are different ways in which the interest on a bond, loan or note is calculated and paid. As well as the characteristics

associated with the interest amounts we need to also focus on the maturity characteristics.

Although bond maturities mostly vary between 3 and 25 years, there are some bonds that will not mature, the perpetual bonds. The maturity terms are set out in the original prospectus document and are broadly divided into three categories. We can look at each in detail starting with normal maturity characteristics.

Bonds are either repayable in one amount on the final maturity date (bullet bonds) or in stages during the life of the bond. These early redemptions may be either mandatory, conditional per the terms stated in the prospectus, or optional.

Insight

Mandatory	(Sinking fund.) The issuer redeems a specified amount within preset time limits. If the bonds are trading below par the issuer will usually buy the bonds in the secondary market. Otherwise the bonds will be drawn by lot and repaid. Bondholders are informed through advertisements in the financial press
Example	ABC issues a 7-year bond with a sinking fund: Year 3—purchases 10% of the issue Year 4—purchases 10% of the issue Year 5—purchases 20% of the issue Year 6—purchases 20% of the issue Year 7—purchases remaining balance (40%) of the issue

Insight

Conditional	(Purchase fund.) The issuer will only buy up to a specified amount of bonds if the price of the bonds drops below a certain level in any particular year
Example	ABC issues a bond with a purchase fund. Terms of purchase fund—issuer purchases bonds at par if market price drops below 95 during 12 months before final maturity
Optional	The exact terms and conditions under which bonds may be redeemed will be stated in the prospectus. The decision to redeem bonds early can be either the issuer's or holder's choice

(Callable bonds.)

At the issuer's option the bonds may be redeemed before the final maturity date. Price usually above par.

(Puttable bonds.)

At the bondholder's option the bonds may be redeemed before the final maturity date. Price usually below par.

As we noted above, there are several bonds that do not have a redemption date at all. These are referred to as perpetual or undated bonds.

Example

During the Second World War the British Government issued a 3½% War Loan with an original maturity date in 1952. The government later decided to delay repayment until some later undecided date. With interest rates at the time quite high and unlikely to drop below this rate, the outstanding loan of £1.9 billion represented cheap funding for the government.

Of course the crash of 2008 and subsequent drop in interest rates to zero or near zero had an impact on these and all other debt instruments that had a fixed rate.

We have seen how interest and maturity characteristics can be different for each type of instrument and that these characteristics help to determine the settlement process.

We should also consider how bonds are issued and the timetable.

New bonds are issued in the *primary market*. It is here that various market participants undertake all the preliminary work and the roles are explained below and we can use the example of the issuance of German Bunds and International Bonds.

Example 1 German Federal Bonds:

- Bund Issues Auction Group use the Bund Bidding System
- Bid Details:
 - must be for multiples of EUR 1 million
 - bids in percentage points (0.01 bonds & 5-year notes)
 - accepted bids allotted at the price specified in the bid
 - bids above the lowest accepted bid—in full
 - bids below are not considered.

Non-competitive bids allotted at the weighted average price of the accepted competitive bids:

- Securities are settled on the value date specified in the invitation
- Settlement effected in the night-time processing of Clearstream Banking AG.

Example 2 International Bonds:

- Most common method is Underwriting:
- The underwriters charge a fee.
- Syndicate of banks buys the entire issue of bonds from the issuer.
- An underwriting bank takes the whole deal “Pot Deal”:
- and re-sells them to investors.
- Alternative method is the Private Placement:
- Sold direct to buyers
- May not be tradeable in the market.

Lead manager

The lead manager, usually a bank, arranges the issue by putting the whole transaction together. This includes:

- Organizing the legal aspects
- Preparing the documentation, which varies from country to country and instrument type
- Negotiating the final terms of the bond issue and the timing of the issue with the issuing entity
- Determining the membership of the syndicate of other banks who will be invited to help distribute the bonds
- Allocating and distributing the bonds among the syndicate members.

Initially the lead manager will undertake to purchase the entire issue from the borrower. At this moment, the lead manager assumes 100% of the risk associated with the issue. To reduce this risk, the lead manager brings together organizations known as co-leader managers who will undertake to share this risk.

Initial communication with the prospective co-leader managers takes place through a software application known as “book-runner” which supplies information on computer screens. Thereafter, communication occurs electronically, by fax and sometimes by telex.

Co-lead manager

The issue is allocated to a group of investment banks at the so-called “fixed price re-offer” (FPRO) level, which is the issue price less a selling concession. The co-lead management group agrees not to trade below the FPRO until the lead manager declares the bonds “free to trade.” The lead and co-lead managers also receive a combined management and underwriting fee.

This method of issuing bonds, sometimes referred to as a “bought deal,” accounts for 95% of the issuance activity. On occasions, the lead manager will lead an issue on a “best efforts” basis. Here, the lead manager invites participants into the management group ahead of the issue date. In this scenario, trading might take place in the anticipation of the issue price. This form of trading is known as dealing in the “gray market.” Newly issued bonds can trade in the primary market anything from 1 to 6 weeks after issue.

Market-maker

A market-maker helps to provide liquidity in the market by agreeing to make secondary markets in the bonds. In the UK the market-makers in government bonds are called gilt-edged market-makers (GEMMs).

Trading, whether in the regulated markets or the over-the-counter (OTC) markets, has traditionally taken place by telephone. During the early 21st century OM, together with investment bank Morgan Stanley launched a virtual European stock exchange called Jiway. (The project was not successful and was canceled on October 14, 2002.)

Today there are once again bond trading systems being developed as the following extract from an article in the Economist illustrates:

... Paper securities may be a throwback to an earlier age, but the evolution of trading into a fully electronic system still has a way to go. Equities have almost completed the transition but the telephone still plays an inordinately important role in the bond market. Big investors continue to shop for bonds by placing calls to a handful of large dealers.

The common reason given is that bonds come in so many forms, with their varying coupons, maturity dates and covenants, that the standardisation that electronic markets require is impossible. Instead the business of bond markets has been orchestrated by banks with big inventories and opaque pricing.

Yet the banks themselves are now moving towards electronic platforms. Citigroup's recent disclosure that it was creating an electronic bond-trading system for its clients, a proprietary exchange of sorts, follows the introduction of similar trial systems by Morgan Stanley and Goldman Sachs. BlackRock, a huge asset manager, is also going down the same path.

This is not the first time firms have attempted to create electronic exchanges for bonds. The New York Stock Exchange has made several efforts in recent years; a few dozen were created in the 1990s, most of which failed...¹

Today bond trading on systems is called e-trading.

As a case study readers, should follow the following link to Tradeweb—<https://www.tradeweb.com/who-we-are/history/>

Once a trade is executed, both parties to the trade enter into a legally binding obligation or agreement, which commits them to make a delivery of securities from the seller to the buyer in return for the equivalent value in cash. From a settlement point of view there are processes and procedures to be followed.

Trade confirmation

The first task in the pre-settlement phase is to ensure that both counterparties recognize that the details of a particular trade are consistent. This is traditionally achieved by the exchange of confirmations that enables one counterparty to allow the other to check all the trade details against its records. As settlement cycles have shortened, counterparties need to exchange their confirmations more rapidly and problems started occurring. The traditional methods of sending paper contract notes and telex transaction confirmations were no longer appropriate and alternative media include electronic trade confirmation (ETC) and SWIFT messages.

More recently electronic matching systems have become part of the settlement process.

For an example we can look at one such system, TRAX.

Trax is a leading provider of trade matching and regulatory reporting services and is a trusted source of comprehensive and unbiased pricing and liquidity information to the global securities market.

Trax processes on average over 1 billion cross-asset class transactions annually on behalf of its community of over 600 entities including approximately 12 million fixed income transactions.

Trax operates an Approved Publication Arrangement (APA) and Approved Reporting Mechanism (ARM) for MiFID II trade and transaction reporting in addition to providing support for other regulatory regimes. Trax additionally provides capital market firms with information to assist them in conducting net asset valuations, mark-to-market calculations, fixed-income portfolio mapping, liquidity and volume modeling, as well as reference data population updates. Trax data products include a universe of over 300,000 fixed income securities with unique pricing and volume information on approximately 60,000 individual bonds.

Trax is based in London. The company was originally established in 1985 and began trading as Trax in May 2014. In February 2013 the company - then known as Xtrakter Ltd. - became a wholly owned subsidiary of MarketAxess Holdings Inc., the operator of a leading global fixed income electronic trading platform.

Trax has registered offices in the United Kingdom and is regulated by the FCA as an approved service company (FRN 491843).

Source: www.traxmarkets.com/about%20us.aspx

TRAX was operated by Xtrakter, which is a leading provider of operational risk management, trade matching, regulatory reporting and data services to the global capital market. Formerly known as ICMA Ltd., Xtrakter was established in 1985 and was one of the first providers of secure trade matching and regulatory reporting systems for the over-the-counter (OTC) market. From 2009 to 2012, Xtrakter was operated by the Euroclear group, then in 2013, Xtrakter was acquired by MarketAxess Holdings Inc., the operator of a leading global fixed income electronic trading platform.

Where matching is outside an electronic system it is necessary to perform a prompt confirmation-checking routine so that any problems that arise can be resolved as soon as possible (or within pre-determined deadlines set by the market). Trades that are unconfirmed for whatever reason cannot proceed to the settlement stage.

Settlement instruction

Once the two counterparties have confirmed trade details with each other, the next stage is to pass delivery/receipt instructions to the clearing organization. The task of a clearing organization like, for instance, Euroclear is to:

- match delivery instructions with the corresponding receipt instruction, and
- report the matching results back to the instructing counterparties.

Those instructions which are matched are held by the clearing organization until the due settlement date arrives. No further action is required during this period. Obviously problems arising from unmatched instructions must be resolved and correct instructions submitted to the clearing organization for further matching. This stage must be completed in time to meet the clearing organization's processing deadlines. Where electronic markets exist, the matching and confirmation process is normally automatic.

On settlement day, if there are sufficient assets and cash available for delivery, the trades will settle. The counterparties are advised of their securities and cash movements and, finally, securities ledgers and cash accounting records are updated to reflect these movements.

Settlement, as we noted earlier in the book, is broadly defined as the delivery of an asset in exchange for the equivalent in cash value. Problems of definition arise of “exchange” when the mechanics are looked at more closely.

There is, for example, a risk of non-receipt of funds if settlement is made by cheque. The cheque takes time to clear and might subsequently not be honored by the payer’s bank. Today in many markets the use of cheques is almost totally eliminated even at broker—private client level. The cash element of settlement should be made in such a way that the cash is both *assured* (i.e., guaranteed) and in *same day funds*. In other words payments are made through electronic transfer of funds.

In addition, settlement of securities and cash should take place at the same time and without the possibility of one party to the transaction countering the delivery or payment. Settlement should, therefore, be the *simultaneous and irrevocable* transfer of ownership of the securities in exchange for the equivalent cash countervalue. This process is delivery versus payment or DVP and is operated by most of the major depositories and all clearing houses.

In the bond markets, settlement periods range from T + 0 to T + 5.² Most government bonds tend to settle on T + 1 while corporate bonds generally settle on T + 3/T + 5 cycles.

While there are similarities in the ways in which bonds settle, there are local variations.

International bonds, global bonds and convertible bonds

These bond types are settled by the two clearing houses we have already mentioned, Euroclear and Clearstream. Participants of one clearing house can settle trades not only with another participant of the same clearing house, but also with participants of the other clearing house. This is known as settlement via the (electronic) bridge, which exists between Euroclear and Clearstream.

Through their links to each other (via the bridge) and to external depositories and CSDs, Euroclear and Clearstream are able to accept instructions to settle the following types of transactions:

- *Internal settlements*—These occur between two counterparties who are both participants of the same clearing house.

- *Bridge settlements*—These occur between two counterparties one of whom is a participant of Euroclear and the other a participant of Clearstream.
 - *External settlements*—These occur between a local counterparty and a participant of Euroclear or Clearstream across a range of domestic securities.
-

Cash funding facilities

Euroclear provides secured financing facilities to eligible participants for the purposes of covering securities settlements, pre-advising receipts of funds and, where appropriate, securities borrowing activities. The facilities are secured with cash and/or securities collateral.

Clearstream, for instance, provides financing through an Unconfirmed Funds Facility, a Technical Overdraft Facility or a Tripartite Financing Agreement (see Appendix 1).

Bond borrowing and lending facilities

Many securities depositories like DTCC, Euroclear and Clearstream operate borrowing and lending programs, which include bonds and an increasing number of international equities, in order to facilitate their participants' settlement activities.

Government bonds and domestic bonds

Government and domestic bonds are settled in the local markets, but it should be remembered that as we noted above many of these bond types can also be settled by the International Central Securities Depositories through their appropriate inter-CSD links.

A key settlement process in respect of all securities is the ability to efficiently fund the settlement. The prime objective is to ensure that there is sufficient cash available to cover all purchases. Inability to pay for securities when presented by the seller for settlement will result in a *failed settlement* and an interest claim from the settlement date up to the date on which the purchase finally does settle. A secondary objective is to make effective use of any cash balances (whether uncommitted or pending trade activities) and in so doing enhance the returns (interest received on credit balances) and reduce the funding costs (on overdrafts and credit facilities).

Table 3.5 Cash inflows and outflows

Cash outflow	Cash inflow
<ul style="list-style-type: none"> • Call payments on partly paid bonds • Subscription monies for warrant exercise • Payments of uncommitted cash balances for money market purposes • Fees, charges, etc. 	<ul style="list-style-type: none"> • Interest receipts • Full/partial redemption proceeds • Receipts of cash to cover anticipated purchases

Cash positioning and cash management is the process that includes cash inflows and outflows from *non-trading events* as shown in [Table 3.5](#).

Efficient cash management seeks to anticipate future cash movements from a variety of sources in order to ensure that cash is in the right place at the right time, to reduce funding costs and to enhance returns on uncommitted cash balances.

Predicting future cash balances is straightforward when sales, purchases and other events take place as expected. This becomes more problematic when trades fail as it is not usually possible to know the settlement outcome until it has actually taken place. In addition, there will be separate instruction deadlines for transferring sufficient cash to meet the underlying obligation.

In addition to the cash funding, sellers must ensure that there are sufficient securities available for delivery. Where there are insufficient bonds available (through previous failed purchases, turnarounds, short selling, etc.) steps should be taken to deal with this situation. Participants will receive regular reports from their clearing organization or custodian organization listing all the securities and cash balances and will include warnings of any potential or actual restrictions to securities deliveries and cash payments.

However well the pre-settlement processing has gone, there will be settlement failures. Research shows that, on average bond transactions in the developed markets settle on time at a rate in excess of 95%.

There are several reasons why settlement failure can occur as shown in [Table 3.6](#).

The consequences of a failed trade occurring will result in one or more of the following situations:

- One failed settlement might prevent other trades from settling through either lack of securities in sufficient quantity or insufficient cash.
- Funding costs and interest claims will occur.

Table 3.6 Reasons for settlement failure

There are insufficient bonds available for delivery	Selling participant may: <ul style="list-style-type: none"> • be unable to borrow • be unable to recall bonds out on loan • be awaiting receipt of bonds from purchase
There is insufficient cash	Buying counterparty may: <ul style="list-style-type: none"> • have cash funding or payment problems • be awaiting proceeds from a sale
Trade instructions are unmatched	<ul style="list-style-type: none"> • One or both counterparty(ies) has/have failed to input correct details • Both counterparties are in dispute • Operational error
Bonds are unavailable for delivery	Clearing organization has blocked deliveries in respect of a corporate event or action

- Resolving failure problems takes up valuable staff resources.
- Organizations who repeatedly cause trades to fail will get a bad name in the market and counterparties may be less willing to contract business with them.

Therefore resolving failed settlements is important. Depending on the circumstances, the choices are to simply wait until there are sufficient bonds or cash available or alternatively for the seller to try to borrow the bonds. If these options are inappropriate, there are two formal courses of action available:

- *Seller is unable to deliver bonds.* The buyer has the right to issue a “buy-in” notice³ to the seller whereby the buyer purchases the bonds from another counterparty (“buy-in” agent) who has sufficient bonds to settle the trade. The original trade is then closed-out and the difference in cash amounts settled between the seller and buyer.
- *Buyer is unable to receive bonds.* The seller has the right to close the trade by means of a “sell-out.” In this case the seller sells the bonds to another counterparty (“sell-out” agent). The difference in transaction monies plus loss of interest on the sale proceeds is settled between the seller and buyer.

An obvious question is what steps can be taken to reduce the risk of failure?

In bond markets with high volumes, the turnover in a particular issue might exceed the total amount of the issue itself. This could be further impacted if there is a futures contract listed on the derivatives exchange that requires the delivery of a bond in settlement.⁴ These situations, allied to

the issue being rather illiquid (investors retaining their holdings in custody and not actively trading the issue), might cause a blockage in the settlement chain or simply a shortage of bonds available to deliver.

It might be appropriate for a market to settle trades on a net basis rather than a gross (i.e., trade for trade) basis. Depending on volumes, the options are as follows:

- Trade for trade
- Bilateral netting
- Multilateral netting
- Continuous net settlement
- Real-time gross settlement.

How serious is the problem of settlement failure? The funding costs associated with interest charges and lost opportunities to promptly reinvest cash balances are influenced by the following components:

- The average size (value) of the trade
- Interest rates set in the local market and by the clearing houses, etc.
- The proportion of trades that fail to settle on the original settlement date
- The length of time for which they are outstanding.

The direct market participants such as the dealers, brokers and market-makers will also be obliged to consider the impact of failed settlements on the organizations' financial resource requirements. The need to bring in further capital to cover this increases the cost and, therefore, there is an impact on the profit and loss of the trade to the organization concerned.⁵

What other settlement issues are there with bonds? Custody is a term that relates to a variety of events that take place outside the settlements arena. Once a security has been settled, it must be kept in safekeeping for as long as the investor owns the security. However, further settlements activity might occur as the result of custody-related events including, for instance, the interest payments. Some example conventions are given in [Table 3.7](#).

Once the correct beneficiary has been identified, all that remains is for the interest to be paid. If the bond is held physically and is a bearer bond the coupon will be detached from the bond certificate (see [Fig. 3.1](#)) before being presented to the issuer's paying agent. The relevant amount of interest, as indicated on the coupon, is paid to the presenter of the coupon ([Fig. 3.2](#)).

However today many bonds are held in electronic format and are registered so for example the custodians account is automatically credited with the relevant interest. Note: government bonds may pay interest free of income tax.

Table 3.7 Types of settlements

Security type	Normal rules
UK government (gilts)	Gilts go "ex" 7 business days before the interest payment date. (An exception is the 3½% War Loan which goes "ex" 10 business days before the payment day)
Eurobonds (held by Euroclear and Clearstream)	Both Euroclear and Clearstream use a record date to establish which bond holders are entitled to receive the interest payment. The record date is usually the close of business, 1 day before the payment date of the interest. After the record date, settlements are processed ex-coupon
German bonds	The record date is the close of business, 1 day before the payment date of the interest
Netherlands	The record date is the close of business, 1 day before the payment date of the interest
Denmark	The record date is 1 month and 1 day before the payment date of the interest
Japan	Record date prior to interest payment is:
<ul style="list-style-type: none"> • Samurai bonds (bearer) • Samurai bonds (reg'd) • Daimyo bonds • Shogun bonds (bearer) • Shogun bonds (reg'd) 	<ul style="list-style-type: none"> • 6 business days in Tokyo • 21 calendar days • 1 business day • 1 business day in Tokyo • 21 calendar days
Australian global bonds	The record date is 14 days before the payment date of the interest

**Fig. 3.1** A bond certificate. Source: *The DSC Portfolio*.



Fig. 3.2 Coupons. Source: *The DSC Portfolio*.

Bond issuers usually make interest payments on either an annual or a semi-annual basis, although there are bonds on which interest is paid quarterly. For fixed-rate bonds, where the amount of interest does not change throughout the life of the bond, the amount of interest and the payment date will be printed on the coupon. Interest rates on FRNs fluctuate with movements in the money markets. As the interest rates change, it is not possible to print the amounts on the coupons. For this reason, the FRN coupons will differ slightly from the fixed-rate coupons. Issuers advise bond-holders of the new interest rate and next payment date by advertising the details in journals, information vendors and informing the likes of Euroclear and Clearstream, through their depository banks. For holders of International/Eurobonds⁶ held by Euroclear and Clearstream depositories, their cash accounts will be credited on the payment date with same-day value (the exception being Yankee bonds which pay with next-day value).

Should a scenario occur where a trade, dealt “cum,” i.e., entitled to receive the payment, does not settle until after the record date, the coupon is paid to the bondholder who held the bonds on record date, i.e., the seller. With many systems like EuroclearrestT⁷ in the UK, for example, the system automatically recognizes that the rightful recipient of the coupon should have been the buyer and the result is that the seller’s cash account is debited and the buyer’s cash account is credited with the full coupon payment. Where bonds settle outside these clearing houses and CSDs, a late settlement will require the claiming of the interest from the seller.

A repayment of capital occurs when there is a partial or full return of the bonds to the issuer in exchange for cash. We have already noted that the terms of any repayments will be included in the original issue prospectus.

There are several instances where this might take place:

- Final redemption
- Early redemption (issuer’s call option—callable bond)
- Early redemption (bondholder’s put option—puttable bond)
- Partial redemption (drawing).

The depositories will present the bonds for repayment and debit the participants’ securities accounts and credit the cash accounts with value on the repayment date. In order to allow sufficient time to surrender the bonds, the depositories will usually block the positions in order to prevent any further bond movements.

A convertible bondholder is entitled to convert during a conversion period, usually at any time from 90 days after the bond was issued up to the final redemption date. However, any accrued interest is lost on conversion and the price of the bond must allow for the lost interest when calculating the conversion premium.

The bondholder instructs the custodian to withdraw the bonds from custody (from the depository bank) and to deliver them to the conversion agent. The conversion agent will execute the conversion in accordance with the terms of the issue and local market practice. The shares that have resulted from the conversion are subsequently delivered in accordance with the bondholder’s original conversion instructions. Furthermore, there will be a delay of several days or weeks before the shares are made available to the shareholder or custodian.

Another corporate action to consider is where a bond has a warrant attached. There are bonds that are issued “cum-warrant.” These warrants can be split away from the host bond and be exercised at the holder’s option into a specified amount of shares at a pre-determined price and at a

set time(s) in the future. This “purchase” or exercise requires the payment of cash to the issuer of the warrant. The subscription terms of the warrant issue will state the exercise price and the date or period during which the exercise might take place. An exercise may take place at a time pre-specified by the issuer. These are either:

- on an annual date, or
- during a pre-defined period, or
- at any time.

In terms of giving instructions to exercise their warrant, the holders do much the same as with conversions except that an additional amount of cash must be paid to the issuer in exchange for the underlying shares.

Warrants can be re-attached to the host bond so it is worth noting here that there are three possible securities, each with separate ISINs—Bond cum Warrant, Bond ex Warrant and Warrant.

A further key element of the settlement process for securities including bonds is the reconciliation of cash and bond positions.

There are many different situations when bonds are received and delivered and cash is paid and received. These can happen together (delivery versus payment transactions) or separately (conversion of bonds into equity), partially or in full.

Whether securities or cash related, market participants will keep accurate records of all movements and positions. An analogy we could use would be the protection systems used on some railways where the driver's skill and experience are the first line of defense in preventing problems and safe operation, but should the driver become ill or make a mistake and pass a danger signal, the train protection system activates the brakes to prevent a catastrophe occurring. Like most safety nets, the “train protection systems” must work correctly for them to be effective.

Reconciliation, then, is the process by which cash and securities ledger positions are agreed to a third-party's records with any differences or imbalances identified, investigated and resolved without delay. Reconciliation staff need to understand the processes and act as risk managers by analyzing the records, identifying the problems and resolving them. To do this work effectively they require various product and personnel skills to enable them to deal with some of the following situations.

Cash (or bank) reconciliations are relatively straightforward to process insofar as the bank statement is compared to the ledger and any unreconciled items recorded on an “outstanding items sheet” or something similar. In what was historically a very manual process the following basic steps

were applied which of course today are usually automated with the team focusing on the exceptions and investigations:

1. Compare bank statement to ledger, validating items that match.
2. Identify and record bank statement entries that cannot be identified—exceptions.
3. Identify and record ledger items for which there is no bank statement entry—exceptions.
4. Prepare reconciliation sheet—system produced.
5. Identify operational sections (if possible) who might investigate exception items.

What makes cash reconciliations so problematic is the sheer quantity of items that pass over a client's account especially when the client uses several of the bank's services. To alleviate the problem, as we have said the process is as far as possible automated with only exception reports being produced. This saves time and in any front line or "safety net" scenario time is of the essence.

Reconciliation of bond positions are performed by comparing the investor's ledger records to those of the custodian or ICSD where the bonds are held, or to the actual bonds physically held in, for instance, the vaults of the appropriate organization (e.g., Common Depository, Specialized Depository, Common Safekeeper, Custody account).

As the reconciliation is prepared from a trade date position and the custodian's records reflect the actual (settled) position, there will be differences, which can be made up of:

- trades pending settlement
- failed settlements
- corporate actions
- securities lending and borrowing positions
- bond positions blocked for whatever reason by the custodian.

Any additional differences that cannot be accounted for will indicate a problem and should be investigated without delay. It may seem a little obvious, but the routine of settlement is a discipline that must be adhered to and invoked if risk is to be managed and the following basic steps should be applied:

1. Compare custodian's balance to ledger, ticking-off items that match or by automated reconciliation.
2. Identify and record ledger items for which there are no corresponding custodian balances.

3. Identify and record custodian items for which there are no ledger records.
4. Prepare reconciliation and outstanding queries data for distribution to relevant people.
5. Ensure that outstanding items are investigated and resolved immediately.
There are also certain regulatory requirements that pertain to settlement of securities covering areas such as:
 - Specifying detailed record-keeping requirements
 - Reporting trades and positions to regulators and other authorities, for example the central bank
 - Requiring routine counts (including obtaining confirmations from external custodians) and reconciliation with the records of customer investments held
 - Client reporting and valuation processes.

As part of the comprehensive reporting services provided by the custodians in general and the ICSDs in particular, there will be reports covering most of the operations team's requirements and these are supplemented by reports generated from internal systems.

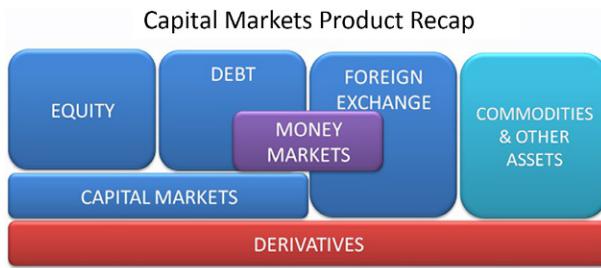
When we look at the settlement of securities in general and bonds in particular we can see that there are fundamental procedures and processes that make up the bulk of the work. Today much of this is either automated or will become so soon electronic trading, clearing and settlement occurs. The settlement of equities is a little different, not least because the settlement conventions are currently longer and most equities have been traditionally registered securities. In the next chapter we look at equity settlement and it is important to note the differences.

However, before we do that, we should look at the role of the treasury function who will be active in bonds as well as other instruments like money market products and the role that the treasury operations team will have.

Treasury or cash management is as we have said critically important in a successful business of any sort ([Fig. 3.3](#)).

The treasury function has several key tasks related to utilizing excess cash and borrowing requirements in the most advantageous way across the business units in the firm.

This can range from receiving funding requirements, short, medium and long term from specific business units to ensuring a bank for instance is maintaining its capital adequacy requirements under the regulatory framework.



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Fig. 3.3 Capital markets sectors. Source: *The DSCPortfolio Ltd.*

Treasury Responsibilities

- Longer term funding
- Shorter term liquidity
- Capital adequacy
- Process payments and receipts
- Currency management/foreign exchange
- Risk management
 - Market, credit and operational



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Fig. 3.4 Treasury responsibilities. Source: *The DSCPortfolio Ltd.*

Utilizing excess cash internally and externally is a key task and so having data on current and expected cash flows across the business units is a key requirement.

For example the operations team in equities may have a situation where the net funding for a particular date is negative. The following day it is a positive so the settlement team need to be funded overnight so that they can fulfill the settlement, like an overdraft.

Treasury will arrange this funding either by using excess cash elsewhere in the firm or borrowing externally. The cost will go against the equity business unit and becomes part of the profit and loss for the unit.

Fig. 3.4 shows some of the potential responsibilities of the team:

Treasury will have several key relationships internally as shown below.

Treasury Relationships - Bank



The treasury process centralizes some of cash management whilst at the same time leaving business units to manage their own cash management, for example treasury funds £Xm for the equity settlement team who will then make the payments utilizing that funding.

The treasury operations team supports the treasury traders activity and the figure below shows some of their workflow which is not that dissimilar to the operations teams in the business units.

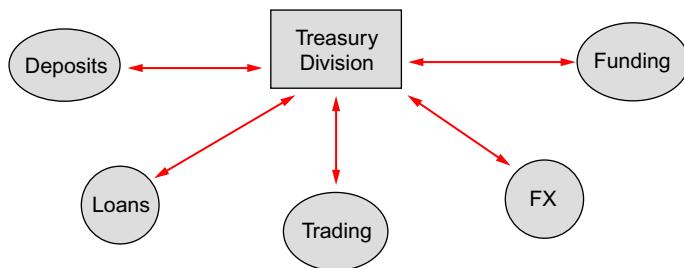
The Workflow

- Data and trade capture
- Confirmation
- Value date funding
- Cash flow & liquidity management
- Instructions
- Delivery versus payment & free of payment
- Settlement methods
- Reconciliation of Nostro/Vostro accounts
- Problem resolution



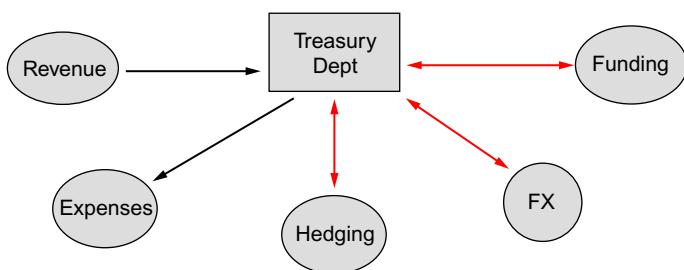
Some of this workflow is covered later in the book so we can summarize the treasury role by looking at the following three figures for banking, corporate business and investment funds.

Treasury Structure - Bank



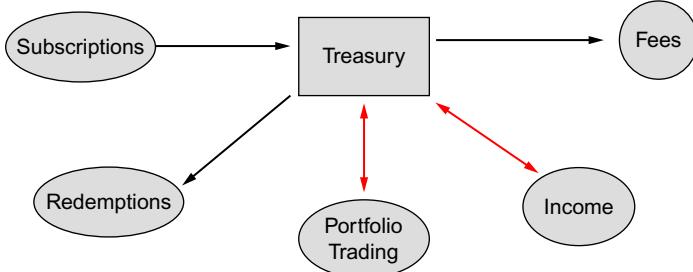
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Treasury Structure - Corporate



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Treasury Structure - Fund



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The above figures are all sourced from the DSCPortfolio Ltd. Clearing, Settlement and Custody training course.

We will look at equities in the next chapter as well as considering the foreign exchange market and its associated settlement infrastructure.

Summary

Bond trading and settlement processes and procedures have undergone change and are continuing to do so. For the clearing and settlement teams

debt instruments are about interest and redemption on maturity, plus the many variations that can be found among the instruments.

Accruing the correct amount of interest, valuing discounted instruments correctly, managing conversions, warrants and embedded options as well as ensuring the proceeds from redemptions are recorded in the cash forecast and then the bank account are the areas where the tasks originate.

Readers may wish to look at the exercises at the end of the book.

As always in operations, systems and a good database are essential.

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CHAPTER 4

Equity clearing and settlement

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Introduction

When an investor purchases a share in a company they have acquired a stake in the equity of that company. Through the share purchase they are buying partial ownership in the issuing company. The number of shares owned by the investor in proportion to the total number of shares outstanding determines the extent of the ownership an investor has in a company. For the private investor, this is likely to be a very small percentage, but the larger funds can often have reasonably significant holdings. Not all equity-related instruments give the buyer ownership and it is very important to understand not only the equity shares characteristics, but also those of the various other types of instruments.

A share may offer the following “rights” to investors:

- The *right to vote* in company matters.
- The *right to have access to company books and records* (accounting and record keeping).
- The *pre-emptive right (or right of first refusal)*. This means that if the company issues new securities, the current holders may have the right to purchase additional shares to maintain their proportional ownership of the company. This offer to the original holder is generally given before the offer is made to the public.
- The *right to share in the company's profits* through dividend payments.

These basic rights are important in terms of settlement as they will have actions associated with them, for instance corporate actions in respect of rights issues, dividends, etc. Within the realm of equity securities are various classes of equity instruments such as ordinary shares, preference shares, etc. Foreign markets will support equities, which may be similar to some of the above, but with different terminology. For example:

USA—Common Stock/Preferred Stock

France—Action Ordinaire (Ordinary Share)

Germany—Stamm-Aktie (Ordinary Share)

Japan—Futsu Kabushiki (Ordinary Share)

We need to consider the different characteristics of each of the classes of equity instruments, starting with the most common type, the ordinary share, as shown in [Table 4.1](#).

Table 4.1 Classes of equities

Class	Characteristics
Ordinary shares	Ordinary shares represent partial ownership in a corporation. Characteristically shareholders will have the right to vote in the election of the board of directors. They will also have the pre-emptive right to purchase any additional shares sold by the company and to receive a dividend, but only if the directors decide to issue a dividend. This dividend payment will generally be received when a dividend is declared, but only after preferred shareholders have been paid. In addition, if the company is liquidated, (un)secured creditors, bondholders, and preferred shareholders have a prior claim to the company's assets before the common shareholders

Table 4.1 Classes of equities—cont'd

Class	Characteristics
Preference shares	<p>Preference shares also represent ownership in a corporation. Characteristically shareholders will:</p> <ul style="list-style-type: none"> • generally have no voting rights • generally receive dividends before the ordinary shareholders <p>The dividend is frequently fixed as a percentage of the share's stated value. However, <i>the dividend is not guaranteed</i>. If the company does not post strong earnings, the directors can omit the preferred dividend. A <i>cumulative</i> feature may be attached to a preference share, which states that all dividends in arrears must be paid to holders at some point in time prior to any dividends paid to common shareholders. <i>Participating preference shares</i> may benefit from an increased level of dividends if the company does well. <i>Redeemable preference shares</i> have a fixed repayment date and may be entitled to more than their nominal capital amount (face value).</p> <p>Preference shareholders generally have priority over ordinary shareholders to the company's assets in the event of bankruptcy or liquidation. Some preference issues have:</p> <ul style="list-style-type: none"> • a “<i>callable</i>” feature, which stipulates that the issuer may, at a time or times as is in the provisions of the issue, call an issue for redemption • a <i>convertible</i> feature making the shares “convertible” to ordinary shares at maturity or sometimes during the life of the issue
“A” or non-voting shares	<p>There are some companies that issue shares with restricted or no voting rights. These shares are entitled to receive dividends and, in the event of a liquidation of the company, they rank alongside the ordinary shareholders.</p> <p>Historically families have retained control of the company by holding a majority of voting shares and making the non-voting shares available to the public</p>
Deferred shares	<p>Deferred shares usually do not qualify for a dividend until the company's profits have reached a preset level, or until a particular date</p>
Designated and foreign registered shares	<p>Shares are sometimes designated for domestic investors and foreign investors and also they can be designated as registered in a particular country. Often these shares are not fungible so, for instance, a purchase of London registered and a sale of Hong Kong registered shares are in fact transactions in two quite separate stocks</p>

Issuing and trading equities

When a corporate entity offers its shares to the public for the first time, it is said to be going public. This “Offer for Sale” (or Initial Public Offering—IPO) will be underwritten by investment banks or brokers. A prospectus containing information on the issuer, the terms of the issue, the management structure and any other important aspects of the issuer is prepared. The issue itself will either be placed among clients of the brokers (institutional investors) or advertised to the general public through the publication of mini-prospectuses and application forms in the financial press and elsewhere.

Any shares which are not bought by the public will be taken up by the underwriters who will take the shares onto their own books or sell them on to their own clients. On the other hand, issues that are initially oversubscribed will be distributed on a scaled-down basis. One of the consequences of an oversubscription is that the share price will rise to a premium over the issue price when it starts trading in the secondary market.

As noted above placement is where the shares, instead of being offered to the wider market including the public are instead “placed” with major institutions.

Settlement

Transactions in shares are processed in much the same way as with debt instruments, i.e., trade confirmation followed by instruction matching and final settlement. There are, however, some differences in terms of both methodology and performance.

Shares are becoming increasingly immobilized or dematerialized. This enables shares to be delivered by book-entry rather than by physical transfer. In turn this does lead to more efficient settlement, but falls short of the overall settlement performance figures of debt instruments. Settlement of many equities is on a T + 3 basis in line with the recommendations of G30/ISSA and the aim is to reduce this still further to T + 1. As settlement cycles shorten, the role of the clearing houses and securities depositories becomes crucial.

As with debt market instruments, equities transactions will also be settled and held through third-party organizations. In some markets, the clearing house will be independent of the depository or one and the same. Historically, most third-party clearing houses and depositories have usually dealt with either equities and equity-related instruments or debt and debt-related instruments. In some instances, a single organization, such as the Danish Vaerdipapircentralen, handled a cross-section including bonds, shares,

warrants, convertible bonds and unit trust shares. Today, however, as change in the industry leads towards rationalization and centralization in the markets, these organizations are increasingly dealing with multiple products.

As noted earlier in the book in the UK Euroclear and LCH.Ltd. provide settlement of equities traded on SETS on a T+2 basis through a central clearing counterparty facility (EquityClear). Euroclear also settles bonds and money market instruments, unit trusts and open-ended investment companies (OEICs).¹

The CCP facility is a similar arrangement to that used for exchange traded derivatives and is also in use on ICE Europe securities and derivatives markets, including Euronext securities through the clearing house LCH. SA.² The international CSDs Euroclear and Clearstream we know both offer a service based on a variety of securities and funds.

We referred to funding and cash management in the previous chapter. With the comparatively slower settlement performance of equity transactions, albeit a situation that has improved considerably, and the issues surrounding registration timing for those securities that are still either paper, like private companies or non-ccp/csd again like unlisted securities, the funding of equities transactions will be more difficult to manage for the operations team. Consequently, it is likely there will be higher costs associated with this settlement activity and particularly so if we are talking about cross-border settlement.

However the development of Target2Securities was designed to reduce overall costs of settling securities in Euros but from issuers in different countries.

Settlement fails have just as great an impact on equities as they do on bond settlement. Although many major market equities are processed through a CCP and clearing houses and custodians offer stock lending and borrowing services, often automatically utilized, to prevent settlement fails and despite the longer settlement cycle, they still occur. A major problem is encountered when a settlement fail coincides with a corporate action.

So what kinds of corporate action happen on equities?

Corporate actions

There are various types of corporate action:

- A *benefit distribution* is a distribution made by a company to its shareholders in the form of cash, securities or a combination of both in cases where an entitlement is a fraction of a share. Distributions are usually made in proportion to the investor's holding as at the record date.
- *Cash benefits* include dividends, thus issuing companies will pay a cash benefit, a dividend, to shareholders on a regular basis. This is typically on

a semi-annual or quarterly basis. As the dividends are paid from profits, the amount of cash paid will change from payment to payment and, depending on performance, may not be paid or passed as non-payment is sometimes called.

As the majority of equities are represented in registered form, it is theoretically straightforward for the issuing company to identify the beneficiaries. Where equities are in bearer form, the issuer will require some form of proof before making a payment. This proof, as with bearer bonds, is in the form of a coupon (or talon), which is detached from the share certificate and presented to collect the amount due. It is important to reiterate that bearer instruments are in decline and many countries have regulations that prevent the issue of such instruments.

A problem arises for a “cum-dividend” purchaser, whose name is not recorded on the company’s share register in time to receive the dividend. In order to establish correct entitlement, it is important to understand how some key dates come into play. These dates are the *record date*, the *pay date* and the *ex-date* or *ex-dividend date*.

Record date

The record date is the date upon which the corporation (issuer) or its agent (the Registrar) closes its books for the purpose of capturing the names of the legal owners to whom the distribution will be paid. All legal owners will participate in the distribution, whether or not they are the beneficial owners. In other words, the issuer will pay the “registered holder.” If shares are sold or given to someone else, they will need to be re-registered in the new owner’s name. Until such time as re-registration is performed, the seller is still the legal owner and therefore the initial recipient of any benefits.

For securities that are traded in physical form, the buyer (the new beneficial owner), or their fiduciary agent (broker, bank custodian), should submit the physical shares to the Registrar (or transfer agent), appointed by the issuing corporation to handle such transactions. The Registrar will cancel the old certificate(s) and issue new ones. The new beneficial owner (or its nominee) has now become the new legal owner. A list of owners will be supplied to the issuer’s paying agent in order that they may disburse income payments to shareholders of record on the pay date.

It is not difficult to differentiate the likely problems between certified and dematerialized equities. On the one hand, there could be long delays in getting the paperwork completed so registration before the record date may not be possible while, on the other, the book-entry process for

dematerialized settlement makes it more likely that the registration change will have occurred by the record date. We look further at the issues surrounding dividend payments later in the book.

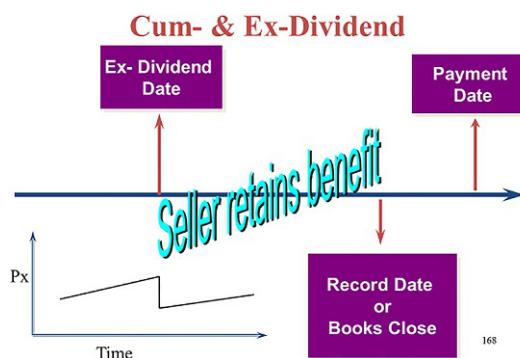
Pay date

The pay date is the date on which the issuer or the agent pays the distribution to the owners on the record. An important goal is to disburse income payments to clients on time; that is, on pay date. The paying agent may be a financial institution or company treasurer who is named as the organization or person responsible for disbursing payments to share/bond holders on behalf of the issuer.

Ex-date

The ex-date (or ex-dividend date) is the date upon which the security begins to trade without the declared benefit (dividend, interest, etc.). Investors who purchase securities “cum the entitlement” are entitled to receive any benefits that the issuer decides to distribute. In theory, it is quite possible for a re-registration on such a purchase to be late. In this case the seller would receive the benefit, albeit not being entitled to receive it, and would need to pass on the benefit to the rightful owner.

The local stock exchange will determine a date, known as an ex-dividend date, after which any purchaser will buy without entitlement to the particular current benefit. Instead the seller retains the benefit. This ensures that there should, in the majority of cases, be no need to initiate a benefit claim as the “cum” transaction should have settled before the record date and any transaction after the “ex” date, but before the record date, will not be entitled to this payment.



Example – ABC plc

- **Year End** – 31st December
- **Dividend** – Final
- **Gross Amount** – 14.4p
- **Announcement Date** – 20th March
- **Ex-dividend Date** – 1st April
- **Record/Close of Books Date** – 7th April
- **Pay Date** – 20th May

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Fig. 4.1 Dividend timetable. (Source: The DSCPortfolio Ltd. Clearing Settlement and Custody training course.)

[Fig. 4.1](#) shows the relevant dates for a dividend payment.

Repayment of capital

A *capital repayment* is a partial repayment of a company's issued capital. The company pays each shareholder a proportion of the value of the shares at the current market price. While the number of shares issued remains the same, the nominal value of each share is reduced by the amount of the capital repayment per share.

Stock benefits

Some corporate actions are based on stock rather than cash payments. An example of one such action is a rights issue ([Fig. 4.2](#)).

Example – ABC plc 1 for 4 Rights Issue

ABC plc has a current share price of 500p

ABC, to raise capital, announces a 1 for 4 rights issue
@ 450p

The share price will alter:

Before issue 4 shares @ 500p	2000p
Rights issue 1 share @ 450p	450p
After issue 5 shares	2450p

Theoretical ex-rights price $2450/50 = 490p$

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Fig. 4.2 Rights issue outcome. (Source: The DSCPortfolio Ltd Clearing, Settlement and Custody training course.)

Rights issues

A *rights issue* is a further issue of shares offered by a company to its existing shareholders and in proportion to their existing shareholdings as at a record date. Shareholders are offered the right to subscribe for new shares on or before a pre-determined date, in a ratio to their holdings, at a price below the current market price.

The operations team's first task is to ascertain what the terms of the rights issue are. This will be announced by the exchange and the company and the custodians will provide their clients who have a shareholding with full details of the issue including dates and payment amounts.

There are several options available to a shareholder when a rights issue is announced. The nil-paid rights can be sold for cash, the rights can be accepted and paid for by making a cash payment (known as a call payment) and the nil-paid rights can be allowed to lapse, i.e., neither traded nor accepted. Alternatively, sufficient rights can be sold and, with the proceeds, the remaining rights taken up for no cost called splitting the rights.

Capitalization

Usually referred to as a *bonus issue* or *a scrip issue*, a capitalization is the free issue of shares to existing shareholders in proportion to the shareholders' balances as at record date. In this case, the shareholder does not need to give any instructions; however, they should be aware of the issue by being informed by their broker or custodian or from company announcements. This is important because the number of shares held will change and so will the price of the shares.

For example, a one-for-one bonus issue is announced with the shares currently priced at £20. An investor currently holds 100 shares. After the bonus issue the investor will have 200 shares and the price will now be £10.

Example – ABC plc 2 for 3 Scrip Issue

ABC has a share price of £15 and decides to make a 2 for 3 Scrip or bonus issue

A shareholder has 3000 shares so their position will be:

Before scrip issue	3000 shares	@ £15	£45,000
Scrip	<u>2000</u> shares	-	-
After scrip issue	5000 shares		<u>£45,000</u>

Effective share price is now £9 (called the *ex-scrip* price)

Scrip dividends

Scrip dividends are a method companies use to distribute profits in the form of shares instead of cash. The shareholder is offered the basic benefit of receiving cash or given the option to receive shares. Entitlement to scrip dividends is based on shareholdings on the register as at record date. The number of shares offered takes into account the amount of dividend payable and the underlying market price of the shares.

The operations team and/or the custodian must ensure that the dealer's or client's instructions are obtained and passed on. Although the company will usually pay the cash dividend in the absence of any instructions to the contrary, it is important to check the terms of the issue in case the basic offer is for scrip. In most cases, it is possible to issue standing instructions for future scrip dividends.

Stock situations

A stock situation is any event that changes the nature or description of a company's securities. Stock situations are either optional, where the shareholder has a choice, or non-optional, where the shareholder is required to accept the company's decision for the change.

There is the problem of collating sufficient information to allow the dealer or client to make a decision where appropriate and ensuring that the results of the stock situation are correctly received. Examples of *optional* and *non-optional* stock situations are given below.

Take-overs

This is a situation in which a bidding company wishes to obtain a controlling interest in a target company. It is optional for the investor to the extent that he or she can accept or decline the offer within the deadline specified by the bidder.

If, in the terms of the offer, the bidder agrees to take over 100% of the company on condition that there is, say, a 75% acceptance level, then the remaining shares are compulsorily acquired, i.e. the situation becomes non-optional for those shareholders who did not accept the offer.

(Warrant) subscriptions

A subscription is optional and gives the holders of warrants the right to "exercise" the warrant in exchange for equity by making a subscription

payment to the issuing company. If they are not exercised by the last possible date, the warrants expire worthless.

***Pari passu* lines of a security**

This is an area that can cause many problems for the operations teams, custodians and investor alike. A company might issue securities that are identical to existing securities already in circulation except that, for a pre-determined period of time, the new securities do not qualify for a particular dividend or are subject to some other type of restriction. Once this period is over, the two lines of securities are merged and become *pari passu*, they rank equal in all respects.

Until the two lines of securities become *pari passu*, they are given separate security codes and, in addition, will trade at different prices. The operations teams, custodians and investors must be aware of these differences and reflect the holdings accurately in the records.

Liquidations

An investor holding shares in a company that goes into liquidation will be in the situation where the security is probably not only worthless but also un-negotiable. The security will be suspended in the relevant stock exchange(s) until such time as the liquidator is able to repay amounts due to the various classes of creditor. Once there is no more cash that can be retrieved for the creditors, the company is wound up and any certificates or book-entry records canceled.

This process can take years to resolve and it is important to ensure that any information is received, passed to the client if appropriate and that all expected liquidation payments are collected and, where applicable, paid to the client.

Proxy voting

Proxy voting has been defined by the International Securities Services Association as “the exercise of the voting right(s) of an investor in shares, bonds and similar instruments through a third party, based on a legally valid authorization and in conformity with the investor’s instructions.” Depending on the country in which the “proxy” is being exercised, the “third party” can be a bank, or a person designated by the company, or another shareholder.

Proxy voting generally takes place at shareholders’ meetings of companies (annual general meetings and extraordinary general meetings) for

the purpose of approving or rejecting certain pre-advised resolutions. Incidentally the same principles generally apply to bondholders' meetings (e.g. in the case of bond issues that are in default and voting about restructuring measures), in which case a special creditors' representative may publicly offer to represent bondholders.

Proxy voting can be subject to more or less stringent restrictions depending on national legislation and company by-laws. In each case, therefore, the legal aspects must be carefully examined. It is also worth noting that in some countries, for instance the USA, voting on company matters is actively encouraged.

Summary

In this chapter and in the previous one we have looked at some of the issues surrounding settlement of bonds and equities. Obviously corporate actions are mainly unpredictable and usually have specific deadlines and timings. The settlement process itself is becoming far more uniform with immobilized and dematerialized settlement by book-entry replacing certificates and bits of paper. Also the participants, such as depositories and clearing houses are becoming multi-product based and offer a wide ranging package of services. As T+1 becomes standard so the central clearing counterparty process will become standard and most of the problems associated with settlement of the more liquid and heavily traded equities will cease to exist.³

Until that time the problems of settlement fails and claiming of benefits will occupy the operations teams and managers.

As with debt instruments the clearing and settlement process has changed and continues to do so as rationalization happens at market and post-trade levels.

Apart from ensuring that the settlement process is correct for transactions, the operations teams must also deal effectively with the corporate actions that can occur on equities. Corporate action events can cause problems and losses, sometimes very large losses, if not managed and readers may wish to look at the exercises at the end of the book for examples of this.

Securities lending and borrowing is also an issue that the equities operations teams may be involved in and this is covered in [Chapter 8](#).

In the next chapter we look at the settlement of derivatives and this will enable us to see what the future holds for securities settlement as the CCP is introduced to most of the major equity markets.

CHAPTER 5

Clearing and settlement of derivatives

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Introduction

Today, the derivative markets are truly global with both exchange traded futures and options contracts and OTC derivative products based on a wide range of asset classes encompassing currencies, commodities, interest rates, bonds, equities and credit default insurance.

This vast array of derivative products traded today would seem unbelievable to the farmers and merchants of the Midwest, USA in the mid-1800s, who first started trading futures contracts of a form similar to those today.

There are many examples of the problem that certain companies have had with derivatives trading and, indeed, derivatives were, in some people's eyes, implicated in the market crash of 2008, but, as you will see from the examples shown in this booklet, if used properly derivatives are excellent tools for risk management. The problems that have occurred have generally been in situations where derivatives have been misused. In all such cases there has been a lack of understanding of the products characteristics, the way in which they can be used, the suitability or the risks involved, coupled with a lack of appropriate controls and procedures.

For example, with the collapse of Barings Bank in the 1990s there was significant misuse. A trader was carrying out unauthorized deals and "hiding" the resulting exposure the Bank was taking. The losses that he was making in his "hidden" account were substantial, yet he was reporting a profit in the Bank's accounts. However, the real fault lay with the lack of understanding and control at senior management level that allowed this uncontrolled position and unauthorized trading to go on for so long. It was compounded by the fact that the trader was also in charge of the operations function that settled the trades!!

Other examples would be the \$6 billion loss suffered by a hedge fund due to a position created by one trader in futures contracts or the trader at a French bank whose positions were once again not reflected in the firm's records and were allegedly not known by management. There are numerous case studies that can be looked at.

So there have been well-publicized "problems" with derivatives and yet we should note the fact that millions of contracts are traded quite safely by numerous organizations around the world every single day. These transactions are doing the job they were intended for, i.e., transferring risk from those that wish to get rid of it (hedgers) to those that wish to assume it (speculators); through risk hedging and trading strategies that enable banks, fund managers, corporations and private investors to increase or decrease their market exposures efficiently and cost effectively.

Exchange traded futures and options

Definitions

There is much jargon surrounding the futures and options industry and to make matters more confusing there is often more than one word that has the same meaning. The generic term used is "*derivatives*." It encompasses many different products and means more than just say futures and options, which are derivatives that have been around for hundreds of years.

Derivatives usually tell us something about what they will do in their title:

- Futures and forwards—something agreed today that happens later
- Options—something where we have a choice
- Swaps—the exchange of something.

Of course there are many variances on these three basic derivative structures.

Derivatives

A definition of a *derivative* is:

- a financial instrument whose value is dependent on, or derived from, the value of an underlying asset.

A definition of a specific derivative would for example be that a *futures contract* is:

- an agreement or legally binding obligation to buy or sell a certain amount of an asset at a certain time in the future for a certain price that is agreed today.

Futures contracts

A futures contract is where the buyer enters into an obligation to buy on a specific date and the seller is obliged to sell on a specific date. Exchange traded futures contracts are standardized in terms of the underlying, size, quantity, and time.

Futures contracts and options on futures are “marked to market” every day. This is the daily calculation and potential payment of the profit or loss against the previous day’s settlement (or closing) price and is known as “variation margin” by the clearing organization.

Futures can be bought to represent a “long” position and sold to represent a “short” position.

Example

A sale of 20 futures contracts with a maturity in June @ 107.39 can be made as an *opening* position, i.e., a *short* position.

The seller does not need to have an existing long or bought position. As a result of the above transaction the seller would now have a short position. To remove the obligation to deliver they would need to buy an equal number of June futures to close the position out. Alternatively they can take the contract to delivery if the contract specification permits.

Forwards

A definition of a *forward* contract is:

- a deal usually traded off exchange or over-the-counter (OTC) and has the same objective as a future that is traded on exchange.
- An example would be a currency forward contract traded today at forward rate that will apply at a later date

There are some operational differences, but basically a forward fixes a rate or value today that applies in the future.

As mentioned above an example of a common forward is found in the currency markets where we can fix a foreign exchange rate forward for settlement as well as a rate for immediate settlement, called “spot” rate.

Options

A definition of an *option* is as follows:

- In the case of the buyer—is the right but not the obligation to take (call) or make (put) delivery of the underlying product
- In the case of the seller—is the obligation to make or take delivery of the underlying product.

An option contract is either a Call or a Put option as described above. The specifications of an options contract, in addition to the type, include:

- *expiry date*: the last date that an option holder can “exercise” their right. After this date an option is deemed to have expired or be “abandoned”
- *exercise price*: the fixed price, per asset or unit, (sometimes called “Strike Price”) at which an option conveys the right to the buyer to either call (purchase) or put (sell) the underlying asset or instrument
- *premium*: the sum of money paid by the option buyer for acquiring the right of the option. It is the sum of money received by the seller for incurring the obligation, having sold the rights, of the option. Premium is normally paid or received on trade day plus one ($T + 1$).

Other common terms that are associated specifically with options are:

1. In-the-money:

A call option where the exercise price is below the underlying asset price or a put option where the exercise price is above the underlying asset price. These options are deemed to have “intrinsic value” of the in-the-money difference between the exercise price and the underlying asset price.

2. At-the-money:

An option, whose exercise price is equal, or closest to, the current market price of the underlying asset. This option has little or no intrinsic

value as there is no in-the-money difference between the exercise price and the underlying asset price.

3. Out-of-the-money:

A call option whose exercise price is above the current underlying asset price or a put option whose exercise price is below the current underlying asset price. This option has no intrinsic value.

Long and short options

Long and short are terms that describe the position held in the options in the same way as those terms describe futures.

When making an opening purchase the buyer of an option becomes known as a position “holder” and is said to be “long.”

When making an opening sale the seller of an option becomes known as a position “writer” and is said to be “short.” Option positions can be either long or short. Long or short option positions are closed out by a transaction of the opposite position.

Example

Sale of 100 XYZ Dec 600 Calls @ 69p

The seller or writer of this option has opened a short position giving the buyer or holder of the option the right to ask for delivery of XYZ shares at 600p anytime until expiry of the option in December.

For that right the buyer has paid the seller a price (also called a “premium”) of 69p. Each contract is for 1000 shares so the seller has received a premium of £69,000 ($100 \times 1000 \times 69p$) but, if this option is exercised by the buyer, the seller must deliver the shares for 600p irrespective of the price of XYZ in the market.

Clearly the buyer is expecting the shares to be above 669p ($600p + 69p$) by December and the seller is expecting the price to be below 669p, or be willing to sell the shares at this level.

Options on futures

Options on futures have the same characteristics as the options described above. The difference is that the underlying product is either a long or short futures contract. Premium is not paid or received on $T=1$ as these contracts are marked to market each day over the life of the option.

Example

Long 70 futures Dec 107.00 Put options @ 1-06

The buyer has bought the right to a short position of 70 futures at 107 (the seller will therefore have to assume a long position if assigned). For the calculation of variation margin the position is marked at 1-06.

If exercised before expiry, this option would provide the buyer with a short position, (because it is a put option), of 70 Dec futures at a price of 107.00.

For more explanations and definitions of various futures and options terminology, please refer to the Glossary of Terms document available in the appendices.

History of the market development and growth.

The development of futures markets can be traced back to the Middle Ages and revolved around the supply and demand of farmers and merchants. The early contracts were for delivery of grains like oats, corn and wheat.

The first traded futures market

The Chicago Board of Trade (CBOT)¹ was established in 1848, to standardize the size, quality, and delivery date of these commodity agreements into a contract. Once established the standardization enabled contracts to be readily traded. Thus the forerunner of today's markets was born and farmers or merchants who wanted to hedge against price fluctuations, caused by poor or bumper harvests, bought and sold contracts with traders or market-makers who were willing to make a two way price for buying and selling. Speculators, who wanted to gamble on the price going up or down without actually buying or selling the physical grain themselves, were also attracted to the market.

As a result in the contracts was created. The market-maker was, if he wanted, able to lay off the risk he had assumed from buying and selling with the hedgers, by doing the opposite buying and selling with the speculators. The market-maker's profit was the difference between buying and selling prices of his contracts. In essence, today's markets do the same job but in hundreds of different products.

In the 1870s, following in CBOT's footsteps, the Chicago Produce Exchange provided a market for perishable agricultural products like butter and eggs. After some upheaval in 1898, certain traders broke away and formed what is now known as the Chicago Mercantile Exchange (CME). In 1919

the CME was authorized to allow futures trading on a variety of commodities including pork bellies, hogs and cattle. Similarly, in the late 19th century, the early versions of futures contracts on precious metals and crude oil were established in New York—the forerunners of COMEX and NYMEX, two futures exchanges now combined as the New York Mercantile Exchange,² where futures and options contracts include crude oil, gasoline, heating oil, natural gas, gold, silver, copper, aluminum and platinum.

The emergence of financial futures markets

From the end of World War II until the early 1970s there was a very stable economic environment in the USA helped by the Bretton Woods Agreement which kept interest rates in a narrow range. However, when the US dollar was devalued, partly as a consequence of the funding of the Vietnam War and a heavy domestic spending program, uncertainty and fluctuation in interest and currency rates replaced economic stability. Europe and Japan had also recovered in economic terms from the re-building effects of World War II and with their economies growing the US dollar came under severe pressure.

The need to be able to hedge (or to protect) against the risk associated with volatile currencies and interest rates became critical for many businesses and industries. Therefore, we saw the birth of the first financial contracts, which became the cornerstone of the futures and options industry as we know it today.

In 1972, the CME established a division known as the International Monetary Market (IMM). Its purpose was to enable trading in futures contracts based on foreign currencies. In 1975 the CBOT launched the first futures contract on a financial instrument, the Ginnie Mae Mortgage Bond future, followed by the CME, which listed the Eurodollar (3 month interest rate) contract. Shortly after this, the CBOT listed the Treasury Bond future, which was to become for many years the world's most heavily traded futures contract. In 1983 the CME started trading futures contracts on the S&P500 Stock Index, one of the first futures contract designed for the equity market.

In the USA, prior to 1975, nearly all contracts traded were agricultural. Volume in these contracts was less than 10 million per year. However, by 1994, after the introduction of energy, metal, financial currency, interest rate and equity index futures, trading volumes had risen to almost 700 million contracts per year.

Since then, the growth in volume of futures and options contracts in the USA and the rest of the world has been phenomenal, as more and more

exchanges have opened and a plethora of financial and commodity products have been listed to meet the demands in many different markets for risk hedging mechanisms.

Futures markets in Europe

The development and growth of futures markets in Europe (and later in Asia) has mirrored the American experience. The origins of the London Metal Exchange and the London Commodity Exchange (now part of Euronext) can be traced back to the 1600s, with copper and tin trading well established by the 1870s, although more standardized commodity futures contracts (on coffee, cocoa and sugar) were not traded until the 1890s. The LME added further metals from the 1920s onwards (lead, zinc and later aluminum). In 1979 the International Petroleum Exchange (IPE)—now part of ICE³—was created to trade European Gasoil and Brent Crude. This was followed by the opening of The London International Financial Futures Exchange (LIFFE) in 1982 (listing the first non-US financial futures contract), the Paris based MATIF in 1986 and Germany's DTB in 1990. Futures trading volumes, especially in respect of interest rate, government bond and stock index products, grew very rapidly through the 1990s.

The expansion of the European market, the introduction of the Euro currency and the shift of trading activity from physical “open outcry” to much cheaper and more efficient electronic trading systems has led directly to a significant consolidation of European futures trading activity and exchange mergers over the last 10 years. The two most liquid futures and options markets in Europe are now Eurex (founded in 1998 from the merger of DTB and Soffex) and Euronext (formed in 2000 from merger of the Amsterdam, Brussels and Paris exchanges and then LIFFE in 2002).⁴

Elsewhere highly liquid futures markets have been built up in Japan, Australia, Hong Kong and Korea.

More recently derivatives markets in the rapidly expanding economies of India and China have become among the busiest in the world.

The first options markets

Like futures, the use of options can be traced back to the 18th century, and in certain forms as far back as the Middle Ages. In the 18th century options were traded in both Europe and the USA, but unfortunately due to widespread corrupt practices the markets had a bad name. Indeed, in the 17th century the Dutch economy nearly crashed after the collapse of a market in options on tulip bulbs.

These early forms of option contracts were traded between the buyer and seller and had only two possible outcomes. The option was exercised (i.e., the underlying product changed hands at the agreed price) or it expired without the buyer taking up his “option” to exercise the contract for delivery. In other words there was no “trading” of the option positions, and worse, in the early days there was no guarantee that the seller would honor his obligation to deliver the underlying asset if the buyer exercised his option.

In 1973, the CBOT proposed a new exchange, the Chicago Board Options Exchange (CBOE), to trade stock options in a standardized form and on a recognized market where performance of the option contract on exercise was guaranteed. This was the true birth of “traded options.” Several factors also contributed to the growth of traded option markets. First, the ability to calculate a “fair” price for options was made possible with the introduction of a mathematical formula which was widely accepted by the market. Second, the market-maker system was upgraded to insure there was always a two-way (bid and offer) price quoted thus insuring liquidity. Third was the growth of computer processing which enabled large numbers of trades to be efficiently matched, cleared and settled.

Some of the earliest equity option exchanges included the Australian Option Market (now owned by the Australian Stock Exchange) which opened in 1976, the European Options Exchange in Amsterdam (1978) and the London Traded Option Market (1978), which was originally part of the London Stock Exchange, now part of ICE Europe.

Since then option markets have grown in the USA and globally. As with the futures markets, exchange traded options are now listed on a wide range of financial (currency, interest rate, equity), energy, metals and commodity products to meet global demand for these risk management instruments. Although options have been trading for a shorter time than futures they are, nevertheless, extremely popular with both hedgers and speculators alike.

The futures and options exchanges today

Today, as we have already noted, the derivatives industry is truly global. To illustrate just how big the industry is, we only need look at the volume of contracts traded on world-wide derivatives exchanges:

Washington, D.C.—Jan. 25, 2019—FIA today released summary statistics for annual trading activity in the global exchange-traded derivatives markets that showed record activity in 2018.

The number of futures and options that changed hands on exchanges around the world rose 20.2% to 30.28 billion contracts, an all-time record. Futures volume rose 15.6% to 17.15 billion contracts, while options volume rose 26.8% to 13.13 billion contracts.

"The rapid growth in derivatives trading on exchanges around the world highlights the value that these products continue to provide for end-users and investors," said Walt Lukken, President and Chief Executive Officer, FIA.

Source: <https://fia.org/articles/fia-releases-annual-trading-statistics-showing-record-etd-volume-2018>

Although futures and options contract innovation continues to evolve, nearly all the key benchmark financial futures and options contracts (e.g., US TBond, Eurodollar, S&P500 index, Bund, Bobl, Euribor, Dax, Gilt, FTSE index, JGB futures and options) were first listed in the 1980s. It is increased usage by market participants, plus the attractiveness of new products and markets that has driven growth in recent years. Of course, the volatility and uncertainty in the markets has also led to trading activity as hedgers use derivatives to manage risk.

Futures and option contract specifications and diversity

Exchange traded futures and options contracts have standardized terms and conditions. These contracts are normally standardized with regard to the unit of trading (contract size), delivery months (contract expiry/maturity), price quotation, minimum price fluctuation ("tick" size and value), trading hours, last trading day and any delivery procedures. For each contract type, these headline specifications are supported by a comprehensive legal agreement that sets out all the detailed contract terms and delivery procedures (if applicable), as designed and determined by the relevant exchange authority. Contract specification details can usually be found on the exchange's website.

Tick size

The tick size of a contract is worked out in different ways, with some examples as follows:

CME S&P500 index future

- The contract size or trading unit is S&P500 Index × \$250
- The price is quoted in index points and the minimum price fluctuation is 0.10 index points. This gives a tick size of \$25 (\$250 divided by 10). Here is the contract specification published by the CME

Contract unit	\$250 × S&P 500 Index
Trading hours	Open Outcry: Monday – Friday: 9:30 a.m.—4:15 p.m. Eastern Time (ET) CME Globex: Sunday – Friday: 6:00 p.m.—5:00 p.m. ET with a trading halt 9:15 a.m.—4:30 p.m. CME Clearport: Sunday—Friday: 6:00 p.m.—5:00 p.m. ET Outright: 0.10 index points = \$25 Calendar Spread: 0.05 index points = \$12.50
Minimum price fluctuation	CME Globex: SP
Product code	CME ClearPort: SP Open Outcry: SP Clearing: SP
Listed contracts	Open Outcry: Eight months in the March Quarterly Cycle (Mar, Jun, Sep, Dec), and three additional December contract months CME Globex: Current lead month in the March Quarterly Cycle (Mar, Jun, Sep, Dec)
Settlement method	Financially Settled
Termination of trading	Open Outcry: 4:15 p.m. ET on Thursday prior to 3rd Friday of the contract month CME Globex: On the rollover date (typically eight days prior to last trade date for open outcry) when the lead month goes off the screen and the deferred month becomes the new lead month. View Rollover Dates
Settlement procedures	Settlement Procedures
Position limits	CME Position Limits
Exchange rulebook	CME 351
Price limit or circuit	Price Limits
Vendor codes	Quote Vendor Symbols Listing

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ICE Europe

Short Sterling 3 month interest rate future

- The tick size is the value of a one-point movement in the contract price. This price is arrived at by multiplying the notional contract size by the length of time of the notional time deposit underlying the contract in years multiplied by the minimum tick size movement of 0.01%:

$$\text{Tick size} = £500\,000 \times 3 / 12 \times 0.01\% = £12.50$$

Product range

Liquid exchange traded futures and options markets now exist for all the following asset classes:

Product categories	Base currencies
Government bonds (2–30 years)	USD, EUR, GBP, JPY, AUD
3-month interest rates	As above, plus CHF
Futures on swaps	USD, EUR
Stock indices	All main stock markets globally
Individual equities	USD, EUR, GBP, JPY, AUD, CHF
Currencies (vs USD)	As above
Precious metals	USD
Base metals	USD
Oil (full product range)	USD
Natural gas, coal	USD
Weather	USD
Soft commodities	USD, JPY
Agricultural commodities	USD
Property ^a (residential)	USD, GBP

^a There is commercial and retail property.

For up-to-date activity statistics the reader should go to the Futures Industry Association website and to the FIA Magazine which publishes regular volume statistics by product, exchange, etc.

Now we will consider two types of futures contract in more detail: equity index futures and commodity futures.

Equity index futures

Since the first index-based contract was introduced in 1982 on the Kansas City Board of Trade, stock index futures have been among the fastest growing futures contracts. So popular have they become, that in a number of cases the volume of futures market trading significantly exceeds trading volumes in the underlying cash market. The first important equity index contract to be launched, the S&P 500 contract traded on the Chicago Mercantile Exchange (launched in January 1983), is still the most heavily traded equity index futures contracts.

An equity index contract allows both investors and speculators to buy or sell the index at a fixed level. The seller, or short, has an obligation to sell (deliver) a fixed amount of the underlying equity market (no. of contracts x contract value) at maturity at the price traded. However, in practice, futures contracts are rarely held to maturity. They are usually offset prior to settlement by an equal and opposite transaction in the market.

With equity index futures it would be very difficult to design a procedure that enables the seller to actually deliver a basket of shares in the exact proportions (weighting) required to replicate the relevant underlying index.

Thus, unlike many other futures contracts (e.g., Bonds, metals, commodities), equity index contracts are always “cash settled.”

When the contract matures, if the index is above the price at which the futures contract was bought, the seller, instead of having to deliver a basket of shares, simply pays the buyer the cash difference between the index price at maturity and the original traded contract price. If it is lower, then the buyer pays the cash difference. So in practice an equity index futures contract is an agreement to buy or sell the cash value of the index at a future date.

Commodity futures

Commodity futures contracts differ from financial futures due to the very different nature of the underlying products. Indeed, historically, financial institutions have shied away from commodity futures due to the implications of physical delivery. However, when returns on equities and yields on interest rates fall, investors often look for alternative assets to invest in and the commodity markets (including energy and metals) can offer a potential source of better returns. In practice, the major market participants are the corporate producers and consumers of the actual commodity being traded, alongside a number of commodity finance banks and some specialist fund managers.

Agricultural and soft commodities have the additional feature of being perishable and thus have only a limited life. To deal with the complicated issues of physical commodity delivery, the futures exchanges have designed detailed delivery procedures and regulations (e.g., regarding warehousing, transportation and product standardization requirements) that must be carefully adhered to by both buyers and sellers involved in any delivery.

Agricultural and soft commodities are finite in terms of availability and subject to variations in quality due to the forces of nature such as the weather. In order to ensure the product delivered is of the correct quality, as defined in the contract terms, there is a quality checking procedure. Where there is a problem with delivery, arbitration is sought via a trade association or an independent source appointed by the exchange. The delivery months of agricultural and soft commodities are not as standardized as other futures contracts. This is because they have to take into account factors such as harvesting, shipments and transportation.

During the delivery period the “clearing house” organization that operates the clearing and settlement system and manages the risk on behalf of the exchange, may demand higher margin deposits from holders of open

positions in order to encourage traders who do not wish to go to delivery to close out their positions, prior to maturity/delivery. In general, less than 1% of futures contracts actually result in a delivery of the underlying.

Example

Purchase of 50 July Cocoa Futures @ 1070

The buyer has entered into an obligation to take delivery of coffee from the holder of a short position in July. The price is set at \$1070 irrespective of the price cocoa might be trading at in July.

Basic trading and hedging strategies

Trading

The basic rule of trading is the same the world over, regardless of the type of item being traded: “buy low, sell high.” Futures contracts are particularly well suited to high-risk speculative trading, firstly, because they require only a small percentage of contract value to be put up as a deposit (margin) and, secondly, because, unlike most other assets and financial instruments, the trader can readily go short, i.e., sell a futures contract and then buy it back later (with a view to making a profit as prices fall). Obviously the skill of any trading activity is to determine how to consistently make profits over a long period of time. Indeed, a huge research industry has built up to support traders in their quest for the “perfect” trading system, comprising both fundamental market research and a myriad of various technical analysis and related software; covering such things as pattern, trend, chart and gap analysis, moving averages, momentum indicators and complex option and derivative pricing models.

Equity index futures are one of the most flexible trading instruments. Traders and speculators can use them to obtain maximum gearing for their strategies on stock market direction, while “arbitrageurs” can use them to take advantage of pricing anomalies.

Trading strategy 1: Market direction (using futures)

An investor who believes that the market as a whole will rise can buy the market in one trade by buying the requisite number of futures contracts (rather than a basket of the individual equities). For example, an investor deposits £100,000 with his broker and buys 25 FTSE100 contracts at a price of 5990 (equivalent to a £1,497,500 investment in the index, i.e., 25 contracts \times £10 \times 5990). Against this position, he has to put up a margin

deposit of (say) £2500 per contract (= £62,500). Some weeks later, after several rises and falls in the market the index has risen to 6040. The investor decides to close out his position by selling 25 contracts (now equivalent to an investment of £1,510,000). His margin deposit is returned and he makes a £12,500 profit (25 contracts × 50 points (6040–5990) × £10 per point value).

Trading strategy 2: Speculating (using options)

Options are attractive to speculators because of their limited downside risk.

For the buyer of call or put options their maximum potential loss is the amount of option premium paid; while, if the market moves in their favor the potential upside profit is unlimited.

A speculator believes that BP shares, which are currently 600p, will rise in the next few weeks. He has approximately £60,000 to invest. He could purchase 10,000 shares at 600p or, in the traded option market, he could buy 250 of the 650p call option contracts for 25p or £62,500. These call options give him an exposure to 250,000 shares, so if the BP share price rises high enough his potential profit far exceeds the amount he would make buying 10,000 shares.

If the underlying share price goes to 700p, the 650p call options would be worth at least 50p, so he would sell them for £125,000 for a profit of £62,500. Had he bought the 10,000 shares he would sell them for £70,000 for a profit of £10,000. However, as with most other forms of trading and speculation, higher potential rewards always involve higher risks of loss.

If the share price falls to 575p by the expiry of the options, the 650p options will be worth nothing and the speculator will lose his entire investment. While had he used the more conservative strategy and bought the 10,000 BP shares in the cash market, his loss would only be £2500, and he would still have a holding of shares worth £57,500, the price of which may rise again in the future.

Trading strategy 3: Gearing

An investor with an existing stock market portfolio and bullish view on market direction can “gear up” by going long (buying) futures contracts. Depending on the particular contract, it is possible to take on an additional £100,000 of stock market exposure (and thus additional profits/losses) by putting up margin deposits of just 10–15% of the contract value of the futures position added.

Trading strategy 4: Arbitrage trading

When the market price of a future differs significantly from its “fair value” (see later section), equity index arbitrage can be used to profit from the miss-pricing. If the futures contract is trading at a premium to fair value the arbitrage involves buying the stocks that make up the index and selling an equivalent amount of futures contracts. The cost of holding the shares, net of dividends received, is included in the fair value of the future and, consequently, an investor holding shares and short an expensive future will be left with a profit after holding costs if he holds the position through to expiry. Conversely, where the future is trading at a discount to fair value (as it does typically) the arbitrageur can sell the shares that make up the index and buy the cheap future to lock in the under-valuation.

In practice, these arbitrage opportunities are limited by the costs of dealing in multiple shares (which comprise the equity indices). Futures prices have to differ from fair value by a certain amount before arbitrage trading becomes economically worthwhile.

Hedging

While traders are essential to the healthy liquidity of futures and options markets, the real economic value and importance of these contracts is their potential usage as hedging instruments. As hedging tools, futures and options enable market participants to protect themselves from market price risk and better manage their market exposures. This can be best explained with a few examples:

Hedging example 1: Potato farmers

Imagine a potato producer. In March, at the beginning of the season he must purchase the seeds to plant his potato crop and will tender his crop during the coming months until harvest time. He has no idea at that time how the season will turn out, but his livelihood depends on the profits that he can make from growing his potatoes. The farmer has two fields with an estimated yield of 375 tonnes in each field. He has fixed overheads of £5000 to produce the potatoes and expects to sell them at around £10 to £12 per tonne. He looks to the futures market to “hedge” or protect his potato crop.

In order to protect his crop against a fall in prices and to ensure that his overheads are covered the farmer enters into a futures contract. He sells 25 contracts (20 tonnes per contract = 500 tonnes) at £10 per tonne for delivery in October.

This would cover the £5000 fixed costs that he has, as he is guaranteed to sell 500 tonnes at £10 per tonne in October. He also has his additional 250 tonnes to sell at the prevailing market price, on which he will make a profit. However, the farmer still has a problem as what would happen if he were unable to produce the 500 tonnes that he needs to fulfill his contract?

In this case the farmer enters into a hedging transaction to protect himself. He buys a call option, which gives him the right to buy 500 tonnes at £10.50 per tonne in October. To acquire this right costs him £250 in option premium.

This is his insurance in case his harvest fails and in total it costs him £500, because he has paid £250 in option premium and it will cost him an extra £0.50 per tonne if he has to exercise his option ($500 \text{ tonnes} \times £0.50 \text{ per tonne} = £250$). He would have chosen the £10.50 call option because it was not far from the £10 price he wanted and was cheaper to purchase.

At harvest time in October the farmer's crop is poor and potatoes are in short supply. He has only managed to produce 520 tonnes from his crop. However, the market price of potatoes given the shortage is £16 per tonne. The farmer must fulfill his futures contract obligation by selling 500 tonnes at £10 per tonne, but he sells his additional 20 tonnes at £16 per tonne.

Sell 500 tonnes @ £10 per tonne = £5000 cr

Sell 20 tonnes @ £16 per tonne = £ 320 cr

Net profit before hedge = £5320 cr

He also has the option, which he should now exercise because it is "in-the-money" and allows him to buy 500 tonnes at £10.50 per tonne, which he can resell in the market at £16 per tonne to make a profit.

Buy 500 tonnes @ £10.50 per tonne = £5250 dr

Sell at market price of £16 per tonne = £8000 cr

Gross profit = £2750 cr

Less option premium paid = £ 250 dr

Net profit on hedge = £2500 cr

Overall profit on transactions = £7820

Let us look at what happened if the crop had been successful and the farmer was able to produce 900 tonnes of potatoes.

Because of the good crop and plentiful supply, the market price of potatoes has fallen to £7 per tonne. He fulfills his obligations in the futures market.

The option contracts that he bought as insurance for his crop are “out-of-the-money” and, therefore, are left to expire worthless.

Sell 500 tonnes at £10 per tonne = £5000 cr

Sell remaining 400 tonnes at £7 per tonne = £2800 cr

Gross profit before hedge = £7800 cr

Less option premium paid = £250 dr

Net profit = £7550

If the farmer had not entered into any futures or options transactions he would have been able to sell his total crop of 900 tonnes at the market price of £7 per tonne, thus realizing a profit of £6300. Using the futures and options not only protected his crop, but also gave him a better profit than without the protection.

Hedging example 2: Fixed-rate mortgages

Another example of users of futures markets are banks or building societies who offer customers fixed-rate mortgages. Consider the problem that the building society has if it offers you a fixed-rate mortgage over 5 years. It has to pay its savings customers on a floating market rate, but it is receiving a fixed-rate from you, irrespective of what happens to interest rates over the 5-year period.

If interest rates were to rise in the first year, the building society would have to raise the rates that they pay to savers, but they would not be able to increase the rates that they charge you as the mortgage borrower. In order to balance this mismatch in interest payments, the building society can enter into an interest rate swap transaction with another counterparty, most likely a bank.

The interest swap transaction is an over-the-counter (OTC) derivative (see OTC derivatives), which is specifically designed between two counterparties to match their hedging requirements. It involves an agreement to pay the counterparty bank the fixed interest payments that it receives from

you as the borrower, and in return the building society receives the floating rate which is similar to the rate that it pays to its savers. The building society is then back to its matched interest rate status for borrowers and savers.

However, now the counterparty bank has a problem because they are not protected against interest rate changes. Therefore, it may choose to hedge this risk using NYSE.Liffe's 3 Month Short Sterling Interest Rate futures contract. This contract allows the bank to fix the interest rate now that will be paid or received in 3 months' time. From time to time the bank will roll the contract over, if market conditions are right, so that the interest rate protection is continued. This involves selling the position that is held in say June futures and buying December futures, thus continuing the protection for another 6 months. The end result is that everyone has the interest rate protection that they need.

Note: Why would the building society use an interest rate swap transaction? The terms are more flexible and allow them to hedge their requirements in one straightforward transaction. The bank receives a bid/offer spread from the building society, which they would price so that they make a profit on the deal allowing for the hedging costs of their interest rate futures contracts.

Market structure

The role of an exchange

The exchange is the place where members, who can be companies or individuals, trade futures and options against each other. The members carry out their business under the rules and regulations of the exchange. Each exchange in turn is subject to regulation by local government agencies. For example, in the UK's ICE Europe is a Recognized Investment Exchange (RIE) authorized by the UK regulator the Financial Conduct Authority (FCA).

While historically exchanges provided a large physical location for the trading activity to take place, these days most futures and option trading is done electronically through computer "screen-based trading" systems managed centrally by the exchange organization. The traditional style physical exchanges used "open outcry" where the members gathered together on an exchange market floor in "pits" and shout out their bids and offers. Traders used an exchange authorized method of hand signals to communicate with their colleagues and other market members.

Until the last few years, the responsibility of the management of most exchanges was vested in a board of directors elected by the membership of

the exchange. However, subsequently many European and US exchanges have separated exchange membership (i.e., trading access) from exchange ownership, thereby enabling exchanges to become stock exchange listed profit-focused commercial organizations (as opposed to “not-for-profit” member owned club style bodies). Reporting to the board are the executive staff (employees of the exchange) and various practitioner-based committees who consider specific issues relevant to the day-to-day operation of the exchange. These issues concern price dissemination, trading access and regulations, IT systems, product design, specification and development, marketing and the all-important exchange fees, from which most of their revenue (and profit) is derived.

Exchange members may be divided into a number of different categories, with different trading rights and obligations, especially with regard to their authority to transact business on behalf of third party customers. One important sub-division is between non-clearing and clearing members. Clearing members are those who have a direct counterparty relationship with the central clearing house (see below), while non-clearing members need the support of a clearing member in order to trade on the exchange.

The role of the clearing house

The role of the clearing house is to act as counterparty to both sides of the trade thereby replacing any direct counterparty relationship between the two trading counterparties. It is fundamental to the integrity and credibility of the exchange traded futures or options market for which it operates, as its purpose is to guarantee the performance of each and every transaction. By assuming the legal responsibility for the trade, the clearing house removes any credit risk on each other that the two original counterparties might have had. However, it is important to note the clearing house guarantee only extends to the clearing members. All other market participants (end customers and non-clearing exchange members) have a counterparty credit risk with the clearing member through which they have chosen to access the market.

There are two main types of clearing house; those that are a division of the exchange itself and indistinguishable from the exchange which owns them, and those that are independent of the exchange with their own financial backing. These are commonly known respectively as horizontal or vertical silos. In most cases, for these independent clearing houses, the clearing members of the relevant exchanges provide their financial backing.

Clearing houses must be financially robust in order to sustain a clearing member default in the market(s) in which they operate. The financial standing of the clearing house is an important consideration for brokers when they are contemplating becoming clearing members of an exchange. It is also an important issue for companies researching the potential of trading on any particular exchange, as they need to know that their trades will be efficiently settled and that their positions will be secure in the event of another unrelated party causing a default in the market.

As for exchanges, the clearing houses are themselves regulated by their local government agencies; in the UK this is the Financial Conduct Authority (FCA). FCA have designated LCH.Clearnet as a Recognized Clearing House. This regulatory structure gives the members and users of the markets some additional comfort that the clearing house is properly organized and managed, given its monopolistic position.

The process of establishing a futures contract in the name of the clearing house as counterparty, to each clearing member, is called “novation.” In this process the clearing house becomes buyer to every seller and seller to every buyer for each transaction. Following novation, the clearing member has no counterparty risk in the market for all their futures trading other than with the clearing house on one side and their own clients (if any) on the other. All their open positions in the market are held with the clearing house and it becomes irrelevant regarding which other market counterparties the clearing member actually dealt with originally. Once the novation process is completed, the clearing house is in a position to initiate and effect settlement of the two trades (buy and sell) on T + 1. Also, when closing a position in the market there is no need to seek out the original counterparty of the initial trade.

Basics of futures fair pricing theory

Equity index futures fair pricing

The value of a futures contract depends on the level of the index and the basic trading unit of the contract; for the S&P500 futures traded on the CME the unit is \$250 for every index point; for the Nikkei225 contract traded in Tokyo the unit is ¥500 for each index point; while for the FTSE100 contract on ICE Europe it is £10 for every index point. So, if the FTSE100 index stands at 5000, the value of one futures contract would equate to £50,000 (£10 × 5000).

In practice 5000 will not be the fair market price of the FTSE futures contract as there are important differences between the characteristics of an index futures contract and that of the underlying basket of stocks; as follows:

1. The holder of the basket of shares will receive dividend income. The holder of the future does not and should, therefore, be compensated for the loss of dividend income by a corresponding discount in the futures price. Higher expected dividend levels will lower the fair value of the futures contract since the holder of the futures does not receive the dividends.
2. Buying the basket of shares involves payment of the full cost of the securities immediately, whereas the purchaser of the futures contract only has to put up a small percentage of the cost of the securities (as his deposit or “margin”) initially, and so can earn interest on the remainder. Thus the purchaser of the futures should be willing to pay a premium for the futures, which will be offset by the interest received (on the surplus cash) during the lifetime of the contract. The higher the prevailing interest rate, the higher the fair value of the futures. The longer the maturity of the futures contract, the greater this benefit will be and so the greater the premium. Similarly the higher the index level, the greater the cost of buying the underlying shares, and so the greater the carrying costs reflected in a greater fair value premium.

A simple formula⁶ for the calculation of fair value is shown below:

$$\text{Fair value} = \text{spot index level} + \text{cost of carry}$$

Where cost of carry = spot index level \times $(i/100 - y/100) \times d/365$

i = interbank rate

d = the number of days from settlement day for the day of trade to the settlement day for the expiry date of the contract.

y = percentage annual yield of FTSE100 index.

Assuming an index level of 6000 on 3rd January, the first business day of the year, a forecast yield on the index of 4.1% and a 3-month interbank rate of 5.25%, the above formula can be used to calculate a fair value for the March FTSE future:

$$\begin{aligned}\text{Fair value} &= 6000 + 6000 \times (5.25 / 100 - 4.1 / 100) \times 66 / 365 \\ &= 6000 + 6000 \times (0.0525 - 0.041) \times 0.18 \\ &= 6000 + 12.42 (\text{or } 6012 \text{ to nearest tick})\end{aligned}$$

If interest rates are generally higher than dividend yields, the futures generally trade at a premium to the underlying index. This premium is determined by comparing the interest that would be earned by buying futures with the dividends that would be paid on the underlying securities during the remaining life of the contract.

Fair value is a benchmark, not an absolute number, since different investors in the market will use different expectations of unknown future dividends and also different funding assumptions. The above formula is simplistic in the sense that the dividends that are to be paid in the future are not discounted to their present value. Supply and demand factors will also affect the price, making the traded price differ from fair value. The futures contract is described as “expensive” when it is at a premium to fair value and “cheap” when it is at a discount to fair value. The difference between the actual level at which the futures trade and the theoretical fair value is sometimes known as the “value basis.”

Settlement and margining

Futures have a characteristic that is important in terms of their flexibility and usefulness. That characteristic is that the full value represented by the derivative is not usually settled until or unless delivery takes place. This feature makes them very effective tools for investors and traders, but also represents a possible risk that the full value may not be ultimately settled. We mentioned earlier that the clearing house has a role as the risk manager for activity between clearing members. One way in which it manages that risk is to establish margin requirements on all open positions (both long and short) until the contract obligations have been met.

Initial margin

The deposit which the clearing house calls to cover margin requirements is called “initial margin” and is returnable to the clearing member once the position is closed. The amount of initial margin will vary as it is related to the current volatility of each particular product. The margin amount is set by the clearing house at a sufficient level to cover approximately 95% of likely 1-day movements in the contract price but can be changed to reflect changing market conditions. This margin deposit is held by the clearing house throughout the time that the open position is maintained. The initial margin amount set by the exchange is on a per contract basis.

Option buyers (holders of long option positions) are not charged initial margin because once the option premium has been paid away on T + 1, the buyer has no further downside market risk. The worst that can happen for the buyer is that the option may expire worthless.

Option sellers/writers (holders of short option positions) are margined as there is a risk of the writer being unable financially to fulfill their delivery obligations, should the option be exercised on or before expiry. This margin requirement is often calculated using the mathematical SPAN (Standard Portfolio Analysis of Risk) system (or similar margining software). SPAN (see explanation below) uses the “delta” value of options to convert them to equivalent futures when calculating any futures/options and inter-month spread margin requirement.

Note: The *delta* of an option can be described as the speed with which an option’s premium moves, in respect to the changes in the underlying security price. As time value decreases, this also affects the delta of an option. Roughly speaking, a deep in-the-money option has a delta of 1, a far out-of-the-money option a delta of 0 and an at-the-money option a delta of 0.5. Delta is described as the rate of change in price of the option in proportion to a change in the price of the underlying asset.

It should be noted that options on futures contracts are margined in the same way as futures contacts with initial and variation margin requirements for both buyers and sellers.

Interest

The regulation pertaining to assets held by a third party means that most clearing houses pay interest to clearing members on the cash deposited to cover their initial margin requirements.

Intra-day margin

In times of very large movements up or down in the price of a specific contract, the clearing house may raise the initial margin requirement. An additional amount may be required from clearing members to support their open futures and option positions. If the clearing house believes that the situation is only temporary and that conditions will quickly return to a more stable environment, then they will leave the initial margin requirement at its original level for the next day, only calling the intra-day margin as a one-off advance payment. More likely, however, the initial margin level will be increased as a result of volatile conditions.

Intra-day margins can be called from the clearing members by the clearing house at any time as determined in their rules. It is important to understand that the clearing members must pay the required amount to the clearing house, regardless of whether they are able to obtain additional funds from their clients. In this respect, it is necessary that the clearing member is able to re-calculate margin requirements during the day on their own systems so that they may see accurately how they and their clients are affected. Intra-day margin calls also highlight the need for clearing members to be adequately capitalized in that they must draw on their own resources to make the call.

Spot month margin

This is an additional rate of margin, which is charged by the clearing house to cover the risk that they incur between the last trading day of a contract and its ultimate delivery. It covers the risk of a default during the delivery process. It is relevant for government bond futures and equity options and even more important for commodity and energy futures contracts where the more complicated delivery processes may take several days to complete.

SPAN

The method for calculating margin also varies from clearing house to clearing house and may be different for futures and traded options. In 1988 the CME devised a method known as “SPAN.” This risk-based margining system is now used by many exchanges for the calculation of the initial margin on futures and options. SPAN looks at a set of 16 possible changes in market conditions (the “risk array”) within the boundaries of the risk parameters set by the clearing house. The possible profit or loss for one long position in each futures and options contract is worked out under each of the 16 scenarios. By combining all of the individual arrays, SPAN determines the scanning risk, and the worst possible loss scenario for the portfolio, which is charged as initial margin.

Example—LCH Ltd

Initial margin for all services is calibrated to be sufficient to offset any losses under normal market conditions incurred during the close-out period of a Clearing Member default, to a 99.7% confidence level. The percentage applied is agreed by the LCH Board and set out in the LCH Risk Governance Framework which is shared with the competent authorities.

Additional margins are levied to cover position concentrations, wrong way risk, illiquid positions and Clearing Members with lower credit standing or capital support.

Margins are backtested daily for each Clearing Member and sub account against this confidence level, and reported monthly at clearing service level to regulators and at least quarterly to the Risk Committee. The table below provides service level margin backtesting results.

Margin offsets

Where market participants employ particular spread trading strategies across related contract types, the clearing house may allow certain reductions in the margin requirements to reflect the reduced overall risk of the combined positions. Spread trading involves the use of two or more options and/or futures to create a position which has limited risk (see Appendix 1 for further details).

Movements in the market will have a negative impact on one leg of the spread, but a positive impact on the other side. The most common strategy of this type is the calendar spread (e.g., Long June, Short September). These spread positions attract a significantly lower initial margin requirement than an outright position, where there is no balancing leg to offset market risk.

Variation margin (settlements)

For futures contracts the clearing house operates a daily settlement process, whereby it pays out profits and collects in losses that have accrued on all open futures positions as the market price moves up or down each day. This process generates payment and receipt cash flows for all the clearing members with the open positions. This settlement is known as Variation Margin (VM). In parallel with this clearing house operation, the clearing members themselves will be processing variation margin settlements in the accounts of all their clients.

An example calculation of variation margin:

A client buys 1 Sep Future at 110.13 on June 1.

The client sells the position at 110.42 on June 8.

The contract size is £100,000 nominal value with a minimum price fluctuation of £0.01 per £100 nominal. This gives a tick size of £10.

Date	Trade price	Net open	Closing price	Daily price movement	Sett. date	Daily settlement
1/06	110.13	+1	110.09	-4 ticks	2/06	£40 Loss
2/06		+1	110.28	+ 19 ticks	3/06	£190 Profit
3/06		+1	110.28	No change	4/06	No Movement
4/06		+1	110.35	+ 7 ticks	5/06	£70 Profit
5/06		+1	110.40	+ 5 ticks	8/06	£50 Profit
8/06	110.42	0		+ 2 ticks + 29 ticks	9/06	£20 Profit £290 Profit
Total						

The overall profit on the trade was 29 ticks, which is the difference between the buying and selling price ($29 \times £10 \text{ per tick} = £290$). The daily variation margin amount is always settled by the clearing members with the clearing house in cash in the currency of the contract on T + 1.

The initial margin of £500 per contract would be called by the clearing house on June 2nd and held until June 9th when it would be returned.

Collateral

Initial, but not variation, margin obligations at the clearing house can be covered in various ways. Collateral in the form of cash in the currencies of the contracts traded is most commonly used. In addition government treasury bonds and bills, certificates of deposits, certain equities and approved bank guarantees may also be acceptable by some of the clearing houses.

The collateral that the clearing broker will accept from a client is negotiable. There may, however, be restrictions about where it must be held and related collateral transfer costs. If applicable, the client may have to check with their trustees about whether they have any additional restrictions. By physically transferring the collateral into the name of the clearing member or clearing house, the client loses legal title, but not the "beneficial ownership" of the collateral. If this transfer of the asset as collateral is made under hypothecation the taker of that collateral can only use it if the giver of the collateral fails to meet an obligation (defaults). However, if the agreement between the giver and taker of the collateral allows rehypothecation the taker can use this collateral. This gives rise to a credit risk with the clearing member, as the collateral provided could be used to cover say a loan between the clearing member and a counterparty and may be seized in the event of a default by that organization, even though the client is not involved in the default situation. All non-cash collateral lodged with the clearing house will be subject to a "haircut" or discount when being valued (marked to market).

A typical haircut for a stock position may be 30–50%. For example, a stock priced at 100 would have a collateral value of between 50 and 70.

A copy of the list of collateral accepted by LCH Ltd. can be found in the Appendices.

Margining customers

It is relatively easy to understand the concept and calculation of variation margin. It is always possible for a customer to calculate such amounts themselves, using known variables, such as tick size and value, in order to verify what their clearing broker is charging or paying them.

However, initial margin calculations are much harder for customers to replicate, unless their position is very simple without any inter-month or inter-contract spreads to include in the calculations of a portfolio margining system. Although, risk-based margining systems are very efficient and result in the client paying a lower overall initial margin, clients generally have to take the clearing broker's word for it that the amount required is correct. In order for the client to accurately verify the initial margin required, they need to be able to receive the risk arrays from the clearing house or exchange and then have a system, which is able to correctly compute this. Some clearing houses publish their risk arrays openly and clients are able to obtain the information easily. A charge may be made for this service whilst it is possible that an exchange does not openly publish the arrays except to their clearing members.

For larger volume clients, a solution may be for them to use an established commercial futures back-office software package for their own processing and accounting. These systems will have all the margining capabilities included in their software.

Single currency margining and settlement

For clients trading in various different markets around the world and having numerous currencies to move, the settlement process can be quite cumbersome. Therefore, many clearing brokers offer a service known as single currency margining.

This involves the deposit of one currency, which is equal to or more than the total amount of all currencies due. In order to calculate this, each currency is notionally converted to the base currency chosen by the client as the preferred settlement currency. Interest would normally be received on the currency deposited and would be charged on the other currencies, which are in debit/overdraft. Both the clearing broker and the client take

on an intra-day FX risk, as the amount due in the settlement currency is only calculated once overnight, using the end of day FX rates. Therefore, if this service is offered to many clients it needs careful control by the clearing broker's operations team to ensure that the FX exposures are properly managed. Cash held in any other than the base currency may be subject to a haircut.

It may well be that no formal charge is made for this service, but clearing brokers can recoup their expenses through the interest rates that are paid and received. They need to be relatively competitive in order to make the service viable, but they are designed to cover at least all of the financing costs that the broker incurs on behalf of the client. From the client's point of view it makes the settlement process much more efficient and in particular reduces bank charges and administration for foreign transactions.

Treasury management

As discussed above, initial margin requirements, and the collateral used to cover them, are vital to controlling risk. The margin and treasury management implications regarding funding costs, cash utilization, foreign exchange risk, etc., will become more important as the use of derivatives by an organization grows. From a regulatory point of view, the efficient management of margin calls enforces discipline on the operations teams of the clearing brokers, who must cover the non-receipt of margin from a (defaulting) client using its own funds.

With a variety of acceptable collateral available, market participants need to carefully assess the most efficient alternatives of meeting the margin calls from their clearing broker. It is important to note that most clearing houses margin their clearing members on a net basis, i.e., the initial margin requirement for a clearing broker will be based on the broker's overall net position after offsetting any equal and opposite long and short positions held for all the broker's clients. The broker holds positions on a gross basis and, therefore, needs to collect margin from every client, thus creating a pool of client cash (and collateral) held by the clearing broker, which is not passed on to the central clearing house. With efficient treasury management this excess client cash can provide important additional revenue. An effective treasury management function is dependent on accurate and timely information about all aspects of the margining process, in addition to all the other cash flow and FX issues affecting the business on a day-to-day basis.

Remember, however, that client cash held by the broker must receive some form of interest and the initial margin charged to the client must at least equal the rate charged by the clearing house to the broker.

Interest rate calculations

For all futures and options market participants, the disciplines associated with treasury management include the regular monitoring of interest rates applicable to both the accounts they maintain with their clearing broker(s) and/or central clearing house and, if applicable, the accounts they maintain for their customers—in each case potentially across multiple currencies. In most cases interest rates are not symmetrical between credit and debit balances; with market participants charged for maintaining overdraft account balances in any currency. Errors regarding interest rate setting and interest rate changes are not uncommon; these mistakes can lead to unexpected funding costs and financial loss as well as disputes between brokers and clients, if regular monitoring and checking procedures are not put in place.

Use of futures and options in investment management

There are many ways in which derivative products are used in investment management decisions. Specific fund management investment objectives, mandate guidelines and restrictions, trading styles and actual market conditions, will all help determine trading strategy and product selection. In this section we look at some basic examples of different ways for fund managers to use futures and options.

Equity index futures are a particularly flexible tool for (equity) investment management. Fund managers can use them to protect the value of a portfolio in a falling market; to provide a leveraged investment at a time of bullish sentiment; to enhance yields; to allocate assets easily, cheaply and quickly; and to track the performance of indices. A fund manager who has an underlying portfolio of shares whose performance is correlated with the index and whose value he wishes to protect against falls in the market, can sell futures contracts. In this way the fund manager removes the market risk from his total position and he will profit or lose to the extent that his portfolio out-performs or under-performs the underlying market.

Pension funds

Pension funds own significant holdings in many of the UK largest Stock Exchange quoted companies. In order to manage the risks of these holdings

against the value of share prices falling, the pension fund manager can look to using the FTSE100 index futures contract.^a If a pension fund manager's analysis of the UK stock market concluded that it was likely to fall in the next 6 months, they can take one of two actions:

1. Select some of the shares and sell them in the market before the value goes down, with a view to buying them back at a later date at a cheaper price; or.
2. Sell FTSE100 futures with a 6 month delivery date immediately with a view to buying them back at a later date at a cheaper price.

On the surface there does not appear to be a lot of difference in these two strategies. However, there are some important differences, which make the selling of the futures contracts a much more viable choice:

- The FTSE100 futures contract represents the value of the whole FTSE100 companies, whereas if the pension fund manager wanted to sell shares he would have to choose which specific stocks to sell and how many of each.
- Selling the shares may take time and will involve some dealing costs. Share dealing costs may be up to 1% against possibly 0.1% for futures.
- FTSE100 index futures can be bought or sold very quickly in one transaction.
- FTSE100 futures do not disturb the underlying shareholdings—an attractive feature for pension funds where investments are held for the longer term.
- Futures also help the manager to smooth out fluctuations in the value of the fund. Investors find this reassuring.

If the pension fund manager is correct and the value of the UK stock market falls over the 6 months then he can buy back the futures contracts at the lower value. The profit from this transaction would be used to offset the fall in value of the underlying shares, thus protecting the value of the portfolio.

If the pension fund manager gets it wrong and the value of the stock market rises, he can buy back the futures contracts. The loss made on this transaction would be offset against the rise in value of the underlying portfolio.

Of course, he will not make as much profit in this case as he would have done without the futures contracts hedge in place, but he has the advantage

^aThe contract specification for a FTSE contract can be found at <https://www.theice.com/products/38716764/FTSE-100-Index-Future>

of the protection (or insurance) against the possible fall in value whilst still being able to participate in the upside.

Remember that the pension fund manager can close out his futures position at any time during the 6 months if he feels that it is right to do so, thus limiting his losses. He is not locked in for the full 6 months.

Basic illustration of derivatives use in asset allocation

Investment opportunities often arise quickly and unpredictably. Fund managers wishing to take advantage of such events would traditionally have had to liquidate all or part of their existing holdings in order to reinvest the proceeds elsewhere; this is a costly and time-consuming exercise. Index futures contracts offer a cheap, quick and efficient method of shifting exposure from one market to another.

Example

A fund manager has a portfolio made up of US, UK and Japanese equity shares, plus UK Gilt stocks and cash. The fund's portfolio is currently made up of 40% US equities, 20% UK equities, 20% UK Gilt stock, 10% Japanese equities and 10% cash.

The fund manager believes that the US equity market is due a fall and that Japan will rise. He expects this to occur in the next 6–8 weeks. The fund manager can adjust the balance of the portfolio by selling US shares and purchasing stocks in Japanese based companies. He will need to research the markets then undertake several transactions, which may take some time to implement. Dealing costs will be incurred on each transaction.

Alternatively the fund manager can use derivatives, in this case index futures, to gain and reduce exposure to the respective markets. He needs to sell S&P Index futures contracts and purchase Nikkei Index futures. If he is correct in his assumptions, the sale of the S&P futures will offset the fall in value of the US equities he holds whilst the Nikkei futures will rise enabling the fund to participate in the increase.

There are several advantages for the fund manager:

- The futures transactions are very quick to effect and there are lower dealing costs.
- Exposure adjustment is immediate, thus reducing the risk of loss should the market move before the relevant shares can be sold and bought.

- The futures transactions can be quickly reversed if the assumptions are wrong.
- The fund manager can still affect the actual sale/purchase of the underlying shares when he is ready (unwinding the futures trades at the same time).

Note: Before a manager uses this strategy he should first insure that his portfolio closely matches the index, the correlation. Each index consists of a number of individual stocks which are “weighted” according to their capitalization. If the manager’s portfolio differs from the index portfolio he may be exposed to “basis” risk when the two portfolios react differently to changes in market (see OTC derivatives below).

Income enhancement

A fund manager buys or holds significant amounts of equity shares. He is happy to sell some of these holdings at certain levels and would like to increase income over and above the dividend if possible. He looks to the traded options market.

Example

He has purchased 500,000 BP shares at 600p and will be happy to sell half of the holding if the stock rises more than 10%. He notes that the 650 call options expiring in 2 months can be sold for 25p. He sells 250 contracts (1000 shares per contract) at 25p. The fund manager has given the right to the option buyer to call/buy the 250,000 shares at 650p anytime in the next 2 months in return for £62,500 ($250 \times 1000 \times 25p$) of premium paid to him immediately.

If the stock rises above 650p he may have to deliver the stock at 650p. If it does not rise above 650p he will not have to deliver the stock.

In the first scenario he has effectively sold the stock for 675p ($650 + 25$), which meets his criteria of selling on a 10%+ share rise. But note that his profit is restricted to the difference between 600p and 675p, no matter to what price the stock rises. In the second scenario he still has the stock, but has received income of £62,500 or, looked at another way, he has reduced the purchase price to 575p. This means he is protected against a fall to this level on half of his holding.

Hedging

The fund manager is reviewing his portfolio and is concerned that the UK stock market may fall in the short term. However, he does not wish to change the weighting in the portfolio nor any form of asset allocation or to

sell his shares. He looks at two possibilities. Firstly, he can sell FTSE futures contracts, which will provide him with a profit as the market falls, thereby offsetting the fall in value of the stocks (see above). Secondly, he could buy a 3-month FTSE Put option.

With the futures contracts the fund manager risks incurring a loss if the market should rise until he decides to close the position. With the put option he can determine how much the “insurance” against a fall in the market will cost and has the comfort that if the market should rise he will never pay more than the original cost of the option:

1. Index stands at 5960 on January 3
2. The March Futures contract is trading at 5975
3. The FTSE Feb 5950 Put is quoted at 50p.

Scenario One: Fund manager sells 2 FTSE futures contracts @ 5975.

Market RISES to 6010 by mid Feb and fund manager decides the market will not fall and buys two contracts at 6050 to close the position.

Outcome—The hedge has cost the fund manager 2×75 points or 150 ticks $(6050 - 5975) \times £5 = £1500$.

Scenario Two: Fund manager buys 2 Feb 5950 Puts @ 50p.

Market rises to 6010 by mid Feb.

The 5950 Puts are priced at 10p.

Outcome—The hedge has cost the fund manager £1000 in option premium paid to open the position. If he closes the position by selling the put option he receives £200, a net cost of £800 excluding dealing fees.

Both strategies gave protection against a FALL in the market. The PUT option restricted the cost of the hedge against a RISE in the market. However, bear in mind that whilst there is a loss occurring on the futures position as the index rises, the value of the stock has increased to compensate. With the option, the rise in the stock prices accrues to the portfolio once the £1000 outlay has been compensated for.

These are very simplistic examples and the decision on whether to use futures or options to hedge a portfolio or stock will be made taking into account many factors. In both cases the position could be quickly closed out if desired. In the above examples we have seen how the fund manager can disperse or minimize the impact of risk on his portfolio.

Index tracking

Index tracker funds perform to their benchmark equity market indices and as such a fund can match the performance of a given index by simply buying and rolling over the relevant equity index futures positions to provide the exposure required in combination with the interest earned on the fund's

cash, without the cost and difficulty of buying the underlying basket of shares.

If the fund has an objective of the index plus X% then sophisticated and complex fund investment strategies have been designed in which futures and options are used in combination with other instruments to both enhance yields and reduce risk.

OTC derivatives

Over-the-counter derivatives are a large market, estimated by both the International Swaps and Derivatives Association (ISDA) and Bank for International Settlements (BIS) as being in trillions of US dollars in value. The combined OTC and exchange traded derivatives market can be reasonably said to be the largest market in the world. OTC derivative markets are constantly evolving with new product innovations being introduced to the market on a frequent basis. Indeed, over the last few years one of the biggest growth areas has been in the trading of credit derivatives (see below).

2005 saw the first few trades in the fledgling property derivatives market in the UK.

However, the market crash, transparency issues and the potential systemic risks have all contributed to a major review and overhaul of the OTC space by the regulators, particularly in the USA and Europe.

A whole range of new directives have emerged including Dodd-Frank in the USA and the Alternative Investment Fund Managers Directive (AIFMD) in Europe. However, it is the European Market Infrastructure Directive (EMIR) that is having the most far reaching impact in Europe as the regulator seeks to have, where possible, OTC transactions standardized and traded on trading systems or exchanges and to have these transactions cleared via central counterparty or CCP in a similar way as to how on exchange derivatives are cleared by the clearing house for the exchange.

A further requirement is that OTC transactions including those that are not standardized or cleared should be recorded at a Trade Repository and reported through to the regulator.

A list of approved trade repositories can be found in the Appendices.

These changes are being heavily scrutinized, particularly in terms of costs and ability to provide suitable collateral and extensive lobbying is taking place so there may yet be more changes!

We will look here at the traditional OTC market and comment on the new structure as appropriate.

Differences from exchange-traded products

We have seen how exchange traded products are standardized into contracts such as futures or options and how they are actively exchange traded in the secondary market (i.e., you can buy a futures contract and then sell it in the market to someone else to close your position).

However, the standardization of the exchange traded futures and options contracts, in terms of contract size, maturity and specification creates some restrictions and disadvantages to their use as hedging instruments, as they may not accurately match the existing market exposure to be hedged.

Example

A fund manager has a portfolio of UK equity shares in combination of FTSE100 stocks and smaller companies and wants to hedge his portfolio for 12 months. The value of the portfolio is £2,425,000 and the FTSE100 index future is currently trading at 5823.5.

If the fund manager decides to use the FTSE100 index future there are some problems:

- *Firstly* the most liquid futures contract will be the nearest maturity, a maximum of only 3 months away. Therefore the futures position will need to be “rolled” over through different several quarterly maturities in the course of the 12 month hedge period.
- *Secondly* the FTSE100 index future will not reflect any change in value of those smaller companies in his portfolio that are not in the index. Thus, the price correlation between the future and his own portfolio may not be good enough for a hedging transaction.
- *Thirdly* the number of contracts required to hedge the portfolio would be:

$$\text{Portfolio} / (\text{£10} \times \text{index point}) = 2425\,000 / (\text{£10} \times 5823.5)$$

$$2425\,000 / 58235 = 41.64 \text{ contracts}$$

You cannot trade 41.64 contracts so the fund manager must trade either 41 or 42 contracts. In either case the portfolio is not precisely hedged.

It is because of these issues that hedgers often look to arrange an OTC deal with a counterparty—usually a bank—that can be tailored to meet their precise hedging requirements. On the other hand the fund manager knows that the OTC transaction may involve some additional credit risk (on the OTC counterparty) and liquidity risk in that the position cannot

easily be closed out if the fund manager later changes his mind. Generally, an OTC contract will be closed with the original counterparty. However, if they are unwillingly to quote a reasonable price, the contract can be “closed” with an equivalent bargain with another counterparty. This can lead to an increase in counterparty risk and may cause settlement problems.

Both OTC and exchange traded derivatives (ETD) are often used by the same organization and the choice of product will depend on the strategy, risk appetite, liquidity, dealing costs and market conditions at the time.

Characteristic	Derivative product	
	OTC	ETD
Contract terms	Tailored, negotiated, flexible and confidential	Standardized quantity, grade, maturity
Maturity/delivery	Negotiable dates and very often go to maturity	Defined delivery dates, terms, but majority of contracts are closed out before maturity
Liquidity	Can take time to negotiate and can be limited by available counterparties. Maybe issues with secondary market availability	Instant market access for all major contracts
Credit risk	Risk is with counterparty to OTC transaction. But collateral can be used to mitigate the risk Since 2008 crash more but not all OTC products are being centrally cleared with margin requirements. Margin can also apply to non-cleared OTC products	Clearing broker (or central clearing house) becomes counterparty to all trades and manages risk through daily revaluations and margin calls

With the terms of OTC derivatives being totally negotiated, the operations function is different to that of the exchange traded products. Instead of standardized daily margin and settlement processes and procedures, we have periodic or event driven settlement. We can illustrate this as we look at some of the basic products traded OTC in more detail below.

NOTE—following the scandals surrounding the manipulation of Libor alternative interest rate benchmarks will be used in many new transactions going forward and the benchmark will be phased out by 2021.

Readers should access the following articles for more information and developments:

<https://www.ft.com/content/fa8cac0a-1ea2-11e6-b286-cddde55ca122>

<https://www.bloomberg.com/professional/blog/libor-alternatives-post-scandal-world/>

Products

Forwards

Forwards are very similar to futures contracts and can also be traded on an exchange (e.g., London Metal Exchange), but are more often OTC. They are generally not marked-to-market daily for settlement purposes, but are settled only on the delivery date, or on a pre-determined date during the life of the forward contract. The largest forward market in the world is that for foreign exchange, which is traded by phone (or on screen) on a bi-lateral OTC basis.

While open forward positions can be revalued on a daily basis, for accounting and valuation purposes, any profits or losses accrued are not paid out until the settlement date of the contract. This applies even if the position is effectively “closed out” by a new equal and opposite trade (at a different price) prior to the settlement day.

Note: The LME is in effect an exchange regulated forward market, where most of the trading is done on an OTC style phone basis, but all the resulting contracts and open positions are then registered with a central clearing house, on which initial margin requirements are calculated.

Forward rate agreements

A forward rate agreement (FRA) is an agreement to pay or receive, on an agreed future date, the difference between a fixed interest rate at the outset and a reference interest rate prevailing at a given date for an agreed period. FRAs are transacted between buyers who agree to the fixed-rate and sellers who agree to the floating rate or benchmark.

Example

Suppose a manufacturer needs to borrow £5 m in 1 month's time and needs the loan for a period of 3 months. Concerned about interest rates rising, the manufacturer decides to buy a FRA that will fix the effective borrowing rate today, even though they have no wish to borrow the money now when it is not needed.

The terms of the FRA are that the fixed-rate is 5.25% and the benchmark is LIBOR. It will start in 1 month's time and finish 3 months later and would be known as a “one vs four” FRA. In 1 month's time the calculation of the settlement of the FRA can take place. The prevailing 11.00 am LIBOR is 5.5%.

The formula used to calculate settlement is:

$$\text{Notional Principal Amount} \times (\text{Fixed Rate} - \text{LIBOR}) \times \\ \text{days in FRA period / days in year divided by} \\ (1 + (\text{LIBOR} \times \text{days in FRA period / days in year}))$$

Calculation:

$$\text{£}5\,000\,000 \times (0.0525 - 0.055) \times 91 / 365 \text{ over } (1 + (0.055 \times 91 / 365)) \\ = \text{£}3074.28$$

The LIBOR rate was higher than the fixed-rate so the buyer (the manufacturer) receives this amount from the seller. There is no exchange of the £5 m, the manufacturer will borrow the money from a lending source and the money received from the FRA will offset the higher borrowing costs of around 5.5%. Had LIBOR been lower than the fixed-rate, the manufacturer would have paid the difference to the seller, but of course would borrow the money at a lower rate. The manufacturer “locked” in a rate of 5.25% for their planned future borrowing.

As far as settlement is concerned, the amount due is known on the settlement date, the date at which the FRA period starts (i.e., 1 month's time) and the calculation period is known (3 months). Unlike most transactions that settle on maturity a FRA can be settled at the beginning of the calculation period. The amount may be discounted to reflect the interest that would accrue if the amount paid was deposited to the end of the FRA period.

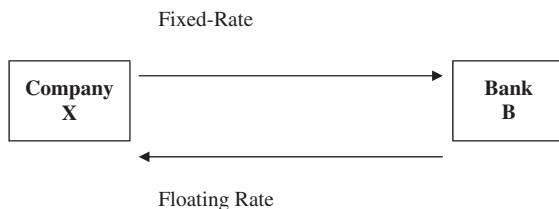
Swaps

Swaps are OTC products that involve the swapping of one future cash flow for a different future cash flow, where both flows are defined by a reference entity or benchmark. Common examples include, interest rate, currency and equity swaps.

Example

Interest rate swaps

An interest rate swap (IRS) is an agreement to swap, over an agreed period, two payment streams each calculated using different interest rates (typically fixed versus floating), but based on the same notional principal amount. By using an IRS, a company can change their longer term interest rate exposure (e.g., from floating to fixed) in advance for a specific period, typically 3 to 10 years.



During the life (term) of the above swap there will be periodic settlements of the netted payment flows on “payment date,” calculated at what is known as “reset dates” (e.g., quarterly semi-annually or annually) and valued against the benchmark rate(s). The payments cannot be netted at each reset date if the payment dates are different, e.g., where the fixed-rate is paid annually but the floating rate is paid semi-annually.

An IRS is transacted to start immediately, or at a forward date, and will run for the agreed period. The start date is known as the “effective date” and the end date is known as the “termination date.” The floating rate is reset at the effective date for the next period and then at reset dates for the following period throughout the term of the swap.

Suppose a company XYZ currently pays a floating rate of interest, say LIBOR +0.4% for a loan of \$10 m over 5 years. Concerned that rates will rise the treasurer wants to change the payment flow to a fixed-rate, but is unable to alter the terms of the loan. Company XYZ approaches bank ABC and agrees a 5-year IRS, the terms of which are that: company XYZ will pay 6.3% fixed, paid annually on an ACT/360 basis and receive LIBOR, semi-annually on an ACT/360 basis. If at the beginning of the swap LIBOR is 6%, then at the end of the first 6 months the floating-rate payment is:

$$\$10\,000\,000 \times 6.00\% \times 181 / 360 = \$301\,667,$$

which is paid by Bank ABC to Company XYZ

Note: there is no netted payment against the fixed-rate cash flow for the period, as the terms state that the fixed-rate leg only settles annually.

Continued

At the beginning of the next 6 months LIBOR is 6.25% and after that second 6-month period the swap payments are:

$$\begin{aligned} \text{Floating : } & \$10\,000\,000 \times 6.25\% \times 184 / 360 \\ & = \$319\,444 \text{ (due by bank ABC to company XYZ)} \end{aligned}$$

$$\begin{aligned} \text{Fixed : } & \$10\,000\,000 \times 6.30\% \times 365 / 360 \\ & = \$638\,750 \text{ (due from company XYZ to bank ABC)} \end{aligned}$$

This time the settlement can be netted so that company XYZ pays \$319,306 to bank ABC.

In this IRS company XYZ has a risk as their view on interest rates over the next 5 years may be wrong and rates might actually fall not rise. By agreeing to pay a fixed-rate, in this case 6.3%, their cost of borrowing may end up higher than it would have been, if they had not entered into the swap.

Example

Currency swap

A currency swap is an exchange of a series of cash flows in one currency for a series of cash flows in another currency, at agreed intervals over an agreed period, and based on interest rates.

It is possible to have a combination of fixed-and floating rates in two currencies in a currency swap, e.g.:

1. Fixed interest in one currency against floating rate in another currency.
2. Fixed interest in one currency against fixed interest in another.
3. Floating rate in one currency against floating interest in another.

Unlike an IRS (see above) where there is no exchange of the principal amount, with a currency swap there may (or may not) be a negotiated exchange of the principal amounts at both the beginning and end of the swap term, at an FX rate agreed at the beginning.

If a UK company wants to expand its business in the US by providing an injection of capital and it can borrow money cheaper in the UK (where it is well known to its bankers) it could negotiate a currency swap whereby: the UK company borrows British Pounds (GBP) on a floating rate basis from its own bank and then swaps this GBP principal amount for USD with the swap bank counterparty. It might agree to pay a fixed-rate of interest on the USD and receive a floating rate of interest on the GBP, which it uses to pay the floating rate interest on the original GBP loan from its bank.

It agrees to exchange the principal amounts at the beginning of the term at an agreed FX rate and decide to fund the future repayment of the GBP loan (which is a totally separate transaction from the swap) from its own resources.

The USD amount is invested in its US business and the subsequent income stream is used to pay the swap counterparty the fixed-rate interest on the USD leg of the swap. During the swap term, which will correspond to the loan duration, the payment streams will be settled on reset dates. They are not netted because they are in different currencies.

This currency swap has provided the company with protection against foreign exchange movements during the period of the swap and protection against interest rate movements in the UK market rate during the period of its borrowing.

OTC options

OTC options are often called “exotic” because, unlike the standardized exchange traded product, they possess additional characteristics that change the relatively simple Call and Put outcomes. As all the terms are negotiated between the parties they are of course very flexible.

Common OTC option types

- *Calls and Puts* with specific customized amounts and durations negotiated between the two parties, e.g., a £1.1 m, two year call option on the FTSE100 index at a strike of 5905.2
- *Interest Rate Guarantee (IRG)*, which is an option on a FRA
- *Swaption* is an option to enter into a swap. Like all options it gives the buyer the right, but not an obligation to enter into the swap at some stage
- *European, American and Bermudan* style options, which have a variety of different exercise characteristics (i.e., expiry, any time, or specific times)
- *Asian, average rate or average price options*, which use different benchmarks rather than the price of the underlying asset on expiry to determine if they are in- or out-of-the-money (e.g., the average price of the underlying asset over the last month)
- *Barrier options* refer to a family of different options, which are either canceled or activated if the underlying price reaches a pre-determined level. They are also known as *knock-out*, *knock-in* or *trigger* options
- *Caps and floors*, which are a series of “rollover” rates agreed whereby the difference in rates is paid, if applicable at the time of the rollover
- *Collars*, which operate like ordinary options, but have limits on the level at which the customer can deal at a better market rate than the underlying, in exchange for a lower premium.

We also have *Puttable* and *Callable* swaps which allow the fixed-rate receiver and fixed-rate payer respectively to terminate the swap early. They are traded with European, American and Bermudan styles of exercise right.

Total return swap

As the name implies, a total return swap is a swap of the total return out of a credit asset against an agreed fixed return. The total return out of a credit asset can be affected by various factors, some of which may be quite unconnected to the asset in question, such as interest rate movements, exchange rate fluctuations, etc. Nevertheless, the protection seller guarantees a fixed return to the originator, who in turn, agrees to pass on the entire collections (both income and capital gain/loss) from the credit asset to the protection seller. That is to say, the protection buyer swaps the total return from a credit asset for a negotiated predetermined fixed return.

Credit default swap

A credit default swap is a refined form of a traditional financial guarantee, with the difference being that a credit swap need not be limited to compensation upon an actual default, but might also cover other credit events such as a downgrading. In a credit default swap, the protection seller agrees, for an upfront (or continuing) premium, to compensate the protection buyer upon the occurrence of a specified event, such as a default, downgrading, etc. Credit default swaps cover only the credit risk inherent in the asset, while risks that are due to other factors, such as general market or interest rate movements, remain with the originator.

Contracts for differences (equities)

Contracts for differences (CFDs) have become extremely popular over the last several years, especially among retail investors. A CFD is a contract to receive (or pay) a cash amount which is the difference between the agreed price at the time of the deal and the settlement price when the deal is closed. The contract has no time limit and is not closed until the client wishes to do so (or if the client defaults).

The broker will require a deposit for the margin, typically 10% of the underlying. The position is marked-to-market daily and the broker may call for additional margin. Charges include a commission and a cost-of-carry charge based in the underlying amount.

The main advantages in using CFDs are:

- no stamp duty
- the ability to go short
- leverage through trading on margin
- the opportunity to trade shares which are not listed on a futures or option exchange.

Settlement of OTC products

The settlement of OTC derivatives is determined by the terms of the product as negotiated by the two counterparties, and also the CCP requirements, where applicable. There are, however, relatively standard settlement characteristics for many OTC products.

Settlement events are triggered by such things as the:

- effective date, reset date and payment date for swaps
- settlement date and calculation period for FRAs
- premium convention, exercise date and trigger events for options
- maturity of all products.

In general, most products settle at the end of a period or on maturity, with the exception of FRAs and IRGs, where the settlement takes place using a discounted present value of the future cash flows.

Key to the settlement of OTC products is the terms of the transaction. Unlike exchange traded futures and options where the terms are stipulated, each OTC trade is effectively a new set of terms, even though the product may be the same each time. All OTC derivative trades should be supported by documentation that ensures that the terms of the derivative transaction are fully disclosed and understood.

In the past documentation was a major obstacle to the use of OTC derivatives, as each trade had a separate agreement. These agreements had to be vetted by the legal department by both parties and consequent delays and disputes caused considerable problems.

The International Swaps and Derivatives Association (ISDA) have greatly helped to resolve the problems by developing standard documents for use by counterparties for many types of OTC derivative product. The British Bankers Association has also developed standard documentation for FRAs.

The standard ISDA document negotiated between the two parties (before their first trade) is known as a "Master Agreement." This key agreement

can later be supplemented with schedules, annexes and appendices to cover any additional issues and trades that are agreed between the parties.

The ISDA master documents cover all the general contract terms and conditions that may be relevant for both parties, including their respective rights and obligations in respect of any OTC transactions executed between them. These provisions include:

- contract currency
- multi-branch facilities
- payment provisions
- default procedures
- termination events
- warranties, covenants and representations
- tax indemnities
- notices
- assignment
- legal jurisdiction
- waiver of immunities.

Confirmations

For every individual OTC trade a confirmation document is generated by the counterparties as written evidence (and confirmation) of the specific trade terms, rather than the general terms under which business is being transacted between the two counterparties.

The confirmation lists key sets out the key trade details to be reconciled (see example below). Confirmations should be issued by one counterparty (normally the bank issuing the OTC product), as quickly as possible so that the trade details can be reconciled by the other party. Similarly receipt of a confirmation from the counterparty, or a signed copy of a confirmation, sent to the counterparty should be chased up, as the confirmation is not legally enforceable until both parties have acknowledged that the details of the trade are agreed.

Note: Typically, two banks participating in a trade will send each other confirmations whilst a bank and a client trade will result in a confirmation from the bank to the client which the client will then sign and return.

The confirmation process used today is often automated, at least to some degree and where the transaction is carried out or processed on a dealing system the confirmation details will be automatic.

Clearly the efficient settlement of cleared and non-cleared OTC products requires a high degree of skill in managing the flow of information at, and immediately after, trading and then during the term of the transaction. Central to this is the confirmation document.

Example

FRA confirmation

This could be sent via the SWIFT messaging facility and would contain information such as:

Confirmation from Mega Bank	To: InterBank Inc
Buyer: Mega Bank	
Transaction date	19/06/2006
Effective date	21/06/2006
Terms	ISDA
Currency/amount	GBP 3000 000
Fixing	19/09/2006
Settlement	21/09/2006
Maturity date	21/12/2006
Contract period	91 days
Contract rate	5.79% pa on an actual/360 basis

Example

IRS confirmation

For a fixed/floating swap transaction would contain information such as:

Confirmation from Mega Bank	To: Interbank Inc
Interest rate swaps	
Transaction date	19/06/2006
Effective date	21/06/2006
Maturity date	21/12/2006
Terms	ISDA
Currency/amount	UDS 5000000
We pay	5.76%
Frequency	Annual
Calculation basis	Actual/365
We receive	6-month LIBOR
Frequency	Semi-annual
Calculation basis	Actual/360

There are other pieces of information that can or will be added to this, such as frequency being modified following convention.

The post-trade environment

There are many processes in the post-trade environment that are common to all transactions. These include:

- trade capture and verification
- position keeping

- profit/loss analysis
- confirmations and documentation
- settlement
- customer services
- reconciliation
- collateral management
- risk management.

Trade capture and verification requires all the trade details to be input to the back-office systems. From a risk and control point of view the system must be capable of handling certain key information about a trade such as:

- title of instrument traded
- buy or sell (FRAs, options), pay or receive (swaps)
- currency
- size of contract (option), notional amounts (FRAs, swaps)
- FX rate, price, rate of premium (two rates in the case of a fixed/fixed-rate currency swap)
- floating rate basis/bases
- FX rate agreed for conversions of principal (currency swap)
- strike price or rate (options)
- trigger level (barrier option)
- trade date and time
- underlying asset (option, equity swap etc.)
- effective date
- period (FRA)
- settlement date(s)
- maturity date
- expiry date (option)
- exercise styles and dates
- day/year calculation bases (swaps)
- physical/cash settled (options)
- special conditions, e.g., for Asians options
- trader
- counterparty
- deal method, e.g., screen, telephone.

This list is not exhaustive and certain types of products, as they may have their own unique terms, will need additional information. In cases where the full details cannot be recorded in the main system, adequate manual records, processes and checks must be employed. Details of the settlement instructions, including netting if agreed, will also be input to the system

together with information such as the reference sources for fixings and possibly the documentation type (ISDA, BBA) and governing law.

It is important that all these data are captured in the back-office systems so that key reports and information can be supplied to operations, dealers (positions and profits/losses), risk managers, general ledgers, reconciliation systems, etc. There always will be queries related to transactions, settlement and events and it is important that the respective operations staff at the two parties to the trade work closely together to resolve any problems quickly. This has been highlighted by the recent interest of the FSA and the Federal Reserve Board of the USA concerning the length of time taken to match bargains in the OTC credit derivatives market. They were concerned with the number of bargains remaining unmatched for a number of weeks thus exposing both parties to operational and counterparty risk. More recently equity derivatives have come under the regulatory spotlight.

Event calendar

This trade and settlement information also helps to provide a calendar of future OTC events in order for the relevant operations, treasury and dealing staff to track the settlement events that will be occurring, e.g., resets, expiry, settlement dates.

Some events are mandatory obligations of the trades done (and/or automatic), such as those involved with swaps, barrier options, caps, collars and floors, and FRAs. Other event types may require an instruction and/or decision by the dealer or client, for example, option exercise, credit default events, early terminations of OTC contracts.

Other settlement issues

It is important to regularly revalue OTC positions for profit/loss reporting purposes and to reconcile all open positions against both the dealers' records and the counterparty's records for overall exposure, limit and risk control management.

The use of collateral in conjunction with initial and variation margin for OTC trades will also be a key risk control; especially where one party has a much lower credit rating than the other. Where collateral has been lodged as part of the risk-management process, it is important to ensure that the collateral value remains sufficient to cover the exposure risk.

Default risk is the major concern for most OTC transactions. Where a trader has the fixed side of a swap "matched" between two counterparties

(e.g., he is receiving a fixed-rate from one counterparty and paying a lower fixed-rate to the other) and the first counterparty defaults, the second counterparty must still be paid. The trader is likely to incur financial loss in replacing the defaulted swap with another at current market prices.

SwapClear

The introduction of any central clearing counterparty facility for OTC derivative products helps to reduce the regulatory capital adequacy requirements (and credit risks) associated with OTC transactions for certain market participants. As we saw in [Chapter 1](#) LCH Ltd. launched SwapClear in September 1999 allowing some of the largest clearing members (who can meet the financial criteria for SwapClear membership) to clear some of their interest rate swap portfolio under the same principals as used for exchange-traded derivatives, i.e., daily multilateral netting with variation and initial margin requirements.

Note: LCH Ltd. also provide the same type of facility for a limited range of other products through RepoClear and EquityClear.

MarkitSERV

MarkitSERV⁷ is an electronic dealing system designed for the electronic online negotiation and trading of benchmark swaps and options. Its main objectives are to provide:

- lower transaction costs
- faster transfer of deal information in a standard format
- the facilitation of straight through processing in OTC transactions.

One significant advantage of MarkitSERV is that it provides evidence of the deal done and thereby removes the need for a confirmation to be sent. This reduces the manual paperwork and processing involved.

Derivatives pricing, valuation and accounting

The use of derivatives is now widespread with traders, investment managers such as pension funds, retail funds and alternative investment funds like hedge funds, corporate companies, producers and users of commodities and government agencies.

Some of the issues of using derivatives revolve around the ability to price and value positions held in these products for the purpose of profit/loss and net asset value calculations, as well as being able to reflect them in the accounts of the organization concerned.

When derivative transactions take place there will need to be the relevant entries made in the book keeping or general ledger so that the accounts are a true record.

Understanding the way in which different derivatives are treated for accounting purposes is essential.

Being able to value the derivative (as well as its actual and possible liabilities) is also an essential requirement for any organization using these products.

Pricing derivatives

On exchange derivatives would normally be priced using the prices published at the end of day by the exchange. For futures contracts this is vital as the resulting value is the variation margin that will be settled the following day.

OTC derivatives will need to have a price or value source set out in a pricing policy. Current values for many popular OTC derivatives like interest rate swaps can be obtained from QVs like Bloomberg. Alternatively we could price a swap off a yield curve.

Accounting for derivatives will need to be in line with the relevant accounting standards. Since the market crash there has been regulatory and accounting issues related to OTC derivatives with ongoing debate in the industry between participants and regulators and the introduction of new legislation and best practice is continuing.

Regulatory environment for OTC derivatives post 2008

The regulatory environment for OTC derivatives has changed significantly since 2008.

Key EU Directives like MiFID II and the AIFMD need to be researched with respect to both accounting and use of OTC derivatives; however, the major change has involved the move by regulators to have some types of OTC derivatives traded on exchanges or trading systems and to have them cleared via CCP. This does not and cannot apply to all OTC derivatives, but, where that is the case, regulators want trade details to be provided to a trade repository.

ICE Credit, LCH SwapClear, MarkitSERV, etc., are all in the clearing of OTC derivatives space whilst Euroclear's Xtrakter and Clearstream's REGIS-TR are examples of European trade repositories.

Meanwhile in Asia, SGX and HKEx have developed CCP capabilities and in India the Clearing Corporation of India Ltd. (CCIL) has taken the projects forward there.

There will be further developments in this area of that we can be sure!

Summary

Fig. 5.1 shows the relationships between the parties in the clearing and settlement of derivatives.

Here we can look at the workflow that may occur for the operations teams.

Figs. 5.2 and 5.3 set out the high level functions and to this we can add initial and variation margin requirements if they are applicable to the product regulation.

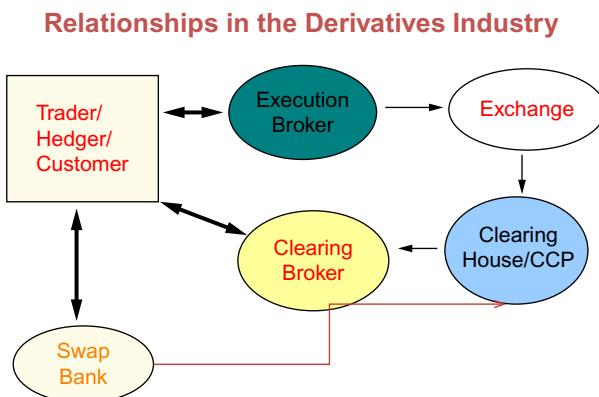


Fig. 5.1 Industry relationships. (Source: *The DSCPotolio Clearing Settlement and Custody training*.)

Operations Workflow - 1

- T+0: In-house system data capture
 - Enter details of all trades executed
 - Enter any new parameter file data needed
 - Transfer data to operations & accounts systems
- T+1: Reconciliation with counterparty
 - Send/receive confirmation to/from counterparty
 - Match trade details; reconcile differences
 - Sign and return (or acceptance) of confirmation

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Fig. 5.2 Workflow 1. (Source: *The DSCPotolio Clearing Settlement and Custody training*.)

Operations Workflow - 2

- Daily: Mark-to-market valuation
 - Determine source of price
 - Calculate unrealised MTM gain/loss
 - Initiate collateral movements if applicable
- Periodic (T+90?): Repeated settlements
 - Calculate settlement amounts due
 - Issue payment instructions & check actioned

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Fig. 5.3 Workflow 2. (Source: *The DSCPotolio Clearing Settlement and Custody training*.)

Swap Settlement

- Frequency of interim settlements
- Reference prices (& formulas) determined
- Gross settlements calculated
- Net cash flow on payment dates
- Payment procedures agreed in advance

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Fig. 5.4 Swap settlement process. (Source: *The DSCPotolio Clearing Settlement and Custody training*.)

Fig. 5.4 shows the characteristics of Swap settlement.

Again there may be initial, variation margin and collateral issues to be considered if the swap product is cleared.

Further reading

Clearing and Settlement of Derivatives, www.books.elsevier.com/finance.

Summary: Useful reference websites

Derivative markets are already a very important component of the world's financial markets and continue to grow in variety, complexity and usage, with new products constantly being researched and designed. The infrastructure in the industry evolves and changes constantly to meet these challenges.

It is important to keep up to date with developments and to know where to find information on both new and existing products. The following websites may be particularly useful:

Futures and option exchanges:

www.Euronext.com

www.CME.com

www.CBOE.com

www.LME.com

www.theice.com

www.ccilindia.com

www.markit.com

www.sgx.com

www.Hkex.com.hk

Clearing houses/CCPs/repositories:

www.lch.com

www.theocc.com

www.euroclear.com

Industry general:

www.futuresindustry.org

www.isda.org

www.fca.gov

www.cftc.gov

www.sec.gov

Derivative definitions and jargon:

www.thefreedictionary.com

www.investopedia.com

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CHAPTER 6

Custody services

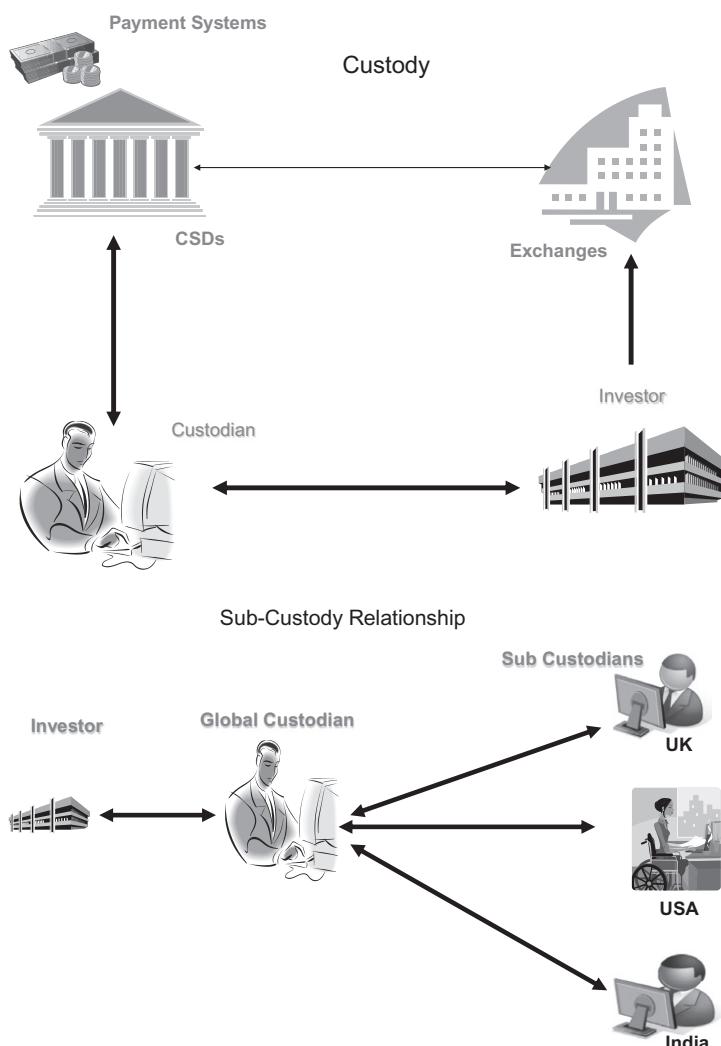
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In this chapter we will look at the role of custodians and the services they provide to their clients. With sophisticated computer systems and a worldwide network of sub-custodians, global custodians are in a position to deliver a growing portfolio of services to their clients. The relationship between the custodian and the client is based on acting on instruction (as illustrated below).

Referred to by global custodians as either *core services* or *value-added services*, the range offered includes:



- the safekeeping of securities
- the maintenance of multi-currency securities and funds accounts
- the settlement of securities trades in domestic and foreign markets, on a free of payment or delivery versus against payment basis
- the collection of dividends, interest and principal amounts due for redemption on due date
- the exercising or selling of subscription rights and attending to other corporate actions
- the reporting of transactions completed and the periodical delivery of hardcopy statements of account
- contractual or actual settlement date accounting
- contractual or actual income collection
- terminal or computer-to-computer links to pass on instructions and retrieve client information from the custodian's database
- customized multi-currency reporting and performance information
- securities borrowing and lending
- assistance with withholding tax claims
- handling/settlement of derivatives
- briefings on specific countries, in particular on emerging markets
- cash projection and cash management
- ensuring that physical certificates and associated documentation are in good order.

From a global custodian's perspective, core services are those which are so standardized that there is not a great deal of scope for any particular global custodian to differentiate its service from that of another global custodian. Any fundamental changes and improvements will affect the industry as a whole.

Value-added services, on the other hand, provide the global custodians with the opportunity to offer a broader and different service to their clients and, in so doing, enhance the global custodians' standing within the marketplace and improve their fee-earning capabilities.

Settlement is, as we know, the final transfer of cash from the purchaser to the seller in exchange for the delivery of the securities to the purchaser. However, settlement conventions vary widely from country to country and especially in the areas of physical delivery and book entry transfer.

To illustrate the difference, we can look again at the situation for an eligible^a equity transaction prior to the introduction of CREST in the UK

^aEligible securities are those designated by the CSD or CCP as meeting the requirement to qualify for settlement via the CSD/CCP. Not all securities qualify and settlement of non-qualifying securities takes place directly between the parties to the transaction—example private, unlisted securities.

and at how the ICSDs settle Eurobonds. In the UK prior to CREST an investor had to physically lodge the share certificate together with relevant transfer documentation with a London Stock Exchange processing office prior to settlement (Fig. 6.1).

CREST TRANSFER Name of Undertaking. Description of Security <small>Please complete form in type or in block capitals.</small> <small>Name(s) of registered holder(s) should be given in full; the address should be given where there is only holder.</small> <small>If the transfer is not made by the registered holder(s) insert also the name(s) and capacity (e.g. executive(s) of the persons) making the transfer</small> Please Sign Here → <small>Full name(s) of the person(s) to whom the security is transferred Such person(s) must be a system member.</small> <small>Reference to the Registrar in this form means the registrar of register agent of the undertaking: <u>not</u> the Registrar of Companies at Companies House.</small>	Above this line for Registrar's use Counter Location Stamp Barcode or Reference SDRN Above this line for completion by the depositing system-user only. Consideration Money Certificate(s) lodged with Registrar (To be completed by Registran) Amount of shares or other security in words Figures In the name(s) of Designation (if any) Balance certificate(s) required I/We hereby transfer the above security out of the name(s) aforesaid into the name(s) of the system-member set out below and request that the necessary entries be made in the undertaking's own register of members. Signature(s) of transferor(s) 1. 2. 3. 4. <small>A body corporate should execute this transfer under its common seal or otherwise in accordance with applicable statutory requirements.</small> Date Participant ID Member Account ID <small>CRESTCO Limited is delivering this transfer at the direction and on behalf of the depositing system-user whose stamp appears herein and does not in any manner or to any extent warrant or represent the validity, genuineness or correctness of the transfer instructions contained herein or the genuineness of the signature(s) of the transferor(s). The depositing system-user by delivering this transfer to CRESTCO Limited authorizes CRESTCO Limited to deliver this transfer to registration and agrees to be deemed for all purposes to be the person(s) actually so delivering this transfer for registration.</small> <small>This form should be used only for a transfer of a certificated unit of a security to a CREST member to be held by a CREST member in uncertificated form. It should not be used for conversion of a unit held by a CREST member into uncertificated form.</small> <small>The CREST rules require that this form be used for the transfer of a unit of a certificated security to a CREST member to be held by that member in uncertificated form. Any such transfer on this form is exempt from stamp duty.</small>
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Fig. 6.1 CREST transfer form.

Eurobonds, held in electronic book entry form by Euroclear and Clearstream, are settled by Book Entry Transfer (BET). The securities accounts of the seller and the buyer are credited and debited respectively. This process is widely used by the major clearing organizations like CREST. However, while markets have mostly moved towards book entry transfer, it is worth remembering that a number of securities markets are still paper-based.

How and where else does settlement differ across the world? Look at the following examples that highlight some of the differences:

- *Rolling settlement versus fixed settlement dates*—In the majority of securities markets around the world, trades settle on a rolling basis, i.e., a fixed number of days after trade date in line with G30's Recommendation No. 7.
- *The length of elapsed time from trade execution to trade settlement*—G30 recommended that settlement of all types of securities should take place on at least a T + 3 basis throughout the world but in most jurisdictions, transactions will settle T + 1 or 2 and even T 0.

T + 0, settlement on the same day as a trade takes place on some markets like for example some exchanges in the Middle East, because the buyer and seller must have the relevant securities and cash at their broker before the trade takes place. As a result settlement is possible immediately.

However this applies to what are essentially domestic markets. Saudi Arabia adopted a series of legal changes to open up their market to international investor including switching from T + 0 to the T + 2 convention familiar to those investors.

In theory, all securities transactions should settle on time and in accordance with local market conventions. This allows investors to make efficient use of their money, whether for funding a purchase or placing/reinvesting sale proceeds, and also reduces risk. In reality, the ability to settle securities transactions on time varies from country to country and within security types.

We have seen in previous chapters that there are many reasons why trades fail to settle on the due date, for example:

- Late/incorrect settlement instructions from a counterparty to the custodian or clearing agent
- Seller has insufficient quantity of securities to deliver either as a result of a failed purchase or, for example, a market-maker's business decision to go short (i.e., to sell securities that he does not have)
- Purchaser has insufficient funds to pay

- In the case of certificated securities, they are not yet available from the registrar from a recent purchase to cover a sale: the registration process can take up to several months to complete.

While there are individual market mechanisms (for example, buy-ins) to help resolve these failures, the result is that securities administration becomes inefficient, exposure to risk increases and costs rise. Buy-ins permit the purchaser to achieve timely settlement by purchasing the securities from another agent. The securities are delivered, and the extra costs passed on to the original seller. In some Far Eastern markets the buy-in process is automatically generated by the market together with financial penalties and, in some circumstances, suspension of the offending broker's trading license.

Custody providers seek to offer their clients services that ease the administration process even when problems with settlement occur. One such process concerns settlement accounting. In terms of settlement accounting, custodians would credit sale proceeds and debit purchase costs on whatever date the trade was actually settled. This is known as *actual settlement date accounting (ASDA)*. The application of ASDA works in favor of purchasers as they will have the use of their funds for an extra few days and perhaps the opportunity either to earn interest or to place the funds on deposit for that period.

However, ASDA is a disadvantage for sellers who will be unable to use the funds until received. This can cause a knock-on problem where the expected funds were committed for other purposes on the original settlement date. Overall, ASDA in poorly performing markets handicaps the investor by making it difficult to manage cash flow requirements and cash positions effectively. Custodians have approached this problem by making a commitment to the investor that funds will be debited or credited for good value (in this case on the original settlement date). This is *contractual settlement date accounting (CSDA)*. It enables the investor to operate in the certain knowledge that the cash accounts will reflect the expected entries and balances. However, in one or more of the following circumstances the global custodian will protect himself from risk of non-performance of the trade by insisting on variations in its contractual commitments to the investor:

- CSDA is not offered in those countries which the global custodians consider to have a substandard settlement infrastructure.
- Investors' settlement instructions which have missed a deadline will be considered received the following day by some global custodians. In other words, either the CSDA value will be applied on a later date or ASDA will be applied.

- The global custodian retains the right to reverse cash entries in the event that trades remain unsettled after a particular length of time.
- CSDA on a sale will not be provided if there are insufficient securities to satisfy the delivery.

Whichever accounting practice is used, it is in the global custodian's interests (and the client's where ASDA is used) to apply pressure on the local stock markets and authorities to improve the settlement environment.

There are obviously procedures and processes in the provision of custody services that affect the custodian and the client. The principal objective in global custody provision is to pass an accurate and timely instruction from the client to the Central Securities Depository or clearing agent based in the country of the security via the global custodian and sub-custodian network, or vice versa (Fig. 6.2).

Instruction from client to global custodian

There are numerous ways in which the client is able to send a settlements instruction to the global custodian. Traditionally this has been either manually or verbally.

Manual/verbal instructions

- Telephone instruction (with call-back from the custodian to the client) supported by a mailed confirmation from the client
- Faxed instruction supported by a mailed confirmation from the client
- Written instruction duly authorized by one or more officers of the client

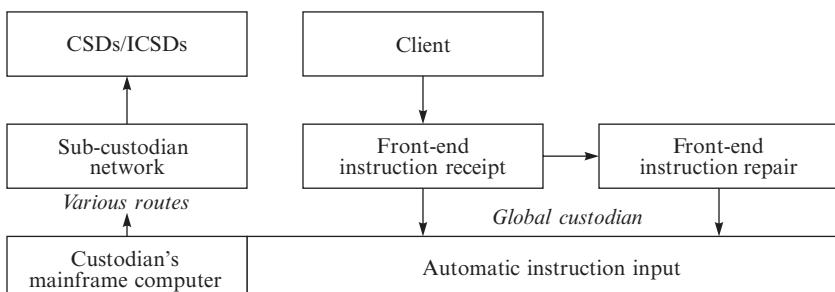


Fig. 6.2 Information flows from client through to the CSDs via global custodian and sub-custodians.

- Tested telex instructions in which the message is preceded by a series of digits uniquely identifying the instruction initiator to the receiving custodian and confirms to the custodian that the instruction may be acted upon. Usually, clients have the preparation of telexes automated within their systems.

However, these methods are in many ways inefficient and are not likely to be found in major markets or by major players for the following reasons:

- Even though a telephoned instruction is called back correctly, there is no guarantee that the initiator of the instruction had the authority to issue the instruction.
- Control is difficult to maintain in the absence of an effective and robust audit trail of the instructions.
- It is not possible to authenticate with absolute certainty the location from which a faxed instruction was sent.
- Written instructions can easily be delayed, mis-directed, or lost and the investor has no means of knowing if the instruction has been received until it is possibly too late to issue a replacement instruction.

All the above methods are to a greater or lesser extent time consuming and open to error and misuse. For obvious reasons the use of electronic instructions has now become the industry standard.

Electronic instructions

We can consider a generic process whereby the client enters instruction details into the global custodian's system. The software converts the instructions into electronic data files, which are then transmitted via a link to the global custodian's computer system.

Electronic transmission of instructions is preferable to manual methods for a variety of reasons:

- The software applications and the hardware in which it resides can be protected by both physical and electronic methods such as locating the PCs in a secure environment in the office and only allowing access to those staff who have authorized system identification numbers and user passwords.
- The preparation of electronic instructions is faster and more accurate and can be incorporated into a straight through processing (STP) environment.
- More effective controls can be established with full audit trails generated by the software.
- Data files can be retained by using the archiving capabilities of the software thus dispensing with the need to retain large quantities of paper files.

SWIFT is a key messaging system used in the markets. More on SWIFT later.

Instructions are also made between the global custodian and sub-custodian.

There are essentially two common methods by which the global custodian is able to communicate with the sub-custodian. Which method is used depends to an extent on whether the sub-custodian is a branch of the global custodian or a third party:

- If there is an own-branch relationship and both global custodian and sub-custodian share the same systems technology, then trade instructions are transmitted through this medium.
- If the sub-custodian is a third party or an own branch without a common technology, then instructions will be translated into a suitable message format and transmitted electronically through a communication network such as the aforementioned SWIFT.

Then we have instructions from the sub-custodian to the settlement agent/CSD and the methods by which sub-custodian communicates with the settlement agents and CSDs are dependent on local market practices.

As noted this could involve using SWIFT or using a CSD's proprietary systems such as Euclid at Euroclear.

Custody problems could occur. For instance there are a number of issues that affect the ability of a client to achieve timely settlement of overseas securities trades.

Following the initiatives by G30, ISSA, global regulators and other industry participants, global settlement practices are improving and timescales shrinking. There is, however, a danger that if the lines of communication between client and their global custodian, global custodian and sub-custodian and sub-custodian and local market fail to meet the required settlement standards then settlement performance may be compromised.

With the final objective of a T + 1 settlement period, there is the problem of initiating a settlement instruction early enough to allow the global custodian to pass on the instruction to the sub-custodian and from there to the local market. There are, as we know, many markets that have T + 3 settlement and some markets with shorter settlement date cycles. The global custodian receives the client's instruction and ensures that it is valid before passing it on to the sub-custodian. This is a primary control and operational risks would be increased if validation did not take place. If this involves transferring the information from one system to another by a process of rekeying the data, then the risk of error and delay is even higher and consequently, there is little

time to correct any errors before settlement due date. The solution is based on the ability of the client to prepare and transmit a data file of information (i.e., the settlement instructions) to the local market without the need for either the global custodian or sub-custodian to rekey the data into another format. The use of standard settlement instructions (SSIs) and a significantly high level of STP are essential in modern-day custodians.

Reporting requirements

The global custodian is able to offer settlement activity reports to the client in either hardcopy form or more commonly by data transmitted electronically to the client's system via a link. Electronic reporting provides the investor with the opportunity to extract only the information that is required. This is achieved by transferring the data from the custodian's system into the client's proprietary computer system and then the client sorting the information in any order, e.g. all trades on a particular settlement date, all trades in a particular security number, etc., to suit their requirements.

A fundamental service offered by custodians has always been safekeeping of securities. It is important to note that custody is an integral part of the investment process and a high level of confidence in the security of safe custody is indispensable in meeting investor protection objectives such as:

- preventing misuse of investors' assets
- safeguarding ownership rights.

It was for this reason for instance that the EU in their Alternative Investment Fund Managers Directive (AIFMD) specifically requires alternative investment funds to have a depositary to oversee the safekeeping of the fund's assets.

Global custodians and their clients must operate within the general laws of the countries in which they are based as well as complying with any regulatory obligations. For the global custodian, this can become a complicated exercise when entering into legal agreements with sub-custodians based in different jurisdictions. Custodians are in many jurisdictions a regulated entity.

The main regulator of the securities industry in the UK was, until April 2013, the Financial Services Authority (FSA) and the segregation of a client's assets from those of a firm is a main part of the regulatory environment under the FSA. From April 2013 the FSA is replaced under the Financial Services Act 2012 by The Financial Conduct Authority (FCA) and the

Prudential Regulatory Authority (PRA) and readers should access the FCA and PRA Handbooks which replace the FSA Handbook.

In the USA many of governing rules on custody provision are contained in the OCC Handbook, which can be accessed at <http://www.occ.gov/publications/publications-by-type/comptrollers-handbook/custody-service.pdf>.

For securities that can be registered, the name of the investor or their agent is shown in the electronic records at the CSD and on the register at the company's agent. The name of the investor or their agent is also shown on the face of the certificate where a security is still in physical (paper) format and is also reflected on the issuing company's register of shareholders. Private investors who do not use the services of a custodian or other entity, like a broker, for safekeeping purposes will have their holdings registered in their own names.

While this has the advantage that the beneficial owner can be readily identifiable (i.e. name on register), it does cause administrative problems for custodians who are appointed to look after the shareholdings of many investors. For example, all dividends, corporate actions, company announcements, etc., will be sent directly to the shareholders' addresses, and not to the custodian. The custodian will arrange for its clients' registered securities to be registered in the name of the custodian or if a broker into a nominee company, established by it specifically for that purpose.

Whether the shares are registered in the name of the investor or the nominee, making changes on the company share register can be a time-consuming process, especially in a certificated environment. Reregistration can take anything from a week up to several months to complete, depending on the particular country. Whilst the certificated securities are primarily unlisted and low liquidity, there are likely to be some delays in the transfer of registration.

It is important to differentiate between legal ownership and beneficial ownership. Although the law can be a complex situation, broadly speaking whoever's name is on the register has legal ownership of the securities. However, in the case of a custodian or other nominee's name, the beneficial owner is the underlying investor, as shown in [Table 6.1](#). However, this may be viewed differently legally and for tax purposes in different jurisdictions.

Note: a custodian's ability to advise the investor in this complex legal and tax area can be a key added value service particularly in emerging markets.

Table 6.1 Ownership of securities.

Whose name is on company register?	Legal ownership held by	Ownership held by
Investor Nominee	Investor Nominee	Investor Investor

For book-entry securities, there are no certificates so the holdings in these securities will be reflected by entries on a ledger statement.

The custodian or nominee company becomes the legal owner of the investments and its name appears on the issuing company's register of shareholders. Beneficial ownership is implied in this situation and it is the custodian's responsibility to maintain accurate records of the underlying beneficial owners.

There are two different approaches to the management of nominee holdings both of which provide a secure and effective custody environment. This can only occur so long as proper and continuous controls are operated by the custodian.

Pooled nominee system (omnibus)

Under this system, where all investors' holdings are registered in the same name (e.g. ABC Nominees Ltd), the entries on the share register and the certificates do not identify the actual beneficial owners.

Advantages of pooling

- Administration is simplified and risk of clerical error reduced
- The settlement process is made easier as any certificate(s) may be delivered from the pool so long as the total does not exceed the number of shares actually held for the shareholder at the time of delivery
- There is only one holding for the custodian to reconcile in respect of each issue (although there must be a subsequent reconciliation of this holding to the records of the underlying investors)
- It reduces the number of names that need to be maintained by the registrar on the company register
- It provides anonymity for the investors except in cases where disclosure is required in accordance with the Companies Act 1985 s.212.

Disadvantages of pooling

Although it is prohibited, there is the risk that a custodian with poor controls might use the shares of one investor to settle trades of another when there are delays in the settlement system:

- It is difficult to establish beneficial ownership in the absence of comprehensive and up-to-date records.
- More time is required to allocate dividends, corporate actions proxy voting, etc., to individual investors.

Within the nominee approach there is also the facility for individual designation.

Individual designation (segregation)

Under a system of individual designation within a nominee name, individual beneficial owners are identified by the addition of a designation. This designation, which can be a unique reference rather than a name, will also be reflected in the issuing company's register.

Advantages of individual designation

- Beneficial owners are more easily identifiable from the company register and the share certificates.
- Reconciliation of shareholdings to investors' balances is more straightforward.
- The time spent allocating dividends, etc., is reduced.
- The risk of using the balance of one investor to settle the trades of another is reduced.
- Individual designation will facilitate the process of establishing claims for securities in a default situation.

Disadvantages of individual designation

- There is the risk that the holdings of one investor might be incorrectly designated under the designation of another investor.
- It might be unsuitable for a custodian with many holdings over a wide client base. This would make the administration of such a client base difficult to manage and costly to operate.

Let us now turn to reconciliation, a key control and an important issue not just for the custodian, but also for the client. Securities reconciliation is

a control that seeks to establish that balances of assets beneficially owned by one party agree with the balances of the same assets held on behalf of the beneficial owner by another party. This issue is discussed further in a separate book in the series called “Controls, Procedures and Risk.”

It is obvious that adequate reconciliation should be a part of a firm’s procedures. This is reinforced by regulation and, for instance, in the UK the rules oblige a firm to reconcile all holdings not evidenced by physical certificates at least every 25 business days. Physically held securities need to be checked only every 6 months.

When in the reconciliation process there are discovered positions that do not agree, or reconcile, they must be queried in order to establish the reasons why this is the case. Reasons for a reconciliation problem can range from clerical error to unsettled trades and on to unauthorized use/fraudulent misappropriation of the assets.

Global custodians and their investors reconcile their positions by electronically matching their respective securities balances, outstanding trades and corporate action events and, in so doing, produce an exception report highlighting only those securities which require remedial action.

To enable reconciliation to take place, both the client and global custodian require asset listings that can be available in hardcopy format or downloaded/accessed from the custodian’s systems. The information on the asset listings usually indicates:

- investor account identification
- security name
- security identification number
- quantity of securities (ledger and settled balances, outstanding receipts/deliveries balances)
- name of depository in which security is held
- valuation in currency of security
- valuation in base currency of investor.

Every reconciliation is important. Problems associated with reconciliations that are not carried out correctly or are incomplete become magnified when there are other events that might occur, such as corporate actions.

Note: Many institutions make significant use of SWIFT for communications, making payments and sending instructions between parties. SWIFT is covered in detail in [Chapter 10](#).

Also the settlement of foreign exchange transactions in many cases takes place via CLS Bank and again this is covered in [Chapter 10](#).

Corporate actions

Corporate actions is a collective term used to describe the entitlements of any securities holder. They can be divided into those that require no action from the investor (e.g. a bonus issue) and those that do call for the investor to make a decision (e.g., a rights issue).

For the global custodian, and the client, there are a number of issues to take into consideration when dealing with events that require the investor either to make a decision or to take no action at all. Disregarding the risk factors, a trade that fails to settle on time will eventually settle. There might be penalty interest to pay and possible delays in other related trades; the trade nevertheless still stands. The overriding factor in such cases where a settlement has failed, but a corporate action is announced is to ensure that the rightful owner receives the benefit arising from the corporate action. All parties in the information chain must receive instructions and be required to take appropriate action before the deadline expires. A missed corporate action is irretrievable and internal controls must be able to recognize this possibility. Incomplete reconciliation of actual positions and settlements pending, including failed settlements, means the likelihood of missing a corporate action is that much greater.

It is also important to record details of corporate actions in the ledgers on the correct date to ensure that the fund or portfolio is priced correctly.

The prime source of information covering registered securities is the issuing company or its agent. The global custodian has to rely on the sub-custodian network to gather this information and pass it on with a minimum of delay and, where appropriate, translate it into the relevant language for the client. Secondary sources of information would be journals like the *Financial Times* or *Wall Street Journal*. However, these secondary sources become primary sources for bearer securities where the issuing companies are unable to communicate directly with their shareholders and bondholders.

The quality and source of information about corporate actions is important otherwise problems will be experienced. Specialist information suppliers such as the *Derivative and Dividend Directory* are often utilized by firms.

With a corporate action it is also important to ascertain who is entitled to the benefit. The amount of benefit due to an investor is determined by reference to the quantity of shares each investor holds on a record date.

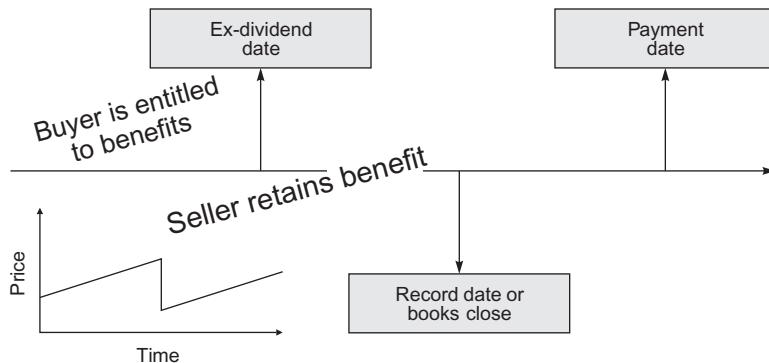


Fig. 6.3 Cum and ex-dividend.

The record date is determined by and announced by the issuing company. The local market will establish a date (the *ex date*) that is used to determine whether the buyer or seller of shares is entitled to receive the benefit.

Fig. 6.3 illustrates a dividend payment, but equally there are specific deadlines and dates in virtually all types of corporate action. (We have covered the mechanics of record date, etc., in Chapter 4.)

A problem arises when a purchaser who has bought shares before the ex date (i.e., is entitled to receive the benefit) does not have his name placed on the register before the record date. As the registrar is unable to recognize the new shareholder, the benefit is given to the previous shareholder (the seller), even though he is not entitled to it.

The global custodian must make sure that entitlements are received on a timely basis to avoid lost opportunities in trading. There should, therefore, be a mechanism in place to ensure that the correct entitlements are received and, if not, that they are claimed from the seller. It is the global custodian's duty to provide as much information as possible to enable the client to make the necessary decisions, to ensure that the information is accurate and to allow enough time for the client's instructions, where appropriate, to be relayed back to the company. As there is a variety of information types, it has not been easy for the global custodians to translate this into electronic message formats for the client. Instead, information on corporate actions has tended in the past to be sent by telex and mail. This situation is changing as the quality of information from the overseas markets improves. What are the implications of corporate actions for the

client? The client will need to be given a deadline by the custodian by which to convey any instructions to the custodian and for the global custodian to pass them on to the local market. This can cause a problem for the client where, for instance, the fund manager or dealer might want to delay their decision until the last possible moment. This will, out of choice of course, be very close to the deadline stated in the local market rather than the global custodian's.

In this case the client's settlement department and the global custodian have to delay sending their respective instructions until the very last moment and, in so doing, risk missing the deadline. In this instance the client must accept full responsibility for a missed event if instructions are sent or arrive after the custodian's deadline.

Apart from global custodians ensuring that clients' instructions are passed on to the local market, they must also ensure that the benefit is received in good time. Where appropriate, market claims must be made to achieve this. As we have already noted, the clearing houses are often in a position to make claims for benefits automatically when a settlement occurs.

We also know from the previous chapters that there are various types of corporate action. Let us recap and expand a little on the issues for the custodian as corporate actions are a vital part of the overall settlement process for both the client and the custodian.

A benefit distribution is a distribution made by a company to its shareholders in the form of cash, securities or a combination of both in cases where an entitlement is a fraction of a share. Distributions are usually made in proportion to the investor's holding as at the record date. Cash benefits include the following.

Dividends on shares

Apart from when a trade has not settled by record date and a claim is necessary, the dividend process is straightforward and the shareholder would expect to receive the cash amount the dividend represents on or shortly after pay date. However, the speed with which the dividends are paid once the payment date has been announced varies considerably throughout the world. As part of the cash management process the client needs to know promptly when the cash in respect of the dividend is received.

Interest payments

As we determined in [Chapter 3](#), an interest payment is a cash payment made to holders of debt securities including:

- bonds and loan (fixed interest and floating rate)
- foreign bonds and international bonds
- convertible bonds.

The rate of interest (the coupon) and the frequency of payment are determined within the original terms of issue of the debt. As the company's agent pays the interest on the dates specified by these terms, there is more certainty of value for both the global custodian and the investor.

The global custodians are in a position to offer a *contractual income collection service*. The client's cash accounts will be credited with good value a pre-determined number of days after the intended payment date. The delay is needed as it reflects the ability of the local market to make payment and, therefore, is crucial if the custodian is not to assume significant risk. Contractual income is generally offered in most countries (see [Table 6.2](#)).

Clients have the option to receive income either in the base or in the underlying currency of the security; either way the custodian will give good value.

Repayment of capital

A capital repayment is a partial repayment of a company's issued capital. The company pays each shareholder a proportion of the value of the shares at the current market price. While the number of shares issued remains the same, the nominal value of each share is reduced by the amount of the capital repayment per share.

Stock benefits include the following.

Table 6.2 Example of countries offering contractual income.

Australia	Hong Kong	Portugal
Austria	Ireland	Singapore
Belgium	Italy	South Africa
Canada	Japan	Spain
Denmark	Malaysia	Sweden
Finland	Netherlands	Switzerland
France	New Zealand	UK
Germany	Norway	USA

Source: The DSC Portfolio.

Rights issues

A rights issue is an issue of additional shares offered by a company to its existing shareholders and in proportion to their existing shareholdings as at a record date. Shareholders are offered the right to subscribe for new shares on or before a pre-determined date in a ratio to their holdings at a price below the current market price.

The global custodian's first task is to provide all the clients who have a shareholding with full details of the issue including dates and payment amounts.

There are several options available to a shareholder:

- The nil-paid rights can be traded; or
- The rights can be accepted and paid for by making a cash payment (known as a call payment); or
- The nil-paid rights can be allowed to lapse, i.e., neither traded nor accepted; or
- Sufficient nil-paid rights can be sold and the proceeds used to pay the call on the remaining rights.

It is, therefore, most likely that the global custodian will have to give a series of different instructions to the company. All the clients' instructions must be received in time and accurately passed on to the company. As mentioned above, late or incorrect instructions will result with the global custodian, if at fault, making good the client's position. This may involve financial loss.

Capitalization

A company can recapitalize or restructure its capital. Among the alternatives, this may be to reduce the number of shares in issue or to reduce the price of the shares. To achieve the latter a capitalization event, more often called a bonus or scrip issue, takes place. This is the free issue of shares to existing shareholders in proportion to the shareholders' balances as at record date.

In this case, the client does not need to give any instructions. However, the global custodian should inform them of the issue as the number of shares will change. The share price will, however, alter as the overall market value of the shareholding remains the same.

Care must be taken in the finance and cash management areas as some bonus shares do not qualify for the next dividend payment. For the custodian and the client the records of the shareholding must be changed at the appropriate date. If this did not occur the portfolio would show a significant loss of value as the share price reduced but the number of shares held was not changed.

Example

A two-for-one bonus issue is announced. The shares are currently showing in the portfolio as:

1000 shares @ £30 value £30 000

After the bonus issue the share price will change to £10, i.e. three shares worth £30 instead of one share worth £30. If the portfolio is not updated correctly the result will be:

1000 shares @ £10 value £10 000

An incorrect valuation of £20 000.

Scrip dividends

Companies can use scrip dividends as a method of distributing profits in the form of shares instead of cash. The shareholder is offered the normal process of receiving the benefit in cash or given the option to receive shares.

In exactly the same way as for cash dividends, the entitlement to scrip dividends is based on shareholdings on the register as at record date. The number of shares offered takes into account the amount of dividend payable and the underlying market price of the shares. In most cases the scrip, if it is offered, is an option for the holder of the shares and, therefore, the global custodian must ensure that the client's instructions are obtained. If the decision is to take a scrip dividend then that action needs to be passed on to the paying agent by the deadline. Although the company will usually pay the cash dividend in the absence of any instructions to the contrary, it is important to check the terms of the issue in case the basic offer is for scrip. In most cases, it is possible to issue standing instructions for future scrip dividends to be paid when offered.

Stock situations

Any event that changes the nature or description of a company's securities can be described as a stock event or situation. Stock situations are either optional, where the shareholder has a choice, or non-optional, where the shareholder is required to accept the company's decision for the change.

For the global custodian, there is the problem of collating sufficient information to allow the client to make a decision where appropriate, acting on the decision within the deadlines and timetable for the event and ensuring that the results of the stock situation are correctly received.

Take-overs, mergers and de-mergers

These are situations in which two or more companies are involved. A take-over is where a bidding company wishes to obtain a controlling interest in a target company. It is optional for the investor to the extent that he can accept or decline the offer within the deadline specified by the bidder.

If, in the terms of the offer, the bidder agrees to take over 100% of the company on condition that there is, say, a 75% acceptance level, then the remaining shares are compulsorily acquired, i.e. the situation becomes non-optinal for those shareholders who did not accept the offer.

A merger is where two or more companies have agreed to merge their companies and create in effect a new company. As a result the share structure of each company will probably change and often the merged company will assume a new name. The merger, although recommended by the boards of the relevant companies, is still subject to acceptance by the shareholders at an AGM or specially convened extraordinary general meeting (EGM). This meeting will outline the new share structure and timetable. There may be both new shares and a cash element involved and from a specified date the new shares in the company are traded and existing shares cease to exist.

A de-merger results in an additional “new” company being created and existing shareholders receiving some kind of benefit such as shares in the new company and possibly a cash payment too. Just like a merger, the shareholders will agree to a de-merger. For the custodian and client there is the need to get the information about the situation, agree to it or otherwise and then to receive any shares and or cash with a corresponding update to the portfolio.

Conversions

Clients who are holders of convertible debt securities may wish to convert the debt into equity. The full terms for the conversion are specified at the original issue date and, generally, allow the investor the right to convert at pre-determined rates and times set by the company.

The actual conversion is optional except that the last possible date for conversion is itself non-optinal, i.e., the debt is either redeemed for cash or automatically converted into equity according to the issue terms.

Warrant exercise

Whether or not to take up the shares that a warrant relates to is an option for the holder. The warrant gives the holders the right to “exercise” the warrant in exchange for equity by making a subscription payment to the issuing company. If they are not exercised by the last possible date, the warrants expire worthless. In some cases the warrants can be bought and sold separately and there is, therefore, an alternative to exercise or abandonment on expiry. The custodian and client need to communicate prior to the last exercise and expiry date on the action to be taken with obvious consequences if this does not happen.

***Pari passu* lines of a security**

This is an area that can cause many problems for the global custodian and investor alike. When a company issues new securities that are identical to existing securities already in circulation through, say, a rights issue, the new securities may for a while not be entitled to current benefits associated with the existing shares.

For instance, for a pre-determined period of time, the new securities do not qualify for a particular dividend or are subject to some other type of restriction (for example, they cannot count in any vote at the next general meeting of the company). Once this period is over, the two lines of securities are merged and become *pari passu*; they rank equal in all respects.

Until the two lines of securities become *pari passu* they are given separate security codes and, in addition, will trade at different prices. Both global custodian and investor must be aware of these differences and reflect the holdings accurately in the safekeeping records.

Redemptions and maturity

A redemption or repayment is a stock situation where the company repays its debt to holders in order to redeem part or all of the issued loan. We know that the redemption can be on a specific date, during a period or at the request/offer of the issuer or the holder of the security.

The redemption becomes non-optimal at final maturity of the loan, but prior to this any possible action to redeem early must be communicated to the client for a decision. In the case of bonds and loan stock that is bearer we know that the issuer can only make this possibility known either at the time of

issue, i.e. a security might be issued as ABC Loan Stock 2003–2008, or by an announcement in the financial press and information systems such as Reuters.

Share suspension and liquidations

Shares listed on a stock exchange can be suspended for several reasons. In some cases it is because of a significant movement up or down in the share price and the exchange suspends the shares ahead of an announcement by the board, if they know the reason for the price volatility, or an announcement by, say, a bidding company of their intentions. In most cases the suspension is temporary and once the details of the relevant issues are in the public domain, the shares resume trading.

One serious reason for the suspension of the shares is if the company is experiencing financial difficulties such that it is to be placed into administration and possibly declared bankrupt or in liquidation. An investor in a company that goes into liquidation will be in the situation where the security is not only worthless, but also unnegotiable. The security will be suspended in the relevant stock exchange(s) until such time as the liquidator is able to repay amounts due to the various classes of creditor. Once there is no more cash that can be retrieved for the creditors, the company is wound up and the certificates canceled.

This process can take years to resolve and the global custodian must ensure that any information is passed to the client and that all expected liquidation payments are collected and paid to the client.

Proxy voting

It is obvious that with so much investment being cross-border there will be problems associated with the right of the shareholder to vote at company meetings and even to act on corporate actions. The main problem concerns time zones and delays in receiving the relevant information. For global custodians to act efficiently and effectively on behalf of their investing clients, timely information has to be received from the companies. It is necessary for the custodians to have highly skilled staff in order to decipher and translate lengthy technical information and then to organize it in such a way that the client can make a timely and informed decision on the options available.

To ensure that all clients' decisions are transmitted to the company, custodian banks' staff must:

- be aware of the deadlines given by the company
- inform the clients of these deadlines

- ensure that missing client instructions are chased up before the deadline
- know the length of time it takes to send instructions to the company and in what format it can be sent and received.

With the advent of widespread foreign share ownership there is clearly a demand for effective standards to be established covering, for instance:

- greater uniformity of information dissemination
- standardized timeframes
- reliable information databases with easy global access.

These databases and the data communication networks connecting them to the information suppliers and users would be well suited to serve cross-border proxy voting.

This is an important issue as it is now universally accepted that all shareholders should have an opportunity to exercise their voting rights, even though many of them may not actually wish to cast their votes. Indeed, there are some countries which are now beginning to encourage a more proactive participation by shareholders in the affairs of the companies. As a result of increased shareholdings by large institutional investors, investment and pension fund managers have shown a new interest in exercising their voting rights. This is partly in response to expectations expressed by the various regulatory bodies and partly an apparent underlying desire to influence a company's business or information policy. For example, with adverse press comment on large bonuses being awarded to directors, sometimes when the company is apparently not performing particularly well, both small and large shareholders are increasingly attending meetings and voicing concern.

Large cross-border investments are reinforcing this trend and the need for a mechanism that will permit the exercise of voting rights across borders with the same ease as is found in the investor's home country is very important. The rationalization in the industry with exchanges and clearing houses merging and greater regulatory harmony will go some way to achieving this. However, at present, private investors rarely attend shareholders' meetings located overseas in person due to the distances and costs involved. In addition, the procedures surrounding shareholder voting vary greatly from country to country because there are different laws and traditions as well as the fact that there are different types of securities. By the very nature of some of the instruments, companies do not always know the names of shareholders. The holders can only be contacted via the media or by custodians who research relevant information.

With registered shares the shareholders are advised by mail via the registrars and, if applicable, by the relevant nominee companies. However,

we need to remember that in a number of countries there are equity-type instruments or shares which:

- prohibit non-resident investors from voting
- carry no voting rights (for example, preference shares—these will only carry voting rights if the company has failed to pay its preference dividend)
- have a split voting structure (for example, companies can have both voting shares and non-voting, “A,” shares listed on the Stock Exchange)
- have relevant documentation published in a different language
- have an issuer who is domiciled in a different time zone causing huge problems in meeting formalities and requirements such as a printed proxy statement that must be completed and sent back to the agent.

Thus we can see the dilemma facing both the custodian that offers a proxy voting service for international stocks and the client who often has very little time to organize a decision and subsequent instruction to the custodian.

An example of the checklist for a corporate action can be found at [Fig. 6.4](#).

Asset and cash management

While the custodians can offer various services linked to asset and cash management the client must be aware of the risks involved should a problem occur with the custodian. Part of the risk is a counterparty one, i.e. what happens if the custodian were to collapse? The other is, what is the alternative? Obviously the counterparty risk can be partially addressed by using suitably credit-rated organizations. The other is that there is a price to be paid in terms of requiring more sophisticated cash-monitoring systems and the extra expense associated with transferring cash around the banking system. The global custodians are aware of the problems involved and constantly seek new ways to keep the client’s cash-related business in-house.

Single-currency accounts

Clients whose business generates cash predominantly in one currency and who wish to enter into cross-border trading might prefer to operate with cash accounts in a single currency. They will arrange for all purchase costs, sale proceeds and income receipts associated with the cross-border trades to be converted through a foreign exchange transaction into their base currency as and when the need arises or when there is a volatile situation with

Procedure/Task	✓ or N/A	Sign
Identify Event Type e.g. Rights, Merger, Dividend		
Verify Source and Details		
Identify if Mandatory or Optional		
Confirm Closing Date/Redemption Date		
Create Event Timetable e.g. closing date, payment date		
Reconcile Position – calculate total position for entitlement		
Calculate Entitlement		
Notify Trader/Client of Entitlement and Timetable		
Create New Security In System e.g. XYZ partly paid		
Identify Claims To Be Made e.g. settlement fails, stock loans		
Identify Claims To Be Received e.g. settlement fails		
Reconcile Issuer Documentation e.g. Allotment Letter		
Confirm Decision e.g. “take up rights”		
Instructions To CSD/Custodian/Issuer’s Agent		
Confirm Instructions Actioned		
Confirm Receipt of Entitlement		
Reconcile Entitlement Received		
Reconcile Account Updates – confirm result of C/A booked to relevant account		
Chase/Deal With Claims		
Confirm Corporate Action Successfully Closed		

The major problem with corporate actions is the diversity of the events and the timetable of process associated with an event.

The above timetable is a generic example of a procedure that any team dealing with corporate actions will find helpful in managing what can be a difficult process that can cause both financial and reputation loss and is a category of operational risk.

Additional boxes will almost certainly need to be added to reflect internal systems and procedures. It is also useful to have the verification box signed by a manager/supervisor and where applicable the trader, as a double check that nothing has been missed.

Fig. 6.4 Corporate actions checklist. (Source: *The DSCPortfolio Ltd.*)

a currency that might create an unacceptable exchange rate risk. For the investor, the advantages are:

- the exposure to adverse foreign exchange rate movements is removed once the Forex trade has been executed
- with only one currency, the funding requirement calculations are simplified
- the investor is free to obtain the most advantageous exchange rates from the Forex marketplace.

- cash reconciliation and control processes are more straightforward. The possible disadvantages to be considered are:
- there will be extra Forex trading charges to consider over and above the securities trading commissions
- the securities trade settlements will no longer be on a DVP basis as the currency movements will take place independently of the securities movements. The risk of non-performance of the trade as a whole is greater than it would be for a DVP settlement
- for Forex trades dealt with counterparties other than the global custodian, the investor must give settlement instructions for the cash side in addition to instructions for the securities.

Global custodians will need to consider the implications of providing such a service and these implications will include the following:

- All income receipts are exchanged from time to time into the base currency and the custodian must be able to ensure that they have the capability. This must also be done as instructed and at a rate acceptable to the client that must be contained in the agreement.
- The global custodian, however, will not necessarily be responsible for exchanging the purchase and sale amounts as the investor will look around the foreign exchange market for the best foreign exchange rates.
- The global custodian will continue to settle trades in the relevant currency on a DVP basis (where applicable) and needs to be aware of the possible currency exposures this creates.
- The global custodian is not under an obligation to offer CSDA as the transfer of securities occurs independently from the movement of the client's cash.

Multi-currency accounts

Multi-currency banking will suit those clients whose ordinary business activities generate cash flows in foreign currencies and/or who prefer to settle the securities trades on a DVP basis in the foreign currency. The cash-funding requirements will be undertaken as a separate process. For the client, the advantages are:

- the securities trades benefit from DVP settlement
- the investor is able to take advantage of the global custodian's CSDA settlement service
- there are more options available in terms of subsequent use of the foreign currency balances.

The disadvantages are:

- the increased control and administrative burden as a result of operating many different currency accounts.

For the global custodian, the implications are that:

- a more complete custody and banking service can be provided to the client
- the need to exchange all income into the base currency is removed, thus reducing the number of relatively small-value Forex trades that must be executed.

Interest-bearing accounts

In the financial markets the cost or value of money is always a critical factor. Effective use of cash contributes to the overall profits on trading and returns on investments. Any cash not being utilized to pay for purchases should be earning some kind of return. Often the amount of "free" cash at any one point in time may be very large or very small and it may be available only for a short time. However, even if the cash is available for 1 day and is small in value it can earn interest. Over a year these individual and small interest amounts when combined become a more significant figure.

Therefore, clients who actively manage their cash balances wish to reduce or eliminate the time that uninvested or uncommitted cash balances remain in non-interest-bearing accounts. Cash balances will be transferred to deposit accounts or other financial products. Although this achieves the objective, it increases the administrative burden and becomes expensive to operate. The global custodians now provide interest on various currency accounts and thus help to cut down the number of cash movements across the accounts.

Sweeping

The global custodian may offer to transfer automatically (or sweep) non-invested and uncommitted balances overnight from non-interest-bearing accounts into interest-bearing deposit accounts or other financial products that generate an interest return. This facility helps the treasury manager at the client to achieve a situation that ensures cash balances are being used in an efficient manner. Pooling is another facility that the custodian offers. Global custodians hold accounts in the same currency and/or multi-currency accounts for their clients. For interest calculations only the custodians can pool

the balances by currency into one larger balance in order to attract a higher rate of interest or reduce the effect of some accounts being overdrawn.

Banking services

Global custodians are able to offer a wide range of banking services including:

- funds transmission systems that enable the client to transfer electronically funds covering clean payments (i.e. those not directly connected to a securities trade)
- treasury services that provide dealing facilities to purchase and sell foreign currency, place funds on deposit and draw down funds on loan
- screen-based dealing systems that some global custodians have now made available and which allow clients to execute their smaller Forex deals without reference to a bank dealer. Clients are able to accept or reject the rates offered on the screen and, should the rate be acceptable, the transaction is immediately confirmed.

So the custodians can provide vital support in terms of the post-settlement activities on securities and the cash or treasury management process. They can also offer help in the areas of taxation and in the important area of reporting to clients.

Withholding tax

Cash benefits paid by companies to their shareholders in the form of dividends are subject to withholding tax (WHT). WHT is deducted at source with the shareholder receiving the net amount. The tax authorities of the country where the company is based determine the rate of WHT that will apply. In some cases this may be zero, in others it is a significant rate.

With the increase in cross-border investment activity, investors are subject to different tax regimes. Tax reclaims must be made in the issuer's country of origin and these will be submitted by the global custodian on behalf of the client.

Double-taxation agreements

The problem for non-resident investors is that the net income is additionally subject to further taxation in their own country, i.e., the income is double-taxed. Most governments have recognized this issue as being unfair and allow most or all of the WHT to be reclaimed by entering into a

double-taxation agreement (DTA) with other like-minded governments. Governments enter into DTAs with other countries in order to:

- prevent income being taxed twice, and
- render reciprocal assistance to prevent tax evasion.

WHT reclamation works along one of the following bases:

- Certain classes of income are made taxable only in one of the countries who are party to a DTA, e.g., in the country of the taxpayer's residence.
- Income is taxable in both countries, but (in the case of UK residents) the overseas tax is allowable as a credit against UK tax.

As with most things to do with tax, the matter can be complex and the administrative burden in respect of WHT that the custodian takes on for the client is of real added-value.

Investment accounting

Investment accounting is the provision of a full range of reports that may include fully accrued, multi-currency valuations, performance measurement, investment analysis, at both detailed and summary levels. Reports may apply to a single portfolio or a consolidation of a number of portfolios.

Pricing and valuation reporting

Prices of individual securities are obtained from a variety of external price feeds and allow the calculation of market value. From this the investors' portfolios can be valued in both the currency of the security and the base currency of the investor. It is important that the repricing of securities is carried out accurately and at timely intervals so funds' net asset value (NAV) calculations can be performed. An incorrectly priced security will lead to an erroneous NAV with the consequence that compensation might have to be paid to unit holders of the fund or funds concerned. A significant error may also need reporting to the trustees and the regulator.

Investment analysis

Analyzing the investments is important in tracking the performance and return on the specific and collective holdings in the portfolios. Using pricing information, the investments can be analyzed in a variety of ways:

- By instrument type—equities (ordinary/common shares, preference shares, etc.), bonds (Eurobonds, government bonds, convertible bonds, etc.) and cash and cash equivalents

- By industrial sector
- By geographical location
- Percentage of the portfolio that each security or its type, industrial sector and geographical location represents
- “What-if” analysis by examining how changes in securities or country allocations affect the return on the portfolio.

The performance of investments is also made against a benchmark such as an index.

Investment performance evaluation

The information provided allows the investor to evaluate the marketability of the securities by stock selection, markets and currencies. There are a number of external performance measurement companies who collect relevant data from investors or global custodians in order to determine how investor types compare with each other or against industry-recognized indices. This is relevant, for example, for marketing purposes when fund managers hoping to win new business will state that they have outperformed the relevant index by, say, 2% when the average has been 1%.

Investment income tracking

The investment performance of a security includes the income received and income due. This is especially important for debt securities for which income (interest) accrues on a daily basis until the payment is made (usually annually or bi-annually depending on the security type and domicile).

Foreign exchange reporting

Foreign exchange transactions should be related back to the underlying securities trades or income receipts. Historical exchange rates and interest rates should be reported to allow the investor to check the actual rates obtained against the market closing rates. As we noted earlier, custodians offer a variety of services related to currency management and Forex dealing and making comparisons for competitiveness are essential.

Consolidated reporting

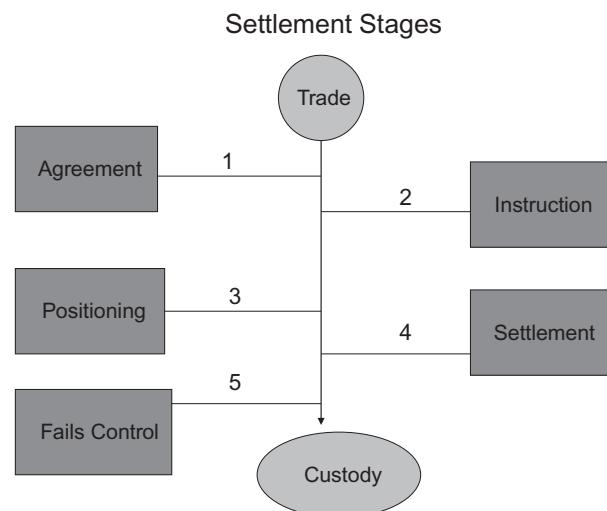
Investors might use two or more fund managers, because each has a particular specialist investment skill. If the fund managers use their own global custodian, the investors have the problem of consolidating a range of reports from the fund managers and their global custodians into one combined set of reports.

To save the investors time and effort in making the consolidation, one global custodian acts as recipient for the reports generated by the other global custodians and prepares the consolidated set of reports.

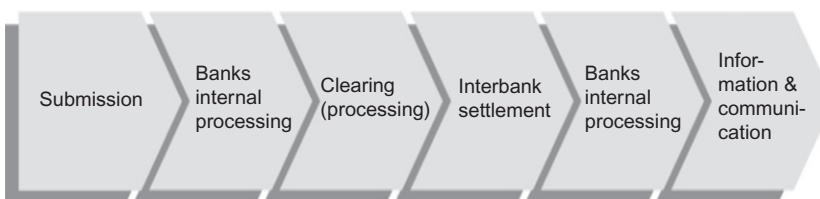
Summary

We have seen in this chapter the extensive role and services that the custodians offer to their clients and where the custodian sits in the workflow.

We can summarize them here:



Payment System Process



And the services offered:

- Status reporting;
- As the link between the CSD the custodian can report on the status of the transaction with the market.
- Settlement of trades;

- The custodian ensures the receipt and payment of shares or cash in settlement of the transactions.
- Safekeeping of physical assets:
- Where assets are in paper or physical format the custodian will hold the assets securely in a vault
- Where assets are in dematerialized form the custodian holds an electronic record in their books.
- Income collection:
- The custodian can calculate the dividend, interest or other income due from a position and receive the payment from the source
- If the payment is not direct the custodian will make a claim from the party concerned.
- Managing corporate actions:
- The custodian can calculate the outcome of a corporate action and manage the results/adjust the records/make and receive payments, etc.
- Proxy voting:
- The custodian can vote on behalf of the investor where the regulations permit.
- Withholding tax reclaims:
- If investments are in overseas locations where tax is deducted at source, the custodian can, if the investor qualifies and the jurisdiction permits, reclaim the tax paid.
- Management, client and regulatory reporting:
- The custodian maintains extensive data and information related to markets, trades, positions, etc., and can provide an extensive suite of reporting.
- Stock lending and borrowing:
- Custodians can manage both the lending and borrowing requirements of securities for the client.
- Cash management:
- Custodians receive and pay out cash in settlement of transactions or income from dividends, etc., and offer management services to ensure funding requirements and excess cash is managed efficiently.
- FX services
- Portfolio pricing and valuation
- Derivatives clearing and settlement
- Market information.

The challenge for the custodians is twofold. First, can they keep pace with the changes in the marketplace and the ever-increasing demands from

the clients for new and innovative support services? The second is to be aware of the threats and opportunities the rationalization of the markets offers.

Today the international CSD groups are providing almost an identical range of services that the custodian offers. There is a significant use of services offered by large banks like prime brokerage and these are still being developed and incorporating new services and products, some of which compete with those offered by custodians. The future for custodians is very much about moving with the times, meeting the challenges and developing the opportunities that the changes are offering.

CHAPTER 7

Securities lending

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Introduction

Securities lending defined

Securities lending is the lending of equities and bonds by or on behalf of an investor to counterparties who are authorized to borrow securities in return for a fee.

Securities lending provides liquidity to the market by utilizing securities that would otherwise be “side-lined” by being held in safekeeping thus providing yield enhancement in the form of the fee received.

A major industry organization, The Group of Thirty, recognized the importance of securities lending and made a recommendation which stated that:

Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions. Existing regulatory and taxation barriers that inhibit the practice of lending and borrowing securities should be removed.

The “...expedition of securities transactions” is not the only reason why securities lending and borrowing takes place. Furthermore, not every market or regulatory jurisdiction implements appropriate measures to “... encourage...” the practice. Indeed, post the market crash many regulators and markets had serious concerns that securities lending had contributed to volatility and share price declines primarily associated with short selling strategies used by some hedge funds.

Some regulators introduced prohibitions on short selling and/or securities lending, although many have realized that securities lending itself is a crucially important facility in the efficient operation of the markets, particularly, in terms of settlement on due date.

The characteristics of securities lending

Legal title to the securities passes from the lender to the borrower, but the benefits of ownership are retained by the lender.

This is important as it means that the lender continues to receive income and retains the right to sell the securities in the stock market, although this may be subject to any constraints in respect of the terms of the loan. The lender, however, loses the right to vote.

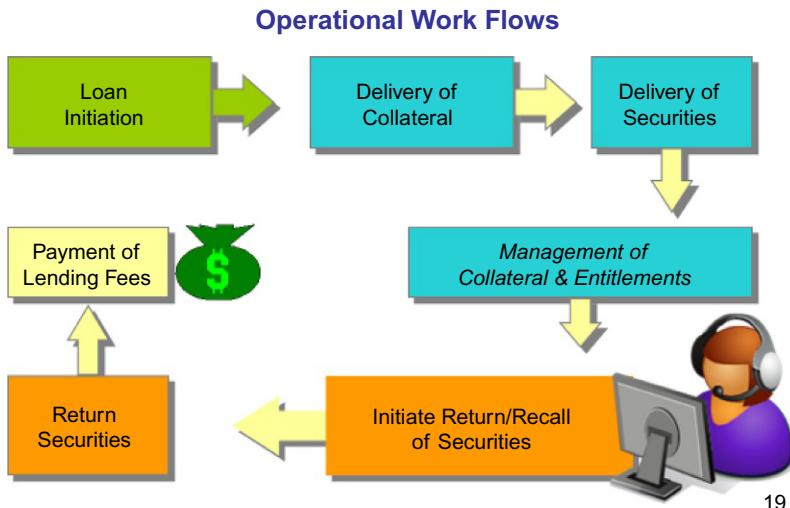
In terms of the income like dividends or interest this will not be paid direct to the lender as their name will have been removed from the issuer or company's register; instead the income is claimed from and paid by the borrower.

Let us look at the high level flow associated with a securities loan as shown in Fig. 7.1:

Uses of securities lending

Market participants **borrow** for a variety of reasons, including:

- to cover short positions (where participants, for example, some hedge funds and market-makers, sell securities which they do not hold)
- to support derivatives activities (where participants may be subjected to an option exercise)



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Fig. 7.1 Process flow for a loan. (Source: The DSCPortfolio Ltd.)

- to cover settlement fails (where participants do not have sufficient securities available to settle a delivery)
- to obtain securities that are acceptable as collateral.

Market participants **lend** securities for one purpose; that is, to earn fee income. This has two benefits:

- Fee income enhances the investment performance of the securities portfolio.
- As securities lending decreases the size of the portfolio, there is a corresponding reduction in safekeeping charges; however, if the lender is not operating via a lending pool, which we look at in a moment, they will be taking collateral against the lent securities and may incur custody charges in this respect.

Prime Brokers and Global Custodians (often linked) take advantage of securities lending and borrowing by acting as intermediaries or as a conduit in the process by managing the securities lending pool which utilizes client's assets that are available to lend by providing these securities to clients wishing to borrow.

The global custodians benefit by:

- retaining a share of the fee income whilst running a discretionary lending program (note a custodians client is not obliged to make their securities available for lending) for their client, and/or
- charging a transaction fee for every movement across their client's securities account where the custodian is unaware of the reasons for the securities movements, i.e., they are not moving as part of the settlement of a transaction.

As a global custodian holds sizeable quantities of any particular issue, it is able to play an important role by providing liquidity to the market. Furthermore, lenders and borrowers benefit from increased operational reliability and reduced risk by utilizing the range of the global custodian's services such as:

- clearance
- payment
- settlement
- pledging (of assets as collateral)
- valuation (mark-to-market).

Securities lending precautions and controls

The risks

The lender is primarily concerned with the safe return of his securities by the borrower and that there are adequate means of recompense in the event that the securities are not returned.

There are four situations each of which could place the lender at a disadvantage:

1. The most serious situation is where a *borrower defaults* with no chance of the lender retrieving the securities.
2. Timing differences between delivery of the loaned securities and the corresponding receipt of sufficient collateral.
3. The late/delayed return of securities due to *settlement and securities liquidity problems* experienced by the borrower.
4. Settlement inefficiencies or a systemic collapse within the local market itself.

Various countermeasures are taken in order to reduce the risk associated with each of the above situations:

Borrower default

Loans of securities are delivered by the lender on a "free of payment" basis to the borrower. For their part, the borrower covers the loan by delivering collateral to the lender.

It is of utmost importance that the collateral should be of such quality and quantity that it must be readily exchangeable into cash in the event that the borrower defaults. This enables the lender to be able to replace the missing securities by using the collateral proceeds to acquire the securities in the market.

To satisfy an adequate collateral requirement, the borrower must deliver collateral with a market value that exceeds the market value of the loaned

securities (the outstanding loans) by a pre-determined margin; typically between 5% and 15%.

This margin allows for any variation in the value of the outstanding loans. The securities out on loan are “marked-to-market” (priced at the current market value) at least daily and intra-day in volatile markets using the previous business day's closing prices or the current market price. Any resulting shortfall in the amount of collateral is called from and made good by the borrower. Conversely, any excess collateral can be returned to the borrower.

Day-light exposure

Day-light exposure is the intra-day settlement risk that loan securities may be delivered before the collateral is received. If the borrower should then default during the intervening period, the lender would be unsecured. The reverse is also true for a loan return.

Example

A lender who delivers securities to the borrower at 10:00, but does not receive the collateral until 15:00 has a day-light exposure of 5 h. There is a particular problem when the parties to a loan transaction and the domicile of the securities are all in different time zones, e.g., lender in London, borrower in New York, securities in Tokyo.

Loan transaction for value Wednesday; securities delivered on Wednesday (Tokyo time zone).

Collateral due for delivery value Wednesday: collateral delivered Wednesday (New York time zone).

In the lender's time zone, there is an exposure of at least 14 h, i.e., from the time the securities are delivered (before close of business in Tokyo) to the receipt of collateral (after start of business in New York).

Settlement delays

Delays can be caused by the usual settlement failure types:

- Insufficient securities to satisfy the total delivery
- Lender or borrower gives late or incorrect delivery/receipt instructions.

Market inefficiencies

Investors will always want to invest in countries where there are opportunities for capital gain and income growth and with scant attention to the efficient operation of the settlements systems.

Effective securities lending does, however, depend on the ability to deliver securities without delays and complications. For this reason, securities lending is only undertaken in the established markets with reliable and robust settlements.

Collateral

To satisfy the *quality* requirement, the following types of collateral are generally acceptable:

Cash

The lender places the cash out into the money markets and agrees to pay interest (a rebate) to the borrower at a rate lower than the market rate. The difference in rates reflects the lending fee payable to the lender.

Advantages of accepting cash as collateral:

- Acceptance of cash collateral allows the securities to move on a DVP basis and thus eliminates the risk that the securities delivery and collateral receipt do not occur simultaneously.
- Cash is regarded as the safest form of collateral in domestic markets including the USA where it is used in the majority of cases.

Disadvantages of accepting cash as collateral:

- Operational issues—many institutional lenders are not prepared or able to undertake the extra administrative burden of reinvesting the cash.
- The tax and regulatory situations in countries can make the use of cash impractical and or unattractive.
- There can be the added problems of foreign currencies which require 1 or 2 days' notice prior to placing funds.
- There is an exposure to adverse exchange rates when using foreign currencies.

Securities

Collateral in the form of other securities can be acceptable, however there are issues that need to be considered.

The market value of the collateral must also be monitored and be easily realizable into cash in the event of borrower default.

Other commonly acceptable types of collateral used are:

Certificates of deposit.

A popular security type used as collateral is a Certificate of Deposit. CDs are certificates that give ownership of a deposit at a bank and for which there is an established market.

The advantages of using CDs as collateral:

- Considered to be of high quality and “near-cash” they are guaranteed by the banks on which they are drawn. The lender is able to specify the creditworthiness of the banks by only accepting paper with a rating of, say, “A” or better.
- CDs are straightforward to sell should the need arise.

The disadvantages of CDs as collateral:

- The nominal amount of CDs tends to be in shapes of £1,000,000 or \$1,000,000 and this makes it difficult to ensure that the margined collateral value matches the value of outstanding loans.
- CDs have a limited lifespan and borrowers must ensure that CDs are substituted as old CDs mature.

Government bonds

High-quality securities such as government bonds of the G7 countries which also benefit from high credit ratings and ease of sale are acceptable.

Equities

Equities are used, but the issuer creditworthiness and the high-risk nature, mainly volatility of the security type itself, are not generally acceptable to lenders. In addition, as some equities can have longer settlement periods ($T + 3$ or more against $T + 1$ for say government bonds) can delay the time from borrower default to receipt of the collateral sale proceeds.

Irrevocable letters of credit

A once popular method of providing collateral cover, irrevocable letters of credit (L/Cs) are, nevertheless, under threat as the cost of a L/C during the credit crunch, and even today, makes borrowing against them unprofitable.

Advantages of taking L/Cs as collateral:

- Lender does not need to reinvest or revalue the L/C
- Day-light exposure is eliminated if receipt of a L/C is pre-advised to the lender before the securities are released to the borrower
- Face amount of L/C is more than adequate to cover the margined value of the outstanding loans and this fact results in less collateral movement to maintain the margin levels.

Disadvantages of taking L/Cs as collateral:

- Credit risk of bank that issued the L/C (lenders will limit the amount of L/Cs they will accept from one issuer)
- (For the borrower) the high cost of obtaining a L/C from the bank.

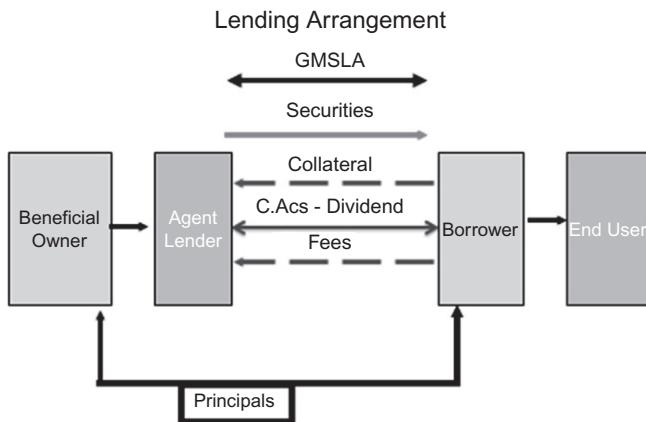
Securities lending agreements

In order to protect the interests of the lending parties, the borrowing parties and, when applicable, the intermediaries, agreement forms are drawn up to clearly define the rights, duties and liabilities of those concerned.

An agreement will contain references to, inter alia, the following topics:

- Interpretation definitions of the terms used in the agreement—rights and title includes reference to the protection of lender's entitlements
- Collateral—loans should be secured with collateral
- Equivalent securities—securities and collateral should be returned in an equivalent form to the original deliveries
- Lenders' and borrower's warranties—statement that both parties are permitted to undertake the lending/borrowing activities
- Default—remedies available in the event that one or other party defaults on its obligations
- Arbitration and jurisdiction—how and where disputes will be submitted for resolution and under which governing law.

The following figure shows the general arrangement in a securities loan situation using intermediaries.



The role of the prime brokers/global custodians

The extent to which the prime brokers/global custodian is involved in securities lending depends on the type of service offered. The global custodian typically operates a lending pool where the whole process of securities lending is managed by the custodian in return for taking a portion of the

fee generated. For example the custodian may receive 50 bps for lending the security, but may only pay the owner of the loaned securities 30 bps.

However, some large lending institutions may decide to do direct lending, in which case the custodian is only involved in moving assets.

Direct lending will suit the bigger institutions like large investment funds, pension funds, etc., who are able to offer portfolios with large and varied holdings to potential borrowers.

They are, therefore, able to earn larger fees by going direct to the market rather than paying part of the fee earned to the custodian.

The key points are:

- The institution negotiates loan agreements and recalls/returns with the intermediaries or borrowers.
- The institution controls the movement of collateral and ensures that margins are maintained.
- The institution assumes the counterparty risk of the intermediary.
- The global custodian delivers and receives securities on a “free of payment” basis on instructions taken from the institution.

The risks for the institution are:

- Investor assumes all risks associated with securities lending including:
- intra-day exposure—they must ensure that securities are not released until adequate margined securities are under their control (directly in-house or indirectly through a global custodian or settlement agent)
- settlement risk—they must ensure that deliveries of securities for loans are made on time
- deliveries of securities “free of payment” demand a higher level of authorization and control than deliveries made on a DVP basis
- the operations teams must be able to identify in sufficient time situations where securities on loan are required to settle a sale transaction and to initiate timely recalls
- market risk—they must ensure collateral is revalued more frequently in volatile markets
- legal risk—they are responsible for arranging and monitoring the legal arrangements of the loan, i.e., stock lending agreements, for example the ISLA Global Master Securities Lending Agreement.

The rewards are:

- fee income—they will receive the full amount of the fees
- exposure—they are able to choose the counterparties they lend to.

Non-discretionary program

Non-discretionary lending differs from direct lending insofar as the global custodian takes a more active role in the process.

The key points are:

- the custodian seeks approval from the client for each loan request
- the custodian receives collateral from the borrowers and ensures that the margins/collateral are adequate
- a fee is charged by the custodian for this service
- the client assumes the risk of the borrowers.

The extra advantage for the client is:

- the custodian ensures that the collateral is matched to the movement of securities
- the custodian is better placed to initiate timely loan recalls to cover the sales that their client might make.

The disadvantage is:

- the client's relationship with the intermediaries might suffer now that they approach the custodian for loan requests and returns.

Discretionary (or managed) program

Discretionary programs tend to suit the small-/medium-sized lenders whose individual holdings are not always large and varied enough to attract borrowers.

The stock lending is delegated entirely to the custodian in the following key ways:

- The custodian actively seeks to place securities out on loan with the intermediaries
- The custodian takes collateral and monitors the margins
- A portion of the risk of the borrower is transferred from the client to the custodian
- Depending on the level of risk assumed by the custodian, anything from 50 to 60% of the fee income is retained by the custodian.

The advantages for the lender are:

- the service is totally linked into the custodian's settlement systems thus ensuring that the risk of settlement failure through late recalls is almost eliminated
- the investor benefits from being a part of substantially larger holdings in the “pool,” which may be more attractive to potential borrowers.

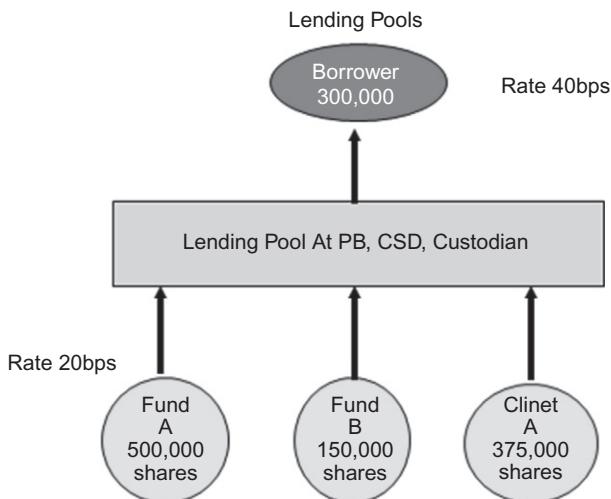
The disadvantages for the investor are:

- depending on the method of loan allocation adopted by the custodian the investor's assets may not be fully utilized
- the investor receives only a portion of the fee income. However, as noted earlier this may be offset by reductions in transaction charges and safekeeping fees.

Operating the pool

There is an issue which affects the ability of a lender to participate in securities lending on an equitable basis. This is the problem of ensuring that loans, and fee income, are allocated fairly across all participants in the pool. To manage this, the global custodians use sophisticated algorithms to allocate loans and fee accruals fairly.

The following figure illustrates the arrangement in the “pool”:



Note: The lending rates are purely illustrative and actual borrowing/lending rates are determined by availability, duration of loan, etc.

Benefits and entitlements

As stated in the introduction, the lender loses legal ownership and voting rights of the securities, but retains the other benefits of ownership.

It is important to appreciate that the lender is treated as if he had not lent the securities; any shortfalls are made good by the borrower who, as is considered the “temporary legal owner” of the securities (in reality the

securities will almost certainly have been used for settlement and are not with the borrower), will be considered to have received any benefits. It is the responsibility of the intermediary or global custodian to ensure that the lender is not disadvantaged through securities lending activities.

Any corporate action of a lent security can be an issue, but certainly dividends or interest payments create a need for the borrower or intermediary to “make good” the lender.

Lenders' rights

Lenders retain the right to participate in all dividends, interest payments and other benefits on securities that are on loan. The one exception as mentioned earlier is that the lenders lose the right to vote.

Manufactured dividends

If securities are on loan over the record date, the issuing company will pay the dividend to the party at the end of the borrowing chain. The lender will, therefore, be paid an amount of cash in lieu of the actual dividend. In other words, the borrower manufactures a dividend payment in order to make the lender good.

The regulations and tax situation regarding loaned securities where there is a manufactured dividend created must be fully understood. If there is any likelihood of the lender being disadvantaged then the loan needs to be recalled in time for the lender to be on the company register by record date.

There may be issues related to the deduction of the withholding tax (WHT) applicable to the country of issue of the securities.

Role of the custodian or intermediary

The lending intermediary's prime role is to ensure that the lender is “made whole” and this can be achieved in the following ways by:

- gathering information on actions from numerous sources
- comparing information from one source with another to ensure consistency
- rearranging the information (including any translations) into a form from which the lender can make a decision
- ensuring that all expected instructions are received from the lenders
- giving accurate and timely instructions to the correct destination, i.e., borrowers agent/custodian
- informing the lender of the successful management of the corporate action results.

The need for the intermediaries to receive the lender's instructions in advance of the issuing company's own deadlines can cause problems with the lender. The lender might wish to delay a decision until the last possible moment; sometimes past the intermediary's deadline. Nevertheless the intermediary should, in this situation, attempt to comply with the instructions on a "best efforts" basis.

Importance of accuracy and timeliness

The intermediary is responsible for managing the corporate action event related to the lender's securities (as well as on any collateral held from the borrower).

The way in which the lender receives information depends very much on the nature of the event itself and the manner in which the lender chooses to hold the securities in safekeeping.

All corporate actions have deadlines, especially those which require a decision (the optional events). Unfortunately, differing world-wide standards do not make the task of monitoring corporate actions any easier. For this reason, it is important for the intermediaries and/or their agents to ensure that:

- the information received is accurate
- any instructions are given in the form and within the deadlines specified by the company.

Failure to settle situations such as market purchases and sales on time will result in delays and inconvenience. There might be occasions when penalty interest is payable and both counterparties will be exposed to an element of risk whilst the trade remains unsettled.

However, the obligation to settle the trades remains until such time as the delivery of securities (together with the underlying cash payment) takes place.

With an optional corporate action, however, failure to give and act upon accurate and timely instructions could result in a loss of entitlement to the benefit. The party involved will have to purchase securities (if securities were to be the benefit for example a rights issue) in the market and pay the extra costs.

Actions required

Voting rights

Lenders who wish to exercise their right to vote must arrange for the loans to be recalled in sufficient time to comply with local voting rules. These rules might call for the re-registration of the securities into the lender's

(or their appointed nominee's) name or might necessitate the blocking of the shares until the Annual (or Extraordinary) General Meeting has taken place.

Sufficient time should be allowed for this to happen.

Corporate actions

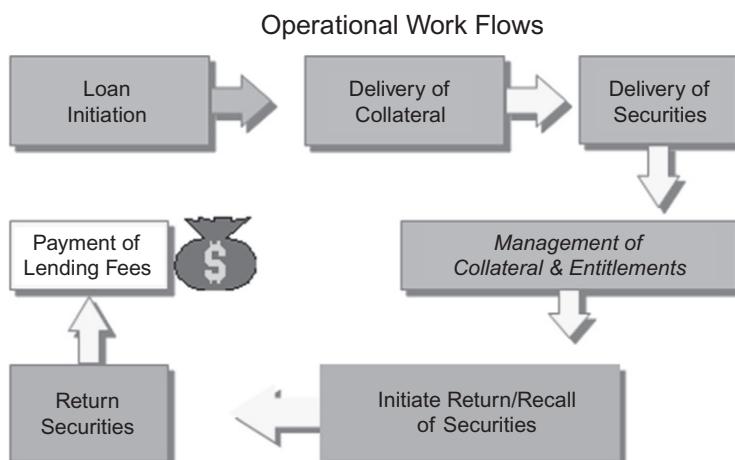
It is the responsibility of the borrower to ensure that the lender is made whole with respect to corporate actions. The borrower can either unwind the loan returning the securities to the lender or can take up any entitlements on behalf of the lender making any extra cash payments as and when required.

Implications for collateral

There are two points to note with respect to collateral:

1. The amount of collateral pledged may have to increase or decrease in order to maintain the required (marginated) levels of cover. This applies equally to collateral that is taken in the form of cash or other securities (whether in the same currency or different currencies).
2. If other securities are used, there will come a time when corporate actions will affect the collateral itself. In this case, the collateral can either be substituted or treated in much the same way as the loaned securities.

We can, therefore, summarize the securities lending workflow in the following figure:

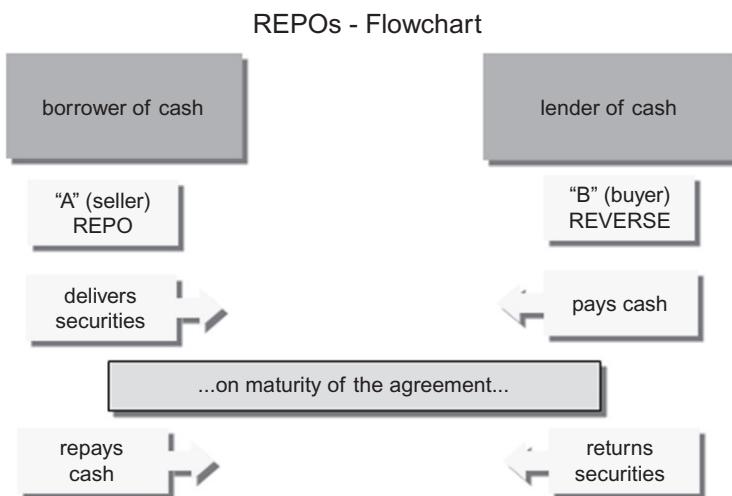


Repurchase agreement

A repurchase agreement (REPO) is a purchase or sale of a security now, with an opposite transaction later. The first deal is a purchase or sale of a security for immediate settlement. The second deal is a reversal of the first deal. It is a temporary rather than permanent transfer of securities and cash.

The difference in cash value is the cost of borrowing the cash secured against the security (usually high-quality bonds).

The figure below shows the basics of a REPO arrangement:



The stages in the workflow for securities lending can be summarized in Fig. 7.2;

Summary

A firm needing to borrow cash that has bonds available will use a REPO whereas a firm needing to borrow securities will be involved in a stock or securities loan against either cash or security collateral.

Considerable change has occurred in the field of securities lending prompted by the regulatory issues surrounding short selling, a key use of securities lending.

Today many jurisdictions require the reporting of both short positions and securities that have been borrowed or lent and changes to these positions. This has particularly affected hedge funds where many strategies involve the shorting of securities.

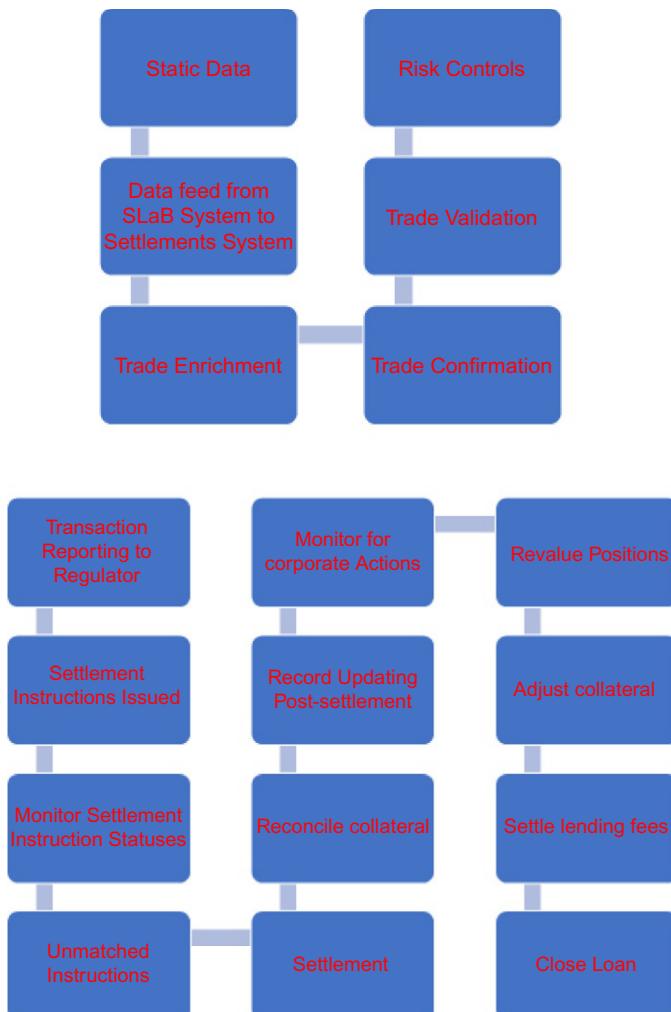


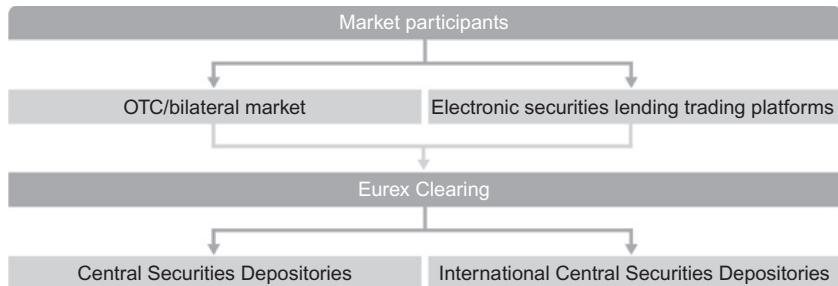
Fig. 7.2 Detailed stages in a loan. (Source: The DSCPortfolio Ltd.)

However, the use of securities lending and borrowing is still a major activity in the financial markets providing a significant level of liquidity and also extremely useful additional revenue for lenders.

Likewise the repo markets remain an essential mechanism to enable funding and cash management.

An excellent checklist for users of stocklending has been produced by The International Securities and Lending Association (ISLA) and this plus other useful information can be found at www.isla.co.uk.

A further development in securities lending is the idea of a CCP concept. The Eurex structure for this is shown in the figure below:



Eligible instruments

On a daily basis, Eurex inform their members which transactions or underlying securities are included in Eurex Clearing's central counterparty clearing service. For the securities lending CCP service, cash collateral (EUR and USD) and non-cash collateral are eligible.

This is an interesting development and readers should make sure they visit the online updated book at <http://www.eurexclearing.com/clearing-en/cleared-markets/securities-lending/>

European financial transaction tax

Another key development is the introduction of the financial transaction tax (FTT) in Europe:

European Commission sets out details of FTT

The European Commission has now published its detailed proposals for an EU Financial Transaction Tax to be implemented under the "enhanced cooperation procedure" across France, Germany, and nine other EU Member States. Disappointingly, although somewhat expected, the scope of the tax is very wide and it is proposed that securities lending and repo transactions will be subject to the tax on one leg of the transaction at 0.1%.

The ISLA Tax Group has been following developments and we will be considering what actions we may take to try and get a more appropriate outcome for securities lending transactions. We expect there to be considerable discussion and negotiation between the member states through 2013 and that it is likely that the measures proposed will change. We also believe that the timetable proposed by the Commission is extremely optimistic.

Again readers should keep visiting the online book for updates.

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CHAPTER 8

Settlement of portfolio transactions and subscription/redemption of shares and units in investment funds

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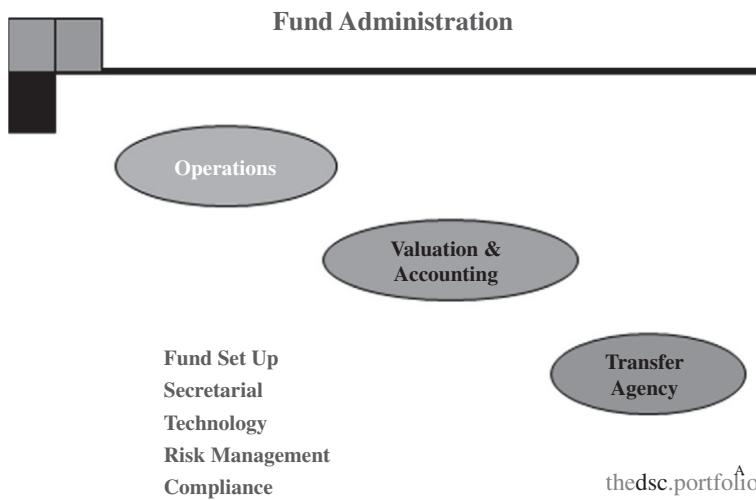
Introduction

The investment process, fund structure and relevant regulation are major parts of the financial and commodity markets. In this chapter we will turn our attention to the operational aspects of the fund administration and support services, starting with the transactions, record-keeping and reconciliation processes.

We probably already know that investment funds are very diverse, not only in their investment objectives, but also in the types of fund and the parties involved. The main differences in the funds, from the administration point of view, lies in the processes associated with the running of retail funds, qualifying investor funds or alternative investment funds (AIFs) and onshore and offshore funds.

Some funds will have a custodian, some a depositary and some will use a prime broker while the operations role and processes may be in-house, outsourced to a third party such as the administrator or the custodian, or a mix of both. The structure to support the fund administratively may include teams designated as working in middle office and back office.

It is very important to recognize that there will be a considerable difference between the support services provided by the administration process for a retail fund and those for, say, a hedge fund, as we will see in this chapter.



There are three generic aspects of fund administration:

1. Operations
2. Fund accounting
3. Registrar or transfer agency.

To this we can add secretarial services, risk management and compliance tasks and, particularly in offshore centers, assistance with fund set-up.

In this chapter we will discuss the fund operations process which can include:

- recording the assets held within the portfolio
- recording changes to the assets held
- other changes to the portfolio
- the reconciliation process
- the interaction and interdependency with fund accounting and the transfer agency services.

Investment fund administration and support

Although the exact format for the provision of administrative support will vary from fund to fund, the principle areas are: portfolio transaction record-keeping and reconciliation; valuations and accounting; and the transfer agency. There is a great interdependency between these three functions, as we will see by looking at the portfolio administrative processes in general, as well as that for which the operations team will be responsible.

The activity of the fund manager in the markets and the subscription and redemption activities of the investors mean that the positions within the portfolio are subject to change, sometimes quite frequently. The portfolio record must be constantly updated to reflect these changes and to maintain the proper accounting entries and records.

Portfolio administration and fund records

There are many key areas of portfolio administration and fund records that will need to be managed by the operations, accounting or transfer agency team, including the following:

Records of the assets held within the portfolio—all transactions by the investment manager for the fund must be reflected in the portfolio, which acts as a record of the assets of the fund.

Records of changes to the assets held—any change to the portfolio of assets must be recorded and this change needs to be reconciled with trade details and cash movements.

Income and benefits accruing from the assets—some assets may generate income or other benefits such as new shares, and these must be identified, reconciled and posted to the accounting records of the fund for incorporation into the value of the fund.

Records of the expenses, fees and costs payable out of the fund—these records reflect the charges that the fund, rather than the investment manager, must pay and include such items as management fees, audit fees.

Valuations of the total assets of the fund (sometimes referred to as the “property”)—periodically the total assets and liabilities of the fund will be calculated to produce the net asset value (NAV) of the fund.

Records of the purchase and sales of units or shares in the fund by investors—a fund will need to maintain the details of the investors who have put capital into the fund and who are on the register as shareholders or unit holders, and the total number of shares or units they own. The fund register contains the details and is updated as and when there are changes to the ownership of the shares or units.

Records of any distribution of capital, income or dividend to investors—a fund, depending on the type, may make a distribution of capital or income.

Records of any performance-related fees due to the manager—in some funds a performance fee is payable to the investment manager provided certain requirements are met. In some circumstances a process of equalization will be applied to ensure that the manager and individual investors are being treated fairly in relation to the performance fee. A record of the fee calculation, equalization and amount paid is kept in the fund accounting records.

The tax situation pertaining to the fund—there may be tax situations that apply to the fund and if so the record of the tax accrual and payments, including any withholding tax recovered under tax treaties, will be included in the fund's accounting records.

The importance of the proper maintenance of the records of the fund is fairly obvious. For instance, the accurate calculation of the value of the fund, the NAV, and the publication of the fund price, the NAV per share, are essential and are covered by various regulatory requirements.

Equally, the proper recording of the fund's register of investors and their holdings is vital for both the calculation of the NAV and the distribution of any income.

Assets of the fund

The investment manager invests the inflow of cash received from investors into assets that are then held in the portfolio. As we know, the basis for the investment is determined by the asset allocation and stock selection process applicable to the fund. For example, if the fund asset allocation profile is as shown in the following table then the inflow of funds is distributed across the asset classes. The stock selection process then determines the actual asset that will be purchased.

Example

Asset class	Benchmark	Tactical asset allocation
Equity	50%	30–70%
Debt	25%	15–35%
Alternative investments	20%	0–20%
Cash	5%	2–10%

Every time the manager purchases or sells assets, whether this is because of new investment capital or as a result of tactically changing the composition of the portfolio, the portfolio must be updated to reflect the new position in terms of:

- assets held
- cash held.

Where investors redeem units or shares, then unless there are buyers on the other side, the manager may be selling or liquidating assets in order to generate cash flow to pay the investors the amounts they are due.

Example

The current allocation of assets (weighting) in the portfolio is as follows:

Asset class	Tactical asset allocation	Max
Equity	60%	70%
Debt	20%	35%
Alternative investments	15%	20%
Cash	5%	10%

The manager is notified of a net incoming cash flow of £100,000.

Given the current weighting, the £100,000 will be invested as:

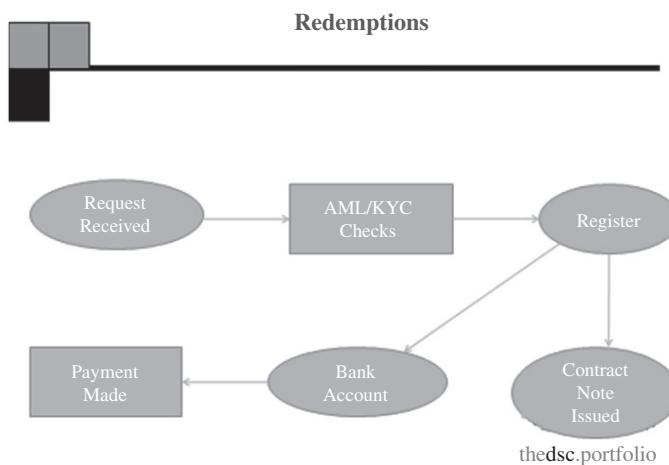
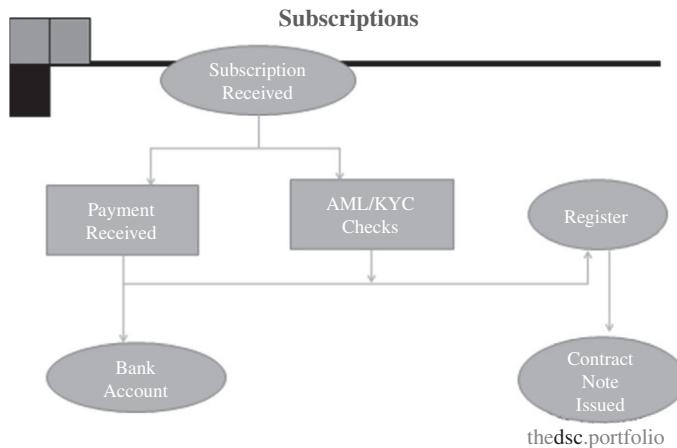
- £60,000 in equities
- £20,000 in debt
- £15,000 in others
- £5000 held in cash.

If instead there was a net cash outflow, the manager would look to generate the funds through a reduction in each asset class in line with the weighting. The manager may also look to other means of generating the cash flow needed to meet redemptions to avoid disruption to the portfolio. For instance the fund may have the ability to borrow money, but the terms of that authority to borrow, the borrowing powers, may or may not preclude its use for redemption of shares or units.

Administration workflow

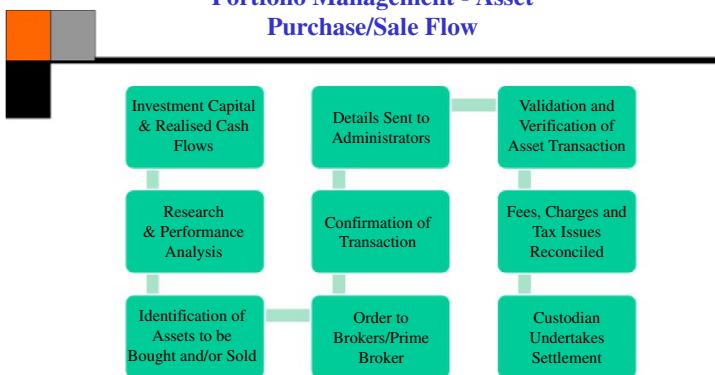
The administration workflow incorporates several stages.

We can illustrate the stages in the workflows by looking at the following figures:



The work flow for an asset transaction originates from a decision by the investment manager to purchase or sell an asset. The order is placed with the broker and confirmation of the completion of the order is received. The validation processes take place, any additional data such as broker commission and tax is added to the record. Finally the custodian undertakes the settlement in the market and the positions can be reconciled.

Portfolio Management - Asset Purchase/Sale Flow



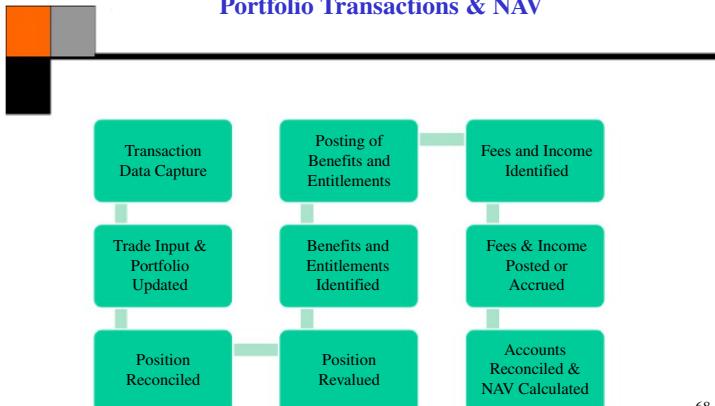
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As with the settlement of all transactions the process starts with data capture. This will be either automated or a manual process and forms the input to the records through the portfolio asset ledger. The control process of reconciliation takes place between the manager's record and the ledger. Any benefits or entitlements such as accrued interest on bonds, dividends receivable on shares, interest on cash deposits and any fees etc. is identified, reconciled and posted to the relevant ledger in the General Ledger.

The accounts are then reconciled and the Net Asset Value is computed.

Portfolio Transactions & NAV



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In any business, as we have noted earlier in the book, cash management is critically important.

In this workflow cash flows are identified and posted through the relevant ledgers and accounts. The cash position is then reconciled to bank and broker statements.

The cash forecast is compiled and given to the manager.

Some activity such as the use of derivatives, clearing of transactions via a CCP etc. result in margin calls and these may be covered by using cash as collateral. Margin calls and collateral must be fully reconciled.

As errors in the cash process can be a serious operational risk, data on margin calls and cash balances will be provided to risk management, for a fund under the AIFMD to the depositary, and in some cases the treasury management team.

We can start analyzing these in more detail beginning with subscriptions and redemptions of the fund's shares or units.

Subscriptions and redemptions

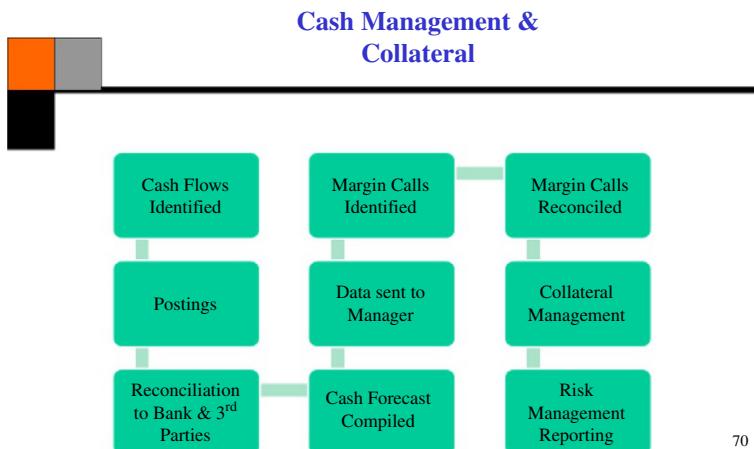
Subscriptions and redemptions generate entries in the fund register as well as creating cash flows, payments and receipts.

Cash flows will be included in the cash forecast, which shows the total receipts of cash and total payments including those generated by subscriptions and redemptions as well as from other sources such as asset transactions. The transfer agent manages the subscription and redemption workflow.

Note: The workload associated with these cash flows will be very different for open-ended retail funds and closed-ended funds.

We look at this process again later in the chapter.

One key role of the team is to manage the fund register.



The fund registrar has a similar role to that of a registrar for corporate shares and this revolves around maintaining the audit trail of the ownership of shares and units that have been issued by the fund, and any associated record such as change of ownership, distribution of income/dividends. The know your customer process means that the eligibility of the investor needs to be constantly monitored for suitability and anti money laundering oversight.

The registrar also communicates with the investor both over subscriptions and redemptions but also in terms of any calculation of income distributions.

Asset trades

The fund operations team will deal with the recording of the asset transactions that result from either subscription/redemption cash flow or the decision by the investment manager to change the composition of the portfolio. Transactions can take place via the prime broker or possibly other brokers as well as direct with counterparties. They could also be the result of the corporate actions on securities held, such as a rights issue. Each transaction in the assets will need to be updated in the fund portfolio and accounting records (position, value and cash movement).

In an investment management company running several different retail funds, the investment manager may be responsible for more than one fund. A tactical investment decision may result in a change from one asset to another across each of the funds.

In this situation a single transaction may be placed with the broker that, once confirmed as filled, will subsequently be posted or “allocated” as the relevant amount to each individual fund.

General ledger

Transactions generate entries in the records of the fund. These records will be used to produce the information about the fund over a period by analyzing the entries in each ledger.

The individual ledger accounts are held as part of the general ledger (GL) and the GL enables full analysis of all the transactions within the fund. The number of ledgers within the GL depends on the fund and its activities, but there are ledger accounts that are common across all funds. These accounts can include the following:

- *Bank accounts*—deposit account(s), client segregated account
- *Prime broker and/or brokers*—cash account, margin account, interest receivable and payable, dividends, commissions

- *Other counterparties*—negotiated products, OTC derivatives—cash flows receivable, payable
- *Investments*—investments at cost, unrealized gains and losses
- *Accounts receivable*—subscriptions and other amounts receivable
- *Prepayments*—prepaid registration and license fees, directors fees, etc.
- *Accounts payable*—fees such as management, administration, performance, audit, legal, other organizational fees, redemptions and other payable items
- *Equity*—retained earnings, equity
- *Income*—dividend, interest, realized gains and losses and other income
- *Expenses*—costs including fees and sundry expenses.

Let us look at the entries that the purchase of securities would generate in the records.

Example

Purchase of 10,000 BP ordinary shares.

The data needed by the operations team to enter the trade into the systems will be:

Counterparty—broker/counterparty reference.

Shares/amount—10,000.

Security—ISIN for BP ordinary shares.

Buy/Sell—Buy.

Price—580p.

Stamp Duty—UK rate 0.5% = £290.

Commission—£250 (from brokers contract note).

Net Value—£58,540 (Amount payable = (shares x price) + tax + commission).

Trade Date—26/01/120.

Settlement Date—29/01/12 (default will be settlement convention for the market Trade Day (T) plus X days, e.g., T + 3).

Currency—GBP (currency of settlement).

When the operations team enters these details into the system the data will automatically update the relevant ledgers.

So the purchase of 10,000 BP ordinary shares will update in the Investments ledger and show as a “long” position.

The stamp duty will update the Tax ledger and the commission the Commission ledger and the accounts payable will show the cash payment of £58,540 due 29/01/12 to the broker.

The brokers account will reflect the balance of £58,540 due and on the 29th the bank account will show the payment, which closes the balance due in the broker account and the accounts payable.

Pricing and valuation

The pricing and valuation process, together with the computation of the accruals, establishes the NAV of the fund. Assets held including cash are valued by reference to a price source, for example a market price or a foreign exchange rate. This process follows procedures laid down in a pricing policy (the accounting team deal with this and it is covered in more detail in Unit 9, section 6.1).

Reconciliation

The operations team will reconcile the assets held in the portfolio, including cash, with the external records of the custodian, brokers and banks.

To maintain accurate records and calculate correct NAVs, the funds subscriptions, redemptions, asset transactions, accruals and cash/securities positions must all be reconciled. The reconciliation for the subscriptions and redemptions will be with the fund register and the receipts/payments of cash through the bank account. This process may be undertaken by the transfer agency and is covered in Unit 10.

The asset transactions and portfolio positions will be reconciled with the investment manager's records, the prime broker and custodian (if applicable) or with other counterparties, such as derivatives brokers, agents holding title deeds for property, etc.

The reconciliation process

Subscription/redemption

We can see that the subscription and redemption activity of the investors leads to a cash flow, through the bank account, which is incorporated into the cash forecast. Simultaneously, the subscriptions and redemptions activity is updated in the fund register and the receipt and payment of monies through the bank account are reconciled with the fund register entries.

Asset transactions

We can see that the cash forecast is provided to the investment manager. Any transactions as a result of the cash flow plus any tactical investment decisions are then incorporated into transactions carried out through counterparties. In turn, these transactions will be settled by the custodian.

Note: when a fund uses the services of a prime broker the custody service is often part of the arrangement, but in other cases the custody service and, therefore, the custodian may be a separate party.

The administrator receives the transaction details from the investment manager and/or the prime broker and can now reconcile the positions held by the custodian with the portfolio the manager has created.

Note: this is an example of the structure that can exist but it will vary from fund to fund; nonetheless, the reconciliation of the portfolio with the location of the assets is an important process.

Reconciliation breaks

A reconciliation break will be either a position break or a cash break. Either can be potentially very dangerous as the break indicates an imbalance between the expected and the actual portfolio status.

A position break is caused by missing or erroneous trade details in the portfolio records or in the external parties' records. There are several reasons why this may have happened:

- Late notification of a transaction will mean that the custodian has a position that is settling in the market, but the portfolio has not as yet been updated.
- Unmatched transaction—the investment manager believes a transaction took place, but the counterparty does not agree, resulting in a position in the portfolio, but no corresponding position in the market.
- The details of transactions are different, i.e., the details received from the investment manager regarding amount, price, etc., do not agree with the counterparty's statement.
- In the case of a derivative or other instrument with a maturity date there are incorrect data in the system and the position is deleted as matured either too soon or too late.
- In the case of derivatives, the position may have been exercised, tendered or assigned for delivery, but the portfolio records have not been changed to reflect this.

Any of these need immediate resolution, which will involve some or all of these actions:

- Notification to the investment manager
- Recaps with counterparties
- Status updates from the custodian
- Adjustments, including additions and deletions
- Re-reconciliation.

There will need to be excellent communication between the manager, administrator, custodian and counterparties and speed of resolution is very

important, particularly if the asset concerned is volatile in price because a severe loss may occur if the resolution takes time.

Cash breaks

An error between the cash balances in the portfolio and those in the bank accounts or on deposit is likely to be caused by:

- late settlement of receipts and payments
- wrong amounts being recorded as receivable/payable
- wrong amounts being received and paid
- in the case of a foreign exchange, a different source of exchange rate
- unexpected bank charges or tax being deducted from amounts receivable
- possible fraud.

As with position breaks, immediate resolution is required particularly to ensure that there is no possibility that fraud will occur.

Similar actions to those required for a reconciliation break will also be undertaken but with an emphasis on communication and checking with the custodian and banks to ensure the resolution has happened.

In any incident of a break there is an element of operational risk and this will be looked at in Unit 12, but it is important for the audit trail and to maintain efficiency that each incident is logged and where appropriate the resolution and remedial actions to prevent repetition are recorded.

Margin and collateral

In addition to the processes of subscriptions and redemptions together with any asset transactions, there is another area with which the fund administrator and certainly the operations team need to be familiar and that is the use of margin and collateral.

Derivatives such as futures, options and swaps, which are widely used in both retail and non-retail funds, have a margin call or credit enhancement requirement (OTC derivatives) that is provided or payable by the fund to the broker as part of the risk management control process between the fund and the counterparty.

Where futures are used there will be a daily settlement based on the change in value of the open positions (called variation margin) together with a separate margin call based on a percentage of the value of the futures contract, called initial margin (see [Chapter 5](#)).

In the fund's records there will be the derivatives position as part of the portfolio, which will be part of the asset reconciliation, as well as a margin ledger to reflect the margin calls.

Example

Futures transaction

The investment manager buys 10 FTSE100 Index futures March 2012 contracts @ 5200.

From the contract specification issued by NYSE Liffe (see Appendix 7), the size of the contract is £10 x index point so that:

$$1\text{contract} \times \text{£}10 \times 5200 = \text{£}52000\text{in value}$$

that is, equivalent to £52,000 of shares in the weighting of the index.

The investment manager has today purchased 10 contracts so the value of these contracts is:

$$10\text{contracts} \times \text{£}10 \times 5200 = \text{£}520000$$

The operations team will enter the details of the trade into the system: there will be some different entries and cash movements for this product compared with the purchase of securities.

Futures contracts do not settle for the full value like securities transactions, but instead they are revalued each day against an end-of-day price set by the derivatives exchange.

This revaluation creates a settlement value and this amount is settled T+1 for each day the position is held open.

Let us use an end-of-day price on the trade date, today, of 5205 and we can assume the investment manager has kept the position open, i.e., part of the portfolio.

The revaluation will be the mark to market (MTM) of the original trade price to the end-of-day price, thus:

$$10\text{contracts} \times \text{£}10 \times 5200 = \text{£}520000$$

$$10\text{contracts} \times \text{£}10 \times 5205 = \text{£}520500$$

The settlement for future contracts requires that the variation margin of £500 needs to be settled. As the investment manager is long of the futures and the price has gone up, the variation margin is due to the fund. What in effect has happened is that the long position has a profit and the profit will be settled. This will occur every day that the position is held open until it matures in March.

This type of product has what is called a contingent liability, i.e., more than one amount may need to be paid or received in settlement of the trade.

Let us say the investment manager keeps the long position open and on day two the end-of-day price is 5203. The variation margin is the difference between the valuation at the price at the end of day one and the valuation at the price at the end of day two.

$$10\text{ contracts} \times £10 \times 5205 = £520500$$

$$10\text{ contracts} \times £10 \times 5203 = £520300$$

There is a variation margin of £200, but as the price has fallen the position has made a loss and the fund will need to pay that loss. The variation margin* will be posted to the margin account.

Any commission charged on the futures contracts will be posted to the commission account.

As the investment manager has created an open position in the futures contracts, the counterparty will require initial margin to be deposited until the position is closed out by an offsetting trade. The initial margin rate is established by the exchange, but a broker can charge a higher rate. If the volatility in the market increases or decreases the initial margin rate may change from time to time. In an exceptional period of volatility there may be an intra-day margin call for additional collateral and that call is for immediate settlement.

Initial margin calls are covered by collateral, which can be in the form of cash or assets, such as bonds or equities, and this is either transferred to the broker/counterparty or is pledged to them by the custodian. For a fund using a prime broker, the variation and margin calls are updated against the cash and assets held by the broker or pledged to them by the custodian.

Task

Using the above transaction and assuming a starting cash balance of £50,000, a commission rate of £2 per contract and an initial margin rate of £2500 per contract calculate:

1. the change to the cash balance (assume the initial margin is covered by cash collateral).
 2. the final profit or loss and ledger entries if the investment manager sells the 10 futures contracts at 5208.
-

The derivatives positions will, as noted above, be reconciled but so too must the collateral being held by the counterparty, as this still consists as assets that belong to the fund and are part of the portfolio. Particular attention must be paid to collateral that is in the form of assets. Any dividend, interest or other benefit or entitlement belongs to the fund and must be accounted for as if the asset were not being used as collateral. For example, a bond lodged as collateral will still have the interest accrued entered in the fund's accounts. Likewise, any dividend payment will be received either directly, if the security is still in the fund's name, or by payment of the dividend value from the broker, if the security has been transferred into the broker's name.

As there can be tax issues related to income that is not directly received, it is prudent to pledge the collateral, in which case the security is not transferred, *or*, when a dividend is due, alternative collateral is used so that the security is reinstated in the fund's name or that of the fund's custodian.

The custodian will be involved in actual processes of managing variation margin and collateral and the administrator needs to ensure, by reconciling the custodian's records, that the portfolio position in terms of details of assets and cash has been correctly maintained. For example, the administrator should check that a security being used as collateral has not been deleted from the portfolio records.

Most collateral arrangements involving OTC derivatives are governed by the agreements formulated by the International Swaps and Derivatives Association (ISDA), details of which can be found at www.isda.org.

Other activities affecting the portfolio administration

Securities lending and borrowing

In addition to margin and collateral, the investment manager may, subject to regulation and offering documents, make use of services offered by the prime broker, custodians or other parties in areas such as securities lending and borrowing.

This process also involves putting up collateral against the securities borrowed and so the same concepts apply as given above, but with securities lending and borrowing, securities lent by the fund are still the fund's assets and collateral received from the borrower is not part of the assets of the fund.

If the fund is a borrower of securities then the collateral situation is the same as in the case of derivatives, i.e., the collateral is still an asset of the fund.

Note: the borrowed securities are a liability of the fund as they must be returned to the lender at some stage.

We need to remember here that there is a big difference between the ways in which funds are involved in securities lending and borrowing. Large retail funds will, if permitted to be involved, be lenders of securities, whereas hedge funds are often significant borrowers of securities to meet short selling strategies.

While it is possible to manage the lending and borrowing process internally, and some large mutual and pension funds do, most funds will use an intermediary. In the case of hedge funds, they will usually use the prime

broker and retail funds will often use service providers, such as custodians, and central securities depositories, such as Euroclear and Clearstream, who operate stock lending pools. The intermediary and pool structures are illustrated in the diagrams in this chapter.

Stock loan example

Here is an example of the cost to the fund of borrowing securities where the investment manager needs to borrow shares. The loan is a term loan, i.e., a fixed number of days, rather than a recall or call loan that either the lender or borrower can terminate at any time and, in this example, is being arranged by the fund's prime broker.

Securities lending transaction non-cash collateral

1. A fund borrows: 100000 ABC Shares @ \$100 per share
2. Prime broker negotiates the term loan (loan price, collateral, type, fee)
3. Non-cash collateral value (e.g., US treasury bonds): \$10,200,000

Securities lending and borrowing can be transacted under an agreement such as the Global Master Stock Lending Agreement (GMSLA 2010) of the International Securities Lending Association (ISLA). The website for ISLA is www.isla.co.uk.

As noted above there is more detail about securities lending in this chapter.

Corporate actions

Corporate actions are primarily about changes to the securities and financial structure of a company or to the company in the case of a takeover or merger.

When a corporate action occurs it will be either a mandatory corporate action or a voluntary or optional action, which will require a decision. We will look at examples of both.

Voluntary/optional action—Rights issues

The rights issue invites holders of shares to subscribe for additional shares at a discounted price. This is a decision that the investment manager will need to make.

Rights can sometimes be sold or taken up, but if that is not the case the issue will be called an “open offer.”

If the investment manager decides to take up the rights the custodian will need to deal with the process and they will require an instruction from

the investment manager. The administrator must make sure that the positions in the asset and cash reflect the subscription.

Mandatory action—Scrip issue and dividends

Example 1

Scrip issue

As we can see, the scrip issue will result in a change to the position in the portfolio. If the position is not correctly updated the valuation when the shares go ex-scrip will be wrong.

$$\text{Previous position} = 3000 \text{ shares} @ £15 = £45000$$

$$\text{After ex-scrip unadjusted position} = 3000 \text{ shares} @ £9 = £27000$$

The administrator needs to check that the portfolio position has been changed and that this agrees with the position held at the custodian.

Example 2

Dividend

The dividend is announced and so is the date when the shares stop trading with the dividend entitlement. As we can see above, the payment date can be some time after the “ex” date, although this will vary from country to country.

The important issue for the fund is that it receives the dividend due on the position held when the shares went “ex-dividend.” The custodian must reconcile the entitlement with the actual payment received.

The administrator must ensure that the accounts show an accrual for the dividend on the “ex” date, as the price of the shares will fall by approximately the value of the dividend, because this is a distribution of profits, which is reflected in the company's share price.

Task

Draw up a checklist for managing corporate action events.

Capturing data

A key issue for the operations team is the ability to obtain the data needed to input the transactions to the system and to manage the changes that might occur in that data.

Data used in maintaining the records of the fund can come from a variety of sources and be in a variety of formats. A data base is essential to enable

automation of the processes of trade capture, posting and reconciliation, i.e., minimal manual updating and as much straight-through processing (STP) as possible.

The communication links between the investment manager and the administrator in small funds or single manager hedge funds could be email or rely on other methods such as fax. One problem is that the investment manager and the administrator are possibly not in the same location. It is also probable that the custodian and prime broker/counterparties will be in different locations. Time zones may become an issue.

In large funds there may be sophisticated systems that link the front office where the investment managers are located with the middle and back offices elsewhere that provide the administration services.

In the larger retail funds the middle office is usually involved in areas such as validation of portfolio transactions, pricing and valuation, while the back office is responsible for maintaining the records of the fund and, possibly, accounting as well as the production of reports, etc. It is quite probable that the investment managers and administrators will be located together.

Once again we must recognize that these structures are very dependent on the fund and can vary considerably. Communication between the administrator and the custodians, prime brokers and counterparties can be through system-to-system links, using messaging systems, such as SWIFT, email and intranets, or by more paper-based processes, such as fax and even hard copy.

Many prime brokers allow access to information in their systems by both the manager and the administrator, which greatly increases the speed and efficiency of checking detail and the resolution of problems with transactions and positions. As the custodian is likely to be part of the same institution, access to data from the custodian can operate along similar lines.

The effectiveness of communication is a major influence on the efficiency of the operational processes and, therefore, the overall administration of the fund.

Subscription and redemption of shares and units in investment funds

The purchase and sale of the shares and units in a fund are settled via the transfer agency.

The transfer agency accepts and validates the subscriptions and redemption requests before updating the register.

The processes are shown in the following figures:

Fund Registrar

- **The role of the maintaining of the stakeholders register for units or shares**

- Issuing acknowledgement
- Certificated and book entry
- Amending records
- Dividend payments
- Power of Attorney



- **International transactions – investor eligibility** 76

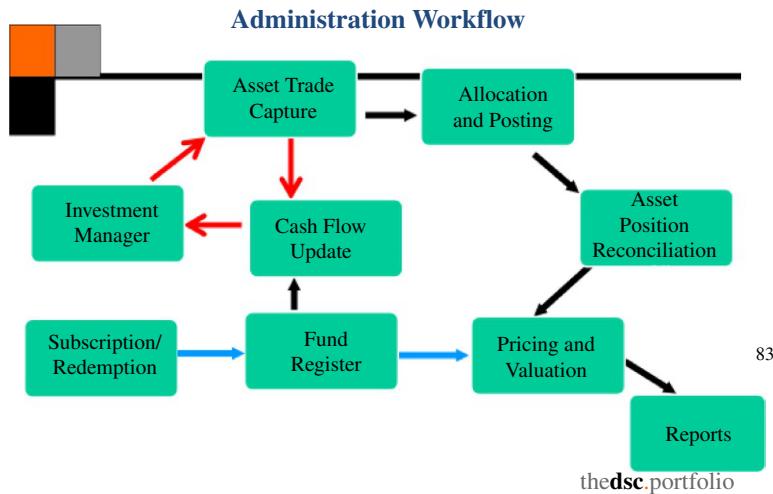
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As we can see from the above diagrams a key process of the transfer agency involves the AML and KYC due diligence. Before any subscription or redemption is processed and assuming it has been submitted in the prescribed format the due diligence in terms of the legislations and regulations will be undertaken. This will involve verifying the identity of the investor, be they a private individual, a financial institution or a corporate entity, the source or destination of the monies, and also the status of the applicant in relation to the type of fund they are associated with. The latter is part of the process of verifying if a potential investor is acceptable for the more lightly regulated non-retail or alternative investment funds.

Summary

The successful management of the clearing and settlement of both transactions in the portfolio and also transactions in the units and shares in the investment fund are essential to the fund owners and investors in the fund and are the principal responsibility of the fund administrator and the custodian.

The high level administration stages can be illustrated as:



Readers may be interested in purchasing the Investment Fund Operations title also available from Elsevier and e-learning modules available from MarshallACM, www.marshallacm.com

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CHAPTER 9

Risk and regulation

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Risk and regulation have become immensely important areas of the financial and commodity markets, impacting on all participants. The ramifications of the market crash in 2008 and the subsequent economic problems forced regulators worldwide to take action to ensure the proper operation of the markets and adequate risk control in businesses.

Risk and Regulation are massive subjects in their own right and affect the clearing, settlement, custody and fund administration functions significantly. We will look at them in some detail in this chapter.

Risk

Within financial and commodity markets there are principally three key risks that have been recognized for many years. These are:

1. market risk
2. credit/counterparty risk
3. operational risk.

The latter, which is very important in terms of clearing, settlement and custody, really hit the headlines with the collapse of Barings Bank caused by management failures and an inadequate control framework, particularly across operational procedures and processes.

It is no secret that following the market collapse of 2008 regulators and, indeed, many others, considered financial markets and institutions were “out of control” and that the unacceptable risks that particularly banks and some investment funds were taking posed a threat to the whole global economy and capitalism itself.

As we have seen in earlier chapters, one method the regulators used to mitigate some risk, like counterparty default, was to introduce mandatory central clearing through a CCP of some over-the-counter (OTC) products and the recording of transactions via a repository.

We also know that finality of settlement is crucial and so some elements of a firm’s risk universe will be related to this, as settlement risk is part of the operational risks a firm face.

Other key operational risks are:

- system risk
- people risk
- process risk
- communication risk
- project risk
- access risk
- management risk
- counterparty—insource and outsource risk.

Let us look at an example of operational risk.

The case study we will use is related to securities lending.

When a lender enters into a loan with a borrower there are certain risks that will occur. A key risk is that the securities lent may not be returned and risk mitigation is that the lender will require collateral from the borrower to protect against this risk.

This, however, creates a risk itself called “collateral risk” and we can explore what this risk is here.

Establishing rules governing collateral can be complex and lenders are advised to discuss this with their agent or adviser. A lender's collateral policy will affect the returns that are achievable (the riskier the policy, the higher the return). The main issues to be considered are:

1. What is acceptable as collateral?

Lenders must consider what types of collateral they are willing to accept. In general terms if a default occurs, the lender will need to realize the value of the collateral quickly in order to replace the securities lost in the default. For this reason the type of collateral accepted should be "readily realizable" and will, therefore, be liquid assets with a short settlement process. This would include government bonds, treasury bills, cash, guarantees backed by suitable banks, etc., and possibly liquid equities.

2. How much of any one type of collateral should be accepted?

Lenders should place limits on the amount of any one bond or share that is received as collateral to avoid ending up with a concentration of one type of collateral that might prove more difficult to sell.

3. What level of over-collateralization is required?

It is commonplace for a lender to require collateral that is worth more than the value of the loaned securities. This excess amount is known as the "margin" and the lender needs to decide what level of margin is required. In setting these policies, the lender and agent should take into account technical factors such as liquidity (i.e., the ease with which the collateral may be sold at a fair value), and price correlations between the loans and collateral (i.e., whether the price of the collateral is generally expected to move in line with the price of the lent securities).

4. Foreign exchange risk

If the accepted collateral is in a different currency to the securities lent the impact of exchange rates must be included in the valuation process.

5. Cash collateral risk

Where the loan involves the lender taking cash collateral, the cash must be reinvested to generate a return. The lender must ensure that the investment guidelines governing the investment of cash collateral are fully understood and provide an acceptable level of risk and return. Lenders should be aware of the liquidity risk inherent in the investment of cash collateral should investments need to be sold at short notice to return the collateral. So whilst cash on overnight deposit would meet the requirement in the sense that it is available immediately, the return would be poor. However, cash in a term account earning a higher return cannot be realized immediately. The reinvestment process will require the knowledge and skills of someone with responsibility for portfolio management and or investment decisions.

6. Intra-day risk

The timing of the movement of the securities being lent and the receipt of collateral from the borrower creates an intra-day risk. Lenders should consider whether they wish to receive the collateral in advance, for example, a day before the loan settles to avoid this risk. At the end of the loan lenders must also ensure that the lent shares are returned before, or at the same time as, collateral is released back to the borrower.

7. Agent risk

Where the lender is making use of an agent in the lending process, it is essential that the risks associated with the use of the agent, and the operational risks of the loan process that are accepted and managed by the agent, are fully understood.

8. Settlement risk

The risk of an error in the loan processing resulting in a failure to deliver and/or return securities in accordance with the agreed start and end settlement date(s) of the loan.

9. Other risks

Borrower risk

The lender must consider who they are willing to lend to and how much they are willing to lend. This will be determined by the risk and credit management teams.

The operational risk universe

Every firm will have its own risk profile and universe as no two firm profiles are exactly the same. There may be similarities but people and technology will have their own unique risk profiles. In Fig. 1 we show a generic risk universe.

Risk is then divided into:

- killer risks
- key risks
- standard risks.

Killer risks, should they occur, are risk events for which the impact is likely to be terminal for the business. Key risks are those for which the impact would do severe damage, but it is unlikely to result in the cessation of the business immediately, although, long-term, the firm may be left vulnerable to competitors and or loss of clients. Standard risks, meanwhile, are the types of risk events that the teams would be expected to manage in their day-to-day operations activity.



Fig. 1 Risk universe.

A very rough breakdown of risk exposure would be perhaps up to 5% for killer and 20% for key, with the rest being standard risks, but this of course depends on so many factors, like size of business, complexity of products, age of technology, quality of people and management, etc.

Clearing and settlement risk

If we accept that operational risk is either process or people based, or both, then we can identify where the major risks in clearing and settlement will occur.

Clearing risk

As matching is a key part of the clearing process, it then follows that a problem with this phase would represent a key risk.

The likely risk events would revolve around processes we have already covered in this book such as:

- trade capture
- netting
- confirmations
- margining.

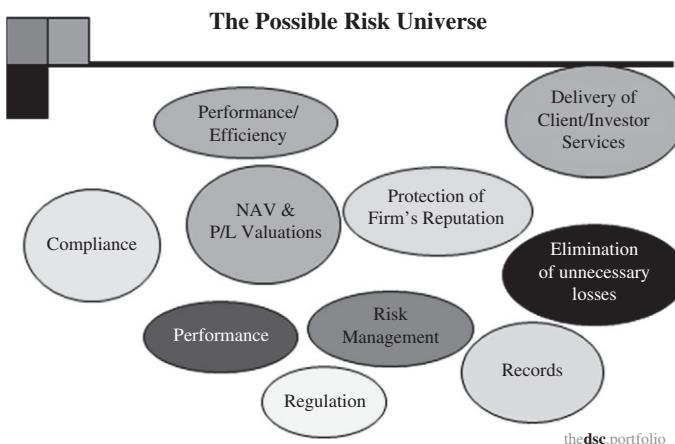
Faults and failures within these stages of clearing would lead to delay and, potentially, settlement fails.

We need to remember that in the centralized clearing process trade capture and matching of trades is usually linked into electronic trading systems and/or confirmation networks. In turn, these trades are then processed by the CCP or clearing house through members accounts, where the process uses netting and margining to manage the risk.

However, the internal clearing process in a firm or custodian is heavily dependent on the processes such as:

- reconciliation of “market” position to account/client position by product
- reconciliation of account/client instructions/trade data to account/client position by product and market
- reconciliation of cash movements and positions by currency.

As we saw earlier a risk universe may look like this:



Of course each firm will have its own risk universe in the operations area and we must also remember that enterprise wide risk means that some areas of market or counterparty risk can overlap with operational risk so it is important to understand this in terms of source of possible risk events. We will look at this further later in the chapter.

Regulation

As far as clearing, settlement and custody is concerned the regulated entities like custodians and depositaries, CSDs and clearing houses have to comply with the relevant regulations in the jurisdiction.

We already know from earlier chapters that there has been significant regulatory change in the industry and that some of this, like the central clearing of some OTC products, has resulted in re-engineering of the whole clearing, settlement and custody process as is illustrated by the following observation related to the AIFMD and global custodians servicing investment funds:

Impact of the AIFMD on depositary banks

In an article published by Global Custodian issues that face custodian banks as a result of the introduction of Level 2 of the Directive make interesting, if possibly alarming, reading.

Under the AIFMD alternative investment funds are required to appoint a depositary to manage support operations. Many of these depositaries are likely to be custodian banks and there are several issues that arise.

Firstly, we have the level of contractual obligation and in particular the responsibility and liability for the sub-custodians that are widely used.

Secondly, a requirement of the directive is that the depositary/custodian should monitor the cash flow of the AIF. This process is likely to be already performed by the fund administrator.

As the article points out, this is maybe not a problem where the custodian is also the administrator, but where this is not the case there will be an expensive duplication of process.

In the areas of assets "control and monitoring" the directive places the onus on the depositary to ensure that the fund's assets are actually owned by the fund. For traditional assets like securities this is not a problem for a custodian but derivatives, real estate, commodities, art, etc., creates a whole new challenge in terms of competency and technology.

For depositaries and custodian banks there are some major challenges to be addressed.

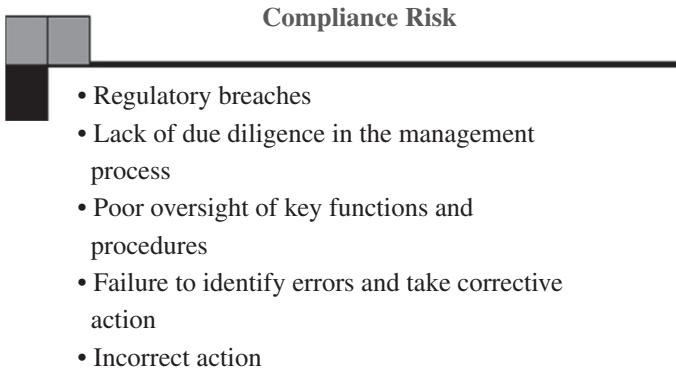
D.A. Loader, Director the DSC Portfolio Ltd. 2013.

From the clearing, settlement and custody point of view regulatory risk would be a failure to comply with regulation applicable to the activities within the support process and, apart from the requirement above, key amongst these would be the regulation affecting client asset and money, safekeeping of assets and provision of information as part of the transparency objectives.

Another important area is the compliance with the settlement conventions in a jurisdiction whether that be the expected settlement time ($T + x$), securities lending activities, margin and collateral management, benefits and entitlements and, of course, tax.

The custodian, for example, must be able to provide services that fully address these issues as part of either the core or added-value offering.

We can perhaps summarize the compliance issues and risks as those shown in the following figure:



At the end of the day the whole process of managing the risk and regulatory issues boils down to the procedures, controls and the culture that a business establishes.

In a hugely reputational business, like clearing, settlement and custody, the ability to professionally deal with risk and regulation will set a firm out from others and indeed becomes a major factor in the appointment of counterparties.

Generally speaking risk is about perception and not always reality. This means that operational risk is likely to be thought of as being something different from what is actually the risk profile in the firm.

Clearly Barings REAL risk situation was very different from what it appeared to be, like wise surveys have shown that people consider flying as a dangerous way to travel whereas statistics prove that it is one of the safest.

The danger is that if perception rather than substantiable fact and valid experience factors are used to asses operational risk the outcome will be a very vulnerable business.

What we are looking for when we are considering the risk profile of the firm and its operations functions?

The following are a few examples we can recognize:

Financial Risks—replacement costs of lost assets, compensation for errors affecting clients.

Legal Risk—law suits for breaching agreements,

Reputation Risks—service delivery, errors in data,

Systemic Risks—users of systems and processes are affected by change/ errors elsewhere in the flows, problems with third party providers and counterparties.

Management risk—failure to maintain the operation efficiently and safely, motivational issues, performance impact of decisions.

Operational risk is broad title for risk as diverse as failure of systems to unnecessary errors in the workflow process.

Basel II defines the risk narrowly and ignores for instance the risk of reputation loss. In the broader context operational risk is potentially massive and the failure of management, of controls and of poor performance of critical functions and tasks within the organization will make the financial or reputational damage of that risk happen.

Understanding the REAL operational risks, a business faces needs more than just addressing the requirements of Basel II.

Let us consider further some of the aforementioned risks:

Legal and Regulatory risk—documentation shortcomings, unsuitability/negligence in providing services.

Systemic risks—external systems failure has knock on impact, poor performance of an agent, i.e., custodian, clearing broker impacts on standard of work and services internally, one departments poor performance or inability to carry out the processes its responsible for affects another area. Financial risks—losses from errors, compensation for poor performance etc. also regulatory fines and sub standard management of finance I.e. cash flows, funding requirements etc.

Management risk—failure to manage resources, failure to maintain adequate controls, business planning, staff development, provide leadership—examples non documentation of procedures, out of date documentation of procedures.

Failure to ensure adequate knowledge and standards of performance in critical areas like finance examples -allowing late settlement of amounts due, poor control over payment verification leading to potential errors or even fraud or money laundering.

Operational risk is systemic both within a firm and in the wider market place/industry.

Here are three examples.

(1) Major technology provider fails (2) SWIFT data is corrupted/system is hacked (3) inadequate resource levels in one part of firm impact severely in another part of the firm.

As we know firms will have a operational risk universe see [Fig. 1](#) which actually can be generic to the whole firm and specific to operational areas like clearing, settlement, custody and fund administration or indeed to some extent other areas like I.T, H.R. accounting and Treasury.

Knowing the extent of your universe is important. We will return to this later.

So why understanding operational risk important?

Well again some examples would be the need to address regulatory compliance, to provide protection for the firm's business including profits, market share, shareholder interests etc.

We should note also its successful management delivers improved performance and efficiency and importantly capacity for the business to grow.

You should consider what types of operational risk typically affect your businesses and then consider how and why changes in the financial services industry will be impacting in terms of operational risk.

For example, what has been the operational risk impact of

1. Outsourcing
2. Globalization of investment & business
3. STP and automation issues—DLT/Blockchain
4. Political and economic factors - Brexit
5. Regulation

Lets consider each of these;

Outsourcing—reliance on the insource to perform to the standard needed, loss of control and skill sets, exposure to increasing costs, ability to provide service in line with the firms growth.

Globalization—product knowledge, different regulatory environment, use of agents/custodian, currency/exchange rate issues, settlement conventions, valuations.

STP—speed of processing, less time to deal with errors, reliance on technology, “new” infrastructure solutions such as Distributed Ledger Technology (DLT)/ Blockchain impacting on processes, procedures and controls.

Political and economic factors—an issue in respect of consistency of process, regulations, tax, law etc. Prime example in Europe is the UK decision to exit the European Union, known as Brexit;

UK, EU watchdogs agree clearing houses pact for no-deal Brexit.

LONDON (Reuters) - The Bank of England and the European Union's market watchdog said they will work together to avoid financial market disruption involving clearing houses such as LCH in London if there is a no-deal Brexit. The BoE said it and the European Securities and Markets Authority (ESMA) had agreed memoranda of understanding regarding cross-border cooperation and information-sharing between regulators for central counterparties and central securities depositories.

Central counterparties or clearing houses ensure a stock, bond or derivatives transaction is completed even if one side of a trade goes bust.

The final leg of a trade, known as settlement, is conducted by central securities depositories (CSDs), such as Euroclear.

Source: <https://www.reuters.com/article/us-britain-eu-markets-uk-eu-watchdogs-agree-clearing-houses-pact-for-no-deal-brexit-idUSKCN1PT1QD>

Regulation—Client protection, money laundering, reporting requirements

Over recent years the increasing use of derivatives and also the growth of the number of hedge funds has created the challenge for operations teams in managing the change–.

Derivatives—product knowledge-pricing/valuations—reporting (to regulators and clients)—margin/collateral management issues—exercise/assignment/delivery issues, on and off exchange clearing.

Hedge Funds—services needed (Prime Broker, fund administration etc. have to deal with new products, exotic products, collateral, risk management etc.)—huge consumers of stock through borrowing to cover short positions—high volume and turnover in accounts, performance fee calculations, trading on margin, collateral management.

Operational risk management

We can now turn our attention to how operational risk is managed and the how the managers and teams are involved in the process.

Operations managers and teams have a very important role to play in successful management of the risks. Working with risk managers they will be involved in many stages from self assessment of their risks to following the procedures and controls in place over the functions they carry out.

People are the best risk control there is. By simply doing their tasks well and using their “instinct” to highlight something that is potential wrong and could lead to a risk event happening, is one of the most powerful management tools available.

Overall risk management is of course important too and we must always remember the risks belong to the business.

That said the business and risk management are both important in establishing a risk awareness culture and having a clearly defined operational risk management or ORM value chain is important.

The ORM process starts with awareness, proactive rather than retrospective response to risk identification and risk events, active participation at ALL levels in the ORM process, leading to a dependable, realistic, working ORM process that delivers value to the business and protects the business. Fig 2 shows this.

There are two types of high level operational risk as shown in Fig. 3.

To these we can add two further key risks as shown in Fig. 2.

For example the collapse of Barings was a catastrophic risk event, i.e., the demise of the business (Fig. 4).

Creeping risk is a BIG danger to all firms and is often the hardest risk of all to identify and manage.

Typically, this risk will be associated with technology or inadequacies in the resource that in turn affect processes downstream to a far greater degree

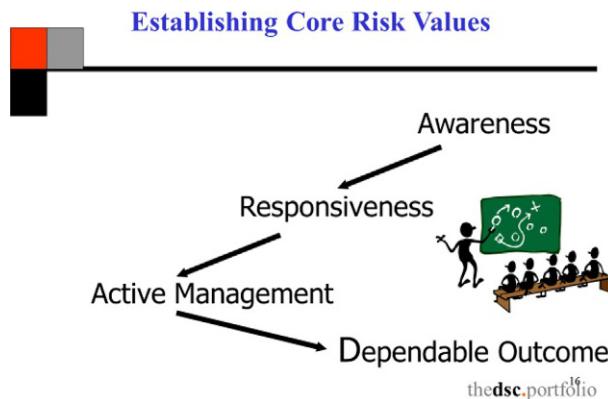


Fig. 2 Risk values.

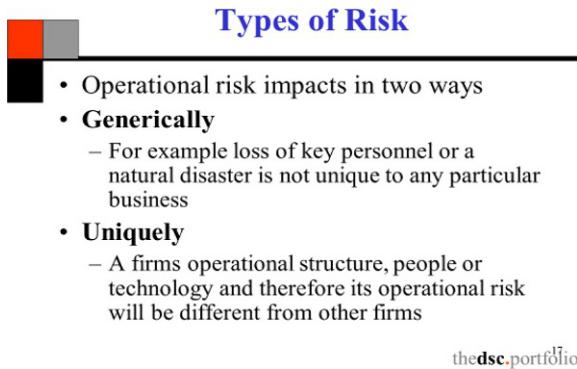


Fig. 3 Generic and unique risk.

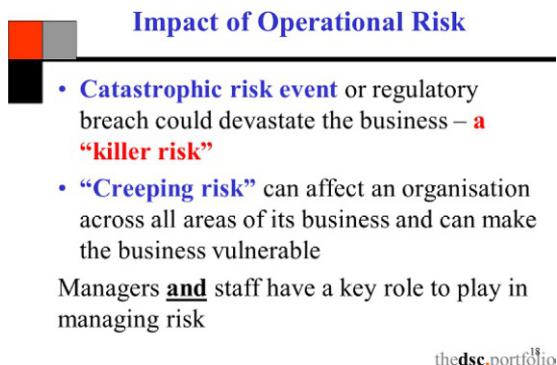


Fig. 4 Risk impact.

than where the risk event originates. An example to use would be the enhancing of a system without due diligence in understanding the impact all users and all other associated systems. The enhancement solves a problem in one business area or process but subsequently causes a bigger more serious problem elsewhere.

Likewise, a change to procedures may solve an issue but create other unforeseen issues. The failure to properly manage the changes including mapping the impact of the change across the business results in potentially a greater risk.

[Fig. 5](#) shows the generic distribution of risk within the operations area.

As can be seen the vast majority of the risks are managed in the day to day operation by the boys and girls doing their job.

Some perhaps 10%–20% of risks may be more complex and or dangerous and will need the operations team and perhaps the risk managers to manage the situation.

Finally a very small number of risks are classified as Killer Risk, so severe that if the event occurred the business will probably cease to exist as per the example of Barings used earlier.

To reinforce the message and to highlight the importance that successful risk management plays in the profile of the business i.e. generating customer comfort we should note that “a customer will notice a situation that suggests lack of or poor ORM much earlier than a regulator will”.

For example experiencing a declining level of service, increased errors, high turnover of staff etc. are high profile situations for the client.



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Fig. 5 Risk pyramid.

Managing operational risk, as we have noted is a function of the risk management team or group but also the business unit itself through its operational managers and teams.

The overall structure to manage operational risk can be illustrated using the Fig. 6 below which shows some of the key points that need incorporating.

The first three points, identifying the risks, measuring the impact and the control framework are the fundamental structure to managing risk.

Using self assessment techniques to leverage on the knowledge, experience and insight of the business unit is essential but as it is subjective it must also be analyzed against relevant data and challenged if there appears to be anomalies. For example the business unit/operations team rank a control high but management information suggests to many events are happening that questions the subjective view.

It is vitally important to take positives from risk incidents and events so risk incident reports, and event analysis that record the detail of the sequence of events help to learn lessons and amend procedures, processes and or controls to prevent reoccurrence in the ongoing risk management.

Inevitably successful risk management requires constant analysis, review and questions which are usually coordinated by the risk managers in conjunction with the business unit teams and managers. This true with operational risk.

In clearing settlement, custody and administration processes there are many individual types of operational risk many common across business or product lines but also meant that a specific to a product or business.

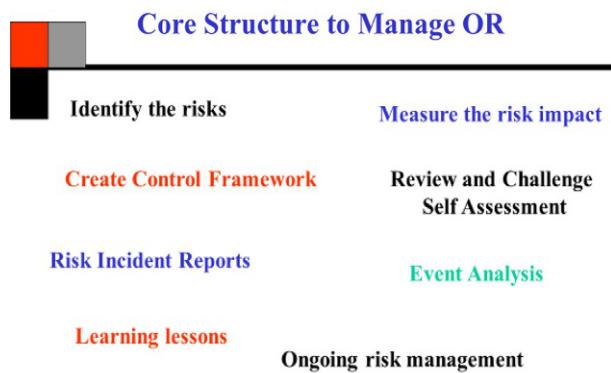


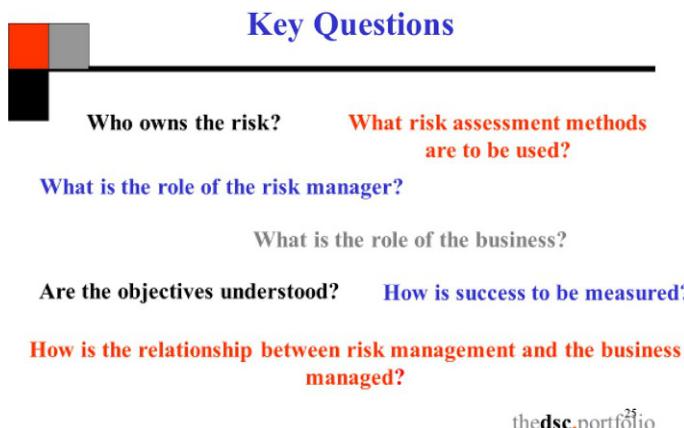
Fig. 6 Risk management core structure.

Some examples—in supporting principal/proprietary trading there will be different potential process and control risks and influences than for the team providing services to clients of the firm.

Settlement teams have different potential risks to the accounting teams and so on (Fig. 7).

Below Fig. 8 shows a generic operational risk management strategy showing the four principal areas.

We must also remember that whilst we have enterprise wide risk in the sense of the three key risks of market, credit/counterparty and operational, we also have the potential for risks to fall into more than one category with the possibility that no business area picks up the risk or assumes another business area has ownership and control over it.



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Fig. 7 Risk key questions.

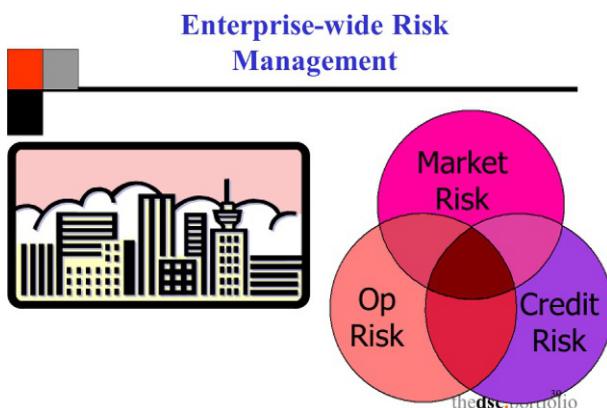


Fig. 8 Enterprise-wide risk.

For example an operational risk could be a settlement fail caused by a short selling trade and failure to borrow the relevant security by front office.

Risk components

All operational risks have a cause that can become an event that will have an effect on the business that can be negligible, important or serious.

Understanding what the cause(s) are, what risk event(s) can happen and what the effect(s) of that will be is crucially important to successful risk management.

There are many ways of successfully addressing this issue but to look at ways of managing the risk process it is important to consider on a simplistic basis the assessment of a situation.

Fig. 9 illustrates this point.

In the illustration below unauthorized access to the system enables a fraud to take place and as a result financial and reputational impact occurs.

To reiterate all operational risks have a cause that can become an event that will have an effect on the business that can be negligible, important or serious.

Understanding what the cause(s) are, what risk event(s) can happen and what the effect(s) of that will be is crucially important to successful risk management.

There are many ways of successfully addressing this issue but to look at ways of managing the risk process it is important to consider on a simplistic basis the assessment of a situation.

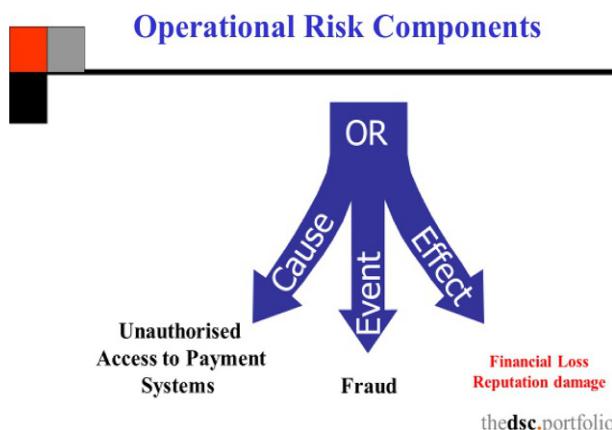


Fig. 9 Anatomy of a risk event.

Risk analysis

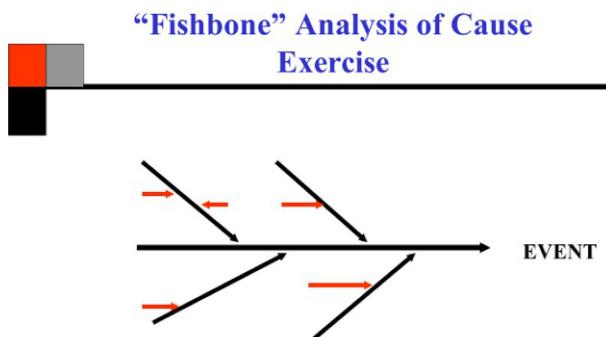
One method of analysis of the risk is the fishbone analysis, a process which requires the identification of a possible event and then the tracking back to establish what could contribute to that event materializing and where in the chain would it occur. See Fig. 10.

Example would be a settlement fail for a transaction. Contributing factors could be delay in receiving trade details, error on trade needing rectification, instruction sent to custodian based on original incorrect trade details, trade matching fails, new instruction sent to custodian which is not clearly indicated as amending original, custodian queries whether there are one or two trades to be matched, person in ops team can find no history and leaves as a query for colleagues to deal with tomorrow, settlement date passed—market claim instigated against us.

Types of Operational Risk

Earlier we looked at some possible operational risks and below are further examples of the risks or where they may come from.

- Human error
- Management
- Inadequate technology/systems
- Settlement risk
- Lack of industry awareness
- Poor relationship management
- Breaches of guidelines and controls
- Inefficient or ineffective procedures



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Fig. 10 Analyzing the cause of risk.

- Lack of adequate product knowledge and skill sets
- Data errors
- Fraud and Money Laundering
- Loss of key personnel
- External events
- Outsource/counterparty/3rd party risk

Approach to risk management

All firms will have their own approach to risk management suitable for the nature, complexity, size of the institution.

[Fig. 11](#) illustrates some of these:

Understanding the Risk Event

Although we will put in place controls to restrict the possibility of a risk event happening, it is not possible to prevent every risk event and so understanding the stages in a risk event are essential.

[Fig. 12](#) shows the four key stages.

Clearly the time lag between the occurrence of the event and its discover and the length of time to close or kill the event and mitigate the impact is crucially important.

In order to learn lessons and use the event as a positive an incident report needs to be completed which doesn't apportion blame but simply documents the stages in the event, what happened, what didn't, what influenced the event etc.

By analyzing and recording the incident the data can be utilized by the operational managers and team affected and also used by risk management to seek any commonality for other business units in the firm.



[Fig. 11](#) Risk management approach.

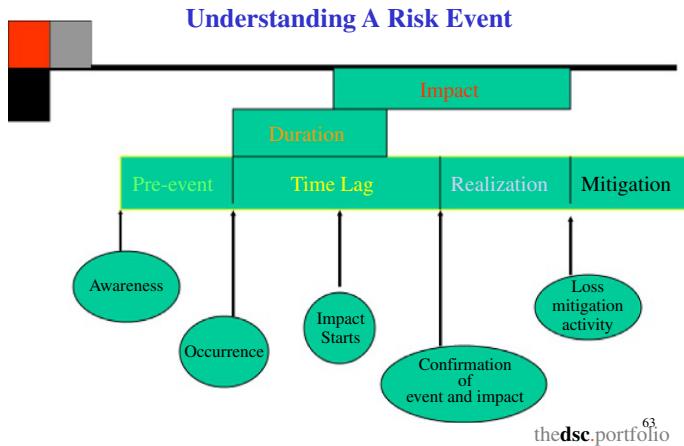


Fig. 12 Pathway of a risk event.

Summary

The operational risk and compliance issues for a firm and the operations team is extensive as we have seen in this chapter but also elsewhere in the book.

It has also changed in the last decade and continues to do so as emphasis on client assets segregation, collateral management, client data, changes to internal and market structures, Fintech, clearing regulations, reporting and transparency, Governance, Brexit and of course risk regulation.

Fig 13 shows the generic responsibility.



Fig. 13 Governance of operational risk.

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Glossary of risk terminology

Version: 2019

Risk	Description	Associated risk type
Accounting risk	<p>This will occur when a business engages in accounting practices for products or services that are either not suitable, are deliberately misinterpreted or are implemented incorrectly or do not comply with accepted market principles</p> <p>The risk can also occur if there is doubt about the acceptable accounting standards or where there is conflict between different standards by the setting organizations</p>	Audit, regulatory, reporting
Action risk	<p>The risk of an action being implemented erroneously, accidentally, in unsuitable situations or being authorized or undertaken by unqualified personnel</p> <p>The risks that arise could create losses (costs, fines etc.), reputation damage(outcome and impact) and regulatory problems</p>	Management, settlement, payment risk Regulatory and financial risk
Audit risk	<p>This is the risk that the audit process and people are unable or do not have the ability to, or do not understand sufficiently the processes and procedures being audited</p>	Regulatory
Basel directives	<p>Inability to demonstrate compliance with the requirement as set out by the Committee of the Bank for International Settlement</p>	
Business risk	<p>A risk that is derived from the specific services and products and are particular to the industry of the firm concerned</p> <p>These risks are often sub sets of strategic risk and occur or originate from business units</p>	Operations risk. Technology risk, people risk
Business continuity risk	<p>The impact of internal or external events that in some way interrupt or curtail the operation of the business for a significant period of time or in some catastrophic financial or logistical way as to make normal or viable operation of business difficult</p>	Operations risk Client risk Counterparty/ supplier risk

Risk	Description	Associated risk type
Client risk	<p>The risk of being unable to manage the processes associated with the services provided to clients</p> <p>Money laundering</p> <p>Fraud</p> <p>Non compliance with client regulation (regulatory conduct of business rules etc.)—key areas being suitability (funds) risk warning distribution, client money/asset segregation</p>	<p>Operations risk</p> <p>People risk</p> <p>Regulatory (including fines)</p> <p>Reputation—loss of clients/revenue</p>
Competition risk	<p>A complex risk that can arise in a number of ways and is quite different from business risk, which is about internal decisions and actions</p> <p>Competition risk could arise from the entrance of a new competitor or product into a market with potential loss of market share and/or increase in investment/costs to compete. This is particularly the case where new competitors cherry pick profitable market segments, where they have or adapt to new technology and practices quicker, or can respond to changing customer requirements more rapidly</p> <p>Examples here could be found in e-banking, socially responsible investment products etc.</p> <p>Competition risk can also apply to prolonged declining market share created by inability to change as well as by poorly managed mergers and takeovers resulting in massive loss of customers that in turn renders the strategic aims unobtainable and likely to entail severe losses for some period of time</p>	
Compliance risk	<p>The inability to adequately comply with external regulations or internal rules and controls</p> <p>This may be caused by lack of knowledge of certain markets, products and regulatory requirements and/or oversight of business units involved</p>	Regulatory financial

Continued

Risk	Description	Associated risk type
Counterparty risk	This is the risk associated with dealing with or taking services or products from another party Includes: ongoing support and enhancement of services, insourcing/outsourcing	Operations risk
Country risk	Risk of clearing, settlement and client money regulation not being as strong as in the UK/US Law Infrastructure Information distribution may be less transparent and or obtainable Instability Tax environment/changes	Operation risk Legal risk
Credit risk	Risk associated with the default of a counterparty on an obligation	Financial—replacement loss
Creeping risk	A risk that starts in one part of a business and then moves across and within the business potentially having a greater impact in other areas (similar to a computer virus)	
Custody/ depositary risk	The failure to protect assets and any resulting benefits on those assets that are entrusted to the care and safekeeping of the firm	Reputation, financial, regulatory
Data risk	Occurs when data is incorrectly generated, updated, stored or used Corrupted or incorrect data in critical systems (including risk systems) can have a devastating impact Unauthorized access, use or publication of confidential client or business data can have such an impact as to put at risk the very existence of the organization	Technology, control, fraud
Demand risk (liquidity)	A risk where there is uncertainty about future demand for a product caused by uncontrollable or unforeseen changes in the market, for instance regulatory changes	Strategic, operational, operations

Risk	Description	Associated risk type
Documentation risk	<p>It also manifests itself in situations where there is greater demand than can be satisfied effectively and efficiently causing delays and penalties to be incurred</p> <p>Demand risk is relevant in terms of the passing of risk from one business unit to another, i.e., the aggressive marketing of a product creating risk for the production team (meeting alterations “sold” by the sales team) or client support teams (delays in delivery, quality etc.)</p>	
Fiduciary risk	<p>As well as errors within and the ineffectiveness of legal documentation, there is the risk inherent in the publication of documents to clients including correctness of information, suitability of the document (KYC and restricted product docs), confidentiality and frequency requirements (regulatory, agreements etc.)</p>	
Fraud risk	<p>Breaching either of the following:</p> <ol style="list-style-type: none"> 1. A person legally appointed and authorized to hold assets in trust for another person. The fiduciary manages the assets for the benefit of the other person rather than for his or her own profit 2. A loan made on trust rather than against some security or asset <p>This is the risk that because of weak controls in respect of payments, asset movements, authorizations, access to systems and static data in an organization, it is vulnerable to an act of fraud by an individual, group of individuals or from external sources e-banking presents potential for fraud if security over access and data is poor</p>	

Continued

Risk	Description	Associated risk type
HR risk	See personnel risk	
Insource risk	A risk associated with the taking on of additional operational workload with inadequate resource, knowledge and systems	Operations risk Financial—compensation for performance Reputation
Key performance indicators (KPI)	Indicators showing a change in performance that may be evidence of increasing or decreasing efficiency and effectiveness of processes and procedures Often linked into KRIs	
Key risk	Identified as risks that could significantly impact on the achievement of the objectives of a business unit Likely to be proactively managed by Head of Function/Department on a frequent (i.e., monthly basis) Typically 15%–20% of total risks Firms develop key risk indicators to measure profile changes of the key risks	
Key risk indicators (KRI)	The identification of risks and their indicators used in the risk management process	
Killer risk	Important that KRIs are monitored for evidence of increasing or decreasing risk levels and also for their continued relevance Identified as risks that could significantly impact on the achievement of firm, divisional and or strategic business unit objectives including a risk that's impact is so severe that it would render the firm incapable of continuing in business or would make the firm so vulnerable that it would subject to takeover or wipe out by competitors Typically 2% to 5% of total risks Managed and tracked through key risk indicators	

Risk	Description	Associated risk type
Know your client (KYC)	<p>A risk control measure that demands the organization has adequate and up to date knowledge of the client, its activities, restrictions that apply to the client's actual or potential business and the suitability of products and services marketed and sold to the client</p> <p>Also known as Client Due Diligence (CDD)</p>	Regulatory risk
Legal risk	<p>The risk associated with the business of a firm in a jurisdiction including areas like the Investment Manager Agreement, Prime Broker Agreement and other outsource agreements</p> <p>From an operations point of view it would be related to areas such as netting, agreements, claims etc.</p>	Settlement risk
Limit risk	<p>A risk that a control measure is accidentally or deliberately circumvented or is incorrectly set or is not reviewed and amended according to changed circumstances</p>	
Loss database	<p>A database that records incidents where a risk event has created a loss at or above a set threshold plus other statistics related internal and external risk events</p>	
Management risk	<p>A risk associated with the failure of management to be structured or operate effectively in relation to the business</p> <p>Poorly trained, under resourced/ overworked or ineffective managers and supervisors are a massive operations risk</p>	Operations risk Reputation Regulatory
Market risk	<p>Risk associated with the transactions undertaken by a firm in a market/ product</p> <p>Mainly about price and liquidity but can also be related to other risk like legal and competition</p>	

Continued

Risk	Description	Associated risk type
Money laundering risk	<p>A major risk for many organizations that can result in heavy penalties for individuals and loss of authorization to do business for firms for breaches of the regulations</p>	Regulatory risk Financial risk Compliance risk
New market risk	<p>Any organization covered by the Regulations must ensure effective controls over possible money laundering including making sure employees are adequately trained</p>	Operations risk Systems risk Settlement risk
New product risk	<p>This is the risk of operating in a new market environment where knowledge and experience may initially be low. It is also about the risk that procedures and controls are not immediately at the acceptable standard level of existing market usage</p>	Operations risk Systems risk Settlement risk Project risk
Operational risk	<p>Can also apply to activity that is undertaken in emerging markets where the market infrastructure, practices and operation is itself untried and tested</p> <p>This risk will manifest itself if the launch of or the commencement of trading in a new product or when the launch or use of a new service is undertaken without sufficient infrastructure in place, including controls, systems, knowledge skills etc. and prior training of personnel</p>	Operations risk Systems risk Settlement risk Project risk
Operations risk	<p>There are various definitions of operational risk</p> <p>The Basle Committee define it as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”</p> <p>Most organizations would add in “loss of reputation”</p> <p>Part of operational risk it applies to the functions that deal with areas like clearing, settlement, payments, delivery of client services, custody, systems etc.</p> <p>Operations risk is the failure to provide the required process, procedures and controls for the above</p>	Operational risk

Risk	Description	Associated risk type
Operational risk management (ORM)	<p>The process of actively managing operational risks in a structure that adds value as well as reduces potential unnecessary losses</p> <p>Often run by a Risk Group and usually has one or more operational risk managers in the structure</p> <p>Likely to include audit and compliance in some capacity</p>	
Operational risk officers (OROs)	<p>Name given to a person who is part of the group managing risk and is usually closely related to the business so that they can liaise with both the business and the risk managers on risk issues.</p> <p>Can also be called ORCs—operational risk coordinators</p>	
Outsource risk	<p>A risk associated with the outsourcing of operational functions and processes</p> <p>Risk is that you can outsource the function but not the responsibility</p>	Operations risk Reputation risk Compliance risk
Payment risk	<p>A risk associated with the erroneous payment of monies</p> <p>Often but not always associated with fraud it can be nevertheless a risk that is created by poor training, supervision and procedures for making and or receiving payments</p>	Fraud Reputation— errors on client accounts
People risk	<p>This is the risk associated with individuals or teams of people and is often about their potential as a source of risk and also their potential to be a significant contributor to managing some risks like operational risk</p> <p>One obvious people risk is the level of human error in the processes, the knowledge levels both procedural and business and the ability to work in environments particular to business units, products, services etc.</p>	Operations Financial and reputation risk

Continued

Risk	Description	Associated risk type
Personnel risk	<p>Different from people risk in so much as this may occur because of poor recruitment environments, uncompetitive remuneration, lack of or ineffective training and development etc.</p> <p>Loss of key personal is a major personnel risk</p> <p>Employment Law is also part of this risk and includes areas such as Diversity in the Workplace Directives and training, unfair dismissal etc.</p>	<p>Operations</p> <p>Financial and reputation risk</p>
Project risk	<p>The failure of a project to be properly managed creating operational problems for the teams/areas of the firm affected plus over run of costs, late delivery of the project, failure to adequately test before roll out, failure to deliver to the project specification</p>	<p>Financial risk</p> <p>Operational risk</p> <p>Business risk</p>
Regulatory risk	<p>The risk of non-compliance with the regulatory environment where the business is operating</p> <p>Particularly areas such as Authorization, Marketing and Sales, Conduct of Business, Client relationships, Client Assets etc.</p>	<p>Compliance risk</p>
Risk event	<p>The occurrence of a possible risk situation becoming an actual risk situation with resultant actual impact</p>	
Standard risk	<p>A risk that is identified and managed as part of the day to day business process by the boys and girls doing their jobs effectively and efficiently</p> <p>Controls devised and implemented by managers and supervisors in the business</p> <p>Monitored by risk managers from management information provided by the business but essentially not what the risk managers or OROs should be focusing on</p>	
Strategic risk	<p>A risk that is associated with decisions and leadership, i.e., the adoption of a working practice that is old, untried or ill thought out that results in unnecessary pressure, workloads, costs and falling performance of people, systems and the business</p>	<p>Business risk</p> <p>Project risk</p>

Risk	Description	Associated risk type
Technology risk	<p>The risk associated with the use of technology in a firm Most obvious risks are:</p> <ol style="list-style-type: none"> 1. lack of knowledge of systems 2. inability to manage projects 3. lack of support for systems 4. lack of awareness of systems capability and scope 5. inappropriate systems for the business 6. old and outdated technology 7. access - hackers and viruses, malicious attack 	Operations risk
Value at risk (VAR)	<p>A technique used to estimate the probability of portfolio losses based on the statistical analysis of historical price trends and volatilities</p>	
Workflow risk	<p>Risk associated with workflow and processes covering:</p> <ol style="list-style-type: none"> 1. variable flow 2. under resourcing 3. pressure points 4. disruption 5. lack of knowledge 6. unnecessary complex procedures 7. poor technology 8. lack of STP 9. cross border processes 10. data sources 	Operations risk

Other risks

Systemic risk—risk of an event causing further events and potentially creating an uncontrollable impact.

Generic risk—a risk that is a general risk affecting all participants e.g. a failure in the market infrastructure.

Unique risk—a risk that is solely relevant to the organization.

Communication risk—a sub set of data risk it is a risk created by a misinterpretation, failure of a message to reach its intended destination, language issues etc.

Cyber risk- the risk of a breach of security enabling the unauthorized access to data, the risk of a breach of data regulations, the risk of malicious damage to data, the risk of blackmail, the risk of fraud.

Infrastructure risk—the risk of inadequate infrastructure to support the business e.g. resources, systems, risk management and compliance.

Summary

- Great diversity of risks from internal and external sources can affect administrators, custodians and the fund itself
- Risk containment vs risk avoidance parameters must be established as part of the risk policy
- Recognize and understand the risk exposures that the processes and procedures create
Customer service generated risks must be understood and controlled to protect against financial and reputation damage.

Source: The DSC Portfolio Ltd. This Glossary of Terms is compiled from various sources and is believed to be correct although no responsibility can be taken for any errors or omissions.^a

^aThis Glossary of Terms is compiled from various sources and is believed to be correct although no responsibility can be taken for any errors or omissions

CHAPTER 10

Developments in clearing, settlement and custody—SWIFT, CLS bank, T2S, the development of distributed ledger technology (DLT), Brexit

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Earlier in the book we have reference to the growth of DLT and the possible impact on the clearing, settlement and custody infrastructure and processes.

In this chapter we will analyze what DLT/Blockchain is and look at the ASX experience in this area. We will use the terms DLT and blockchain as interchangeable descriptions.

In analyzing and defining the development of blockchain we need to consider the development and, in some cases, the spectacular growth of cryptocurrencies such as Bitcoin.

However first we will look at other key developments that have shaped the clearing, settlement and custody space.

SWIFT

Several times in the book we have mentioned SWIFT in the context of payments, instructions and messaging.

The history of SWIFT is interesting. SWIFT was founded in 1973, based on the ambitious and innovative vision of creating shared worldwide financial messaging services, and a common language for international financial messaging. To achieve this vision, SWIFT has long played an important role in standardization, notably by creating and maintaining global financial messaging and reference data standards.^a

SWIFT is a global member-owned cooperative and the world's leading provider of secure financial messaging services that is headquartered in Belgium. SWIFT's international governance and oversight reinforces the neutral, global character of its cooperative structure. SWIFT's global office network ensures an active presence in all the major financial centers. By way of illustration, SWIFT services connect more than 11,000 banking and securities organizations, market infrastructures and corporate customers in more than 200 countries and territories.

It should be noted that SWIFT does not hold funds or manage accounts on behalf of customers, but it does enable its global community of users to communicate securely, exchanging standardized financial messages in a reliable way, thereby facilitating global and local financial flows, and supporting trade and commerce all around the world.

SWIFT also brings the financial community together—at global, regional and local levels—to shape market practice, define standards and debate issues of mutual interest or concern.

We can now look at two key areas of SWIFT, messaging and standards.

SWIFT messaging services went live in 1977 to replace the Telex technology that was then widely used by banks to communicate instructions related to cross-border transfers. As SWIFT states, “the service remains as relevant today as it was ground-breaking back then, representing the

^aSource – SWIFT

primary communications channel for financial institutions engaged in correspondent banking all around the world, and offering the most secure, cost-effective and reliable way of transmitting financial messages relating to payments, securities, treasury and trade.”

The benefit of the standardization that underpins global financial messaging and its automation is that the use of standardized messages and reference data ensures that data exchanged between institutions is unambiguous and machine friendly, facilitating automation, reducing costs and mitigating risks. Thus, through SWIFT, banks, custodians, investment institutions, central banks, market infrastructures and corporate clients, can connect with one another, exchanging structured electronic messages to perform common business processes, such as making payments or settling trades.

Naturally, data security is critically important to users in the markets and SWIFT is committed to the confidentiality, integrity and availability of its messaging services.

Let us now look at specific areas:

SWIFTNet

The messaging platform, which is known as SWIFTNet, produces huge efficiencies for users by enabling them to seamlessly and securely communicate through a single shared utility. To meet the financial services organizations increasingly complex and diverse messaging requirements, for example, communicating with market infrastructures, with correspondents or with commercial clients, SWIFTNet, offers four complementary messaging services, all of which allow for seamless, straight-through processing: FIN, InterAct, FileAct and WebAccess. Each service delivers different advantages that cater for the distinct messaging needs of SWIFT's different users.

These are detailed below:

FIN

FIN is the longest established of SWIFT's messaging services. It enables the exchange of messages formatted with the traditional SWIFT MT standards. These standards cover a wide range of business areas and are widely used and accepted by the financial community. FIN enables the exchange of messages on a message-per-message basis, and supports the exchange of proprietary formats between market infrastructures and their customers. It also works in store-and-forward mode and offers extensive functionalities, such as message copy, broadcasts to groups of other users, and online retrieval of previously-exchanged messages.

InterAct

Like FIN, InterAct enables the exchange of messages on a message-per-message basis, and supports the exchange of proprietary formats between market infrastructures and their customers. In addition, InterAct offers increased flexibility, including store-and-forward messaging, real-time messaging, and real-time query-and-response options. The InterAct service enables the exchange of MX message types, which are expressed in the flexible XML syntax and developed in accordance with the ISO 20022 standard methodology, many of which have already been published as ISO 20022 standard definitions.

FileAct

FileAct enables the transfer of files. It is typically used to transfer large batches of messages, such as bulk payment files, very large reports, or operational data.

WebAccess

With WebAccess, SWIFTNet users can browse securely on financial web sites available on SWIFTNet using standard internet technologies and protocols.

Source: SWIFT

Let us now turn our attention to the importance and benefits of standards developed by SWIFT.

Standards

The following is an extract taken from SWIFT

Enabling efficient communication for the financial world

Standards are vital to allow for a common understanding of the data across linguistic and systems boundaries and to permit the seamless, automated transmission, receipt and processing of communications exchanged between users. Use of standardized messages and reference data ensures that data exchanged between institutions is unambiguous and machine friendly; in turn this enables efficient automation, thereby reducing costs and mitigating risks.

Today financial players routinely send structured electronic messages to one another to perform common business processes, such as making payments or confirming trades. In its ongoing role as a financial messaging standardizer, the SWIFT Standards group works with the financial

community to define standards for these messages. These standards specify the data elements that can be included in the messages, document the meaning and format of those data elements, and specify which of the data elements are mandatory, which are optional, and which are only required in specific business scenarios. The message standards also describe the actions expected of the message receivers, and, because some business processes require several messages to be exchanged, they also specify the order in which messages should be sent and received.

SWIFT Standards acts as Registration Authority (RA) for several standards that define universal codes for common data items, or reference data. RAs are appointed by the International Organization for Standardization (ISO) to ensure the integrity of the reference data defined by ISO standards, and to publish the data in an accessible form for the benefit of the user community. Examples of such standards include the ISO 9362 Business Identifier Code (BIC—commonly referred to as the “SWIFT” code), which is used to identify parties, and the ISO 10383 Market Identifier Code (MIC), which is utilized for identifying exchanges, trading platforms, regulated or non-regulated markets and trade reporting facilities. SWIFT Standards also contributes to the formalization and implementation of other reference data standards, notably the ISO 17442 Legal Entity Identifier (LEI), which is increasingly required for regulatory reporting purposes. Financial messaging standards specify these codes wherever possible to minimize the ambiguity of data.

SWIFT Standards and the community

SWIFT Standards works with the user community to specify and publish Market Practice—rules and best-practice advice on how standards should be deployed to meet particular business needs or to comply with regulation.

The SWIFT Standards group maintains several important message standards. The SWIFT MT standard, for instance, is used for international payments, cash management, trade finance and treasury business. Working with the SWIFT community, SWIFT Standards operates the annual maintenance process for MT, which ensures that the standard evolves to meet changing market needs.

SWIFT Standards, under contract to ISO, also maintains two open messaging standards: ISO 15022, which is used for securities settlement and asset servicing, and ISO 20022, which is scoped to all financial industry processes.

The role of ISO 20022 is twofold: it is a methodology for creating financial messaging standards, and it is a related body of content, which includes

definitions of common industry terms, and message definitions addressing an expanding range of business areas, including payments, cash management, treasury, cards and securities.

Payments

Payments between two parties usually involve instructions to banks to make or receive payment of a monetary value.

Where the payment is in a currency it will be made via the payment system for that currency. A bank in the UK is not a member of the USD payment system and so would need to instruct a correspondent bank to make or receive the payment on their behalf (see diagram below).

The relationship between a bank and its correspondent is under an agreement whereby the correspondent bank will maintain an account designated for the bank within its own structure. The account will then allow the bank to have its payments made and received via the payment system as if they were members of that system. The bank “owns” the account and is responsible under the agreement for its operation.

Note: this is not a bank account where the bank is a client of the correspondent bank and receives normal banking services ([Fig. 10.1](#)).

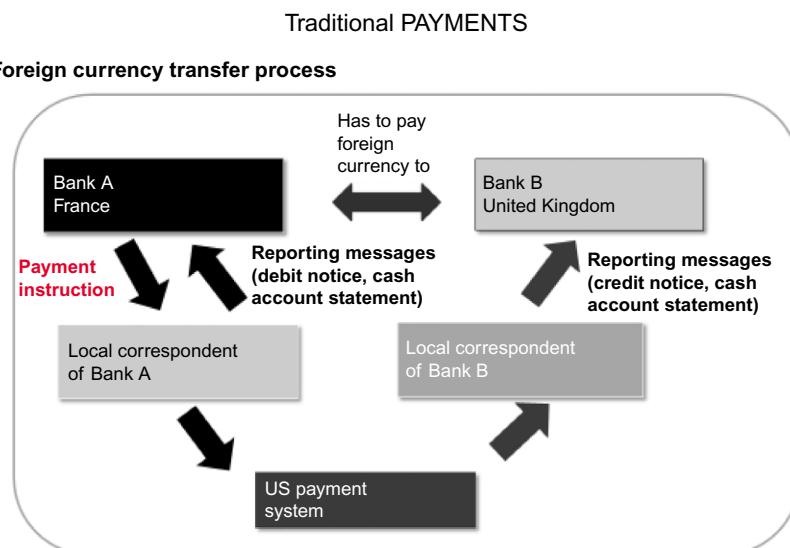


Fig. 10.1 Payment process flow.
(Source: *The DSC Portfolio Ltd.*)

SWIFT PAYMENTS

■ Example of inter-bank payment

- Following the execution of an option, SGCIB must pay USD 50,000 to Citibank London with value date 30 June 2018

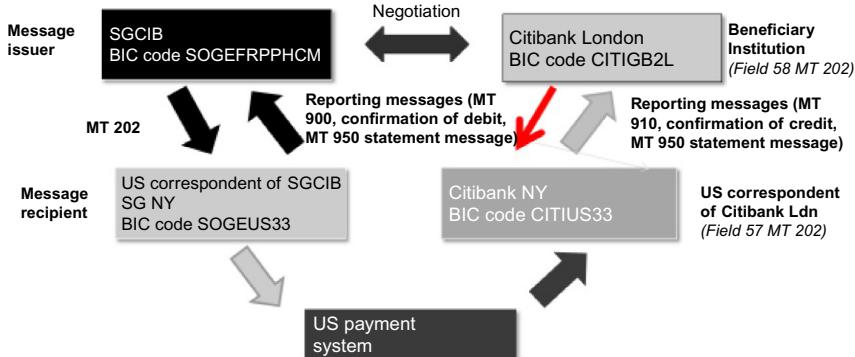


Fig. 10.2 Payment process flow using SWIFT.
(Source: *The DSC Portfolio Ltd.*)

If the SWIFT payment process was used, the flow would look like this ([Fig. 10.2](#)):

In this diagram, we can see the use of SWIFT message types to send the instruction and receive the status update.

Although the process is totally reliable and effective, the cash management process is not helped by not being able to see exactly where the payment is in the process.

SWIFT global payments innovation (GPI)

SWIFT has developed a solution to this issue that is available for banks, corporates and market infrastructure users: SWIFT gpi. SWIFT gpi enables banks to send and receive funds quickly and securely to anyone, all over the world, with full transparency over where a payment is at any given moment. On average, 40% of payments are credited to end beneficiaries within five minutes; half within 30 min; three quarters within six hours and almost 100% within 24 h. Not only is it fast and secure; it's transparent too. This eliminates many of the issues that have previously led to time-consuming and costly enquiries.

The unparalleled speed, transparency and traceability on offer, has dramatically improved the customer experience in cross-border payments and led thousands of banks, accounting for the vast majority of SWIFT's total

payments traffic, to commit to adopting SWIFT gpi. This rapid adoption, coupled with an increasing number of gpi features, led to the decision to move to universal gpi adoption by the end of 2020.

Readers may wish to access the article at the following address:
file:///C:/Users/dalay/Documents/SWIFT/The_Banker_SWIFT_gpi_December2017.pdf.



SWIFT gpi now enables banks to provide end-to-end payments tracking to their customers. The SWIFT Tracker – ‘in the cloud’ and securely hosted at SWIFT – gives end-to-end visibility on the status of a payment transaction from the moment it is sent right up to when it is confirmed.

SWIFT gpi banks are able to log in to the Tracker to instantly check the status of the payments sent, in progress and received. They can even improve their liquidity management by having visibility on initiated payments already on their way.

<https://www.swift.com/our-solutions/global-financial-messaging/payments-cash-management/swift-gpi/swift-gpi-for-banks/features>

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Now let us look at developments in the settlement of transactions in foreign exchange market by analyzing CLS Bank ([Fig. 10.3](#)).

When two parties enter into a foreign exchange transaction there are two settlement legs associated with the transaction. The transaction consists of the purchase of one currency and the simultaneous sale of another.

In the figure above we can see this illustrated. British pounds will settle one way and U.S. dollars the other.

As the settlement takes place via the relevant payment system for the currency the risk is that one currency settles but the other does not.

Remember that payment systems are not necessarily open at the same time.

As a case study we can look at the situation concerning a FX trade undertaken by a German bank Bankhaus Herstatt.

PAYMENTS – CLS Bank

- Counterparty and exchange risk arising from unconnected payment flows (payment outside CLS)

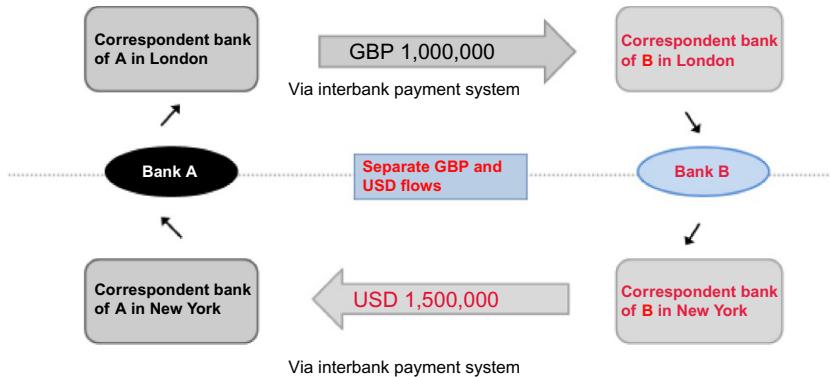


Fig. 10.3 FX settlement process flow.

(Source: The DSCP Portfolio Ltd.)

The transaction involved Herstatt buying Deutsche Marks and selling US dollars to an American bank.

The trade details were confirmed by the two parties and settlement instructions sent to the correspondent banks.

On settlement day the German payment system opened and the settlement took place.

However, before the US payment system opened Herstatt failed.

As a result all its accounts including its correspondent bank account were frozen. The US bank could not reclaim the DMs and the correspondent bank in the US could not make the dollar payment.

This became known as the Herstatt risk and given the high value of many FX trades a solution was needed.

CLS (Continuous Linked Settlement) is a multi-currency settlement system that was established on 9 September 2002 with 39 members and had the initial objective of managing settlement risk in foreign exchange transactions.

- CLS is run by CLS Bank International, a New York-based bank, which is regulated by the Federal Reserve (Fed). CLS Bank International's main center of operations is based in London, with a back-up service in the US.

Today CLS has several key products available to users of the FX markets including.

CLSSettlement

Mitigate settlement risk for your FX trades while benefiting from operational efficiencies, in addition to best-in-class netting and liquidity management.

CLSNOW

Optimize the use of available liquidity in the same-day market while mitigating settlement risk through CLSNOW—a bilateral same-day payment-versus-payment gross settlement.

Cross currency swaps

Mitigate FX settlement risk, improve operational efficiencies and reduce your liquidity and payment demand for cross currency swap trades using our world-leading settlement service.

CLSSameday

Reduce settlement risk for same-day FX trades that are currently traded after CLS's cut-off times through our additional settlement session.

OTC derivatives

Mitigate the most significant risk in FX—settlement risk—while creating operational efficiencies and best-in-class netting and liquidity management.

CLSClearedFX

Reduce settlement risk for same-day FX trades that are currently traded after CLS's cut-off times through our additional settlement session.

Full details of the CLS timeline and also the operating timeline for CLSSettlement can be found at <https://www.cls-group.com/products/settlement/clssettlement/>

T2S

We looked earlier at the important development in the European settlement system that we mentioned in [Chapter 1](#) of the book, Target2Securities or T2S for short.

Clearstream, who we also mentioned in [Chapter 1](#), is a major participant in T2S and to see how they offer related services to their clients readers should follow the following link:

<https://www.clearstream.com/clearstream-en/products-and-services/oneclearstream>

Now we can turn our attention to DLT.

Milestones in blockchain and DLT

Aril 2016

il 2016es in Blockchain and DLT DLTeam-en/products-and-services/one-clearstreamow they offer related services to their clients readers should follow the following link: mblock chain, according to an announcement today.

ASX DLT system

ASX Chairman Rick Holliday-Smith says the potential for distributed-ledger technology to replace the Clearing House Electronic Subregister System (CHESS) unlocks “a new era of efficiency and innovation.” The Australian exchange plans to use a DLT system by Digital Asset Holdings to replace CHESS.

2017–2018 Central banks

Early in 2017 several Central Banks started to consider the implications and potential impact of blockchain. It became clear that central banks would be likely an more active role in the monitoring of the development of block-chain technology in the banking system, Fintechs and the banks themselves.

The blockchain based technology was generating solutions in areas such as remittances and international payments. This was creating a much changed perspective of the future of markets and their infrastructure challenging market players as well as central banks to consider, as ASX had, the potential benefits.

With realization that blockchain solutions had the potential to create better infrastructure central banks became more focused on these developments. It was not just a case of the potential to reduce risk including preventing fraud, it was also driven by the growth of cryptocurrencies and associated products including derivatives.

During 2017 the central banks produced several studies and reports on these subjects.

Project Stella

In terms of securities settlements the ECB and Bank of Japan had at the end of 2016 started what was named the “Stella Project”, a research project looking at the impact of DLT. In September 2017 they published their report.

Let us look at the high level overview of the findings.

BOJ/ECB joint research project on distributed ledger technology.

The findings of the joint analysis have been published:

1. Experiments using liquidity saving mechanisms found that DLT-based solutions could meet the current performance needs of an RTGS system. Within the restricted test environment, both average and peak payment traffic consistent with that of BOJ-NET and TARGET2 was processed without difficulty.

2. The study also confirmed the expected pattern of a DLT environment, however. The bigger the network (i.e., the higher the number of nodes) and the longer the distance between the network nodes, the longer it takes for a payment to be processed and the more likely it is for messages sent by one or more nodes to be ignored in the transaction processing. Network configuration is relevant in this respect.
3. The tested DLT solutions were also found to be resilient to the failure of individual network nodes and able to withstand a high number of incorrectly formatted messages. Although the test scenarios were not exhaustive, it is worth noting that the test series performed had a limited impact on the availability of the overall system. However, the design of the platform used in the tests includes a certificate authority, which could become a single point of failure that could undermine the benefit of distributed validation. In conclusion, while the test series produced promising results, it should be taken into account that no direct conclusions can be drawn from the test set-up with respect to a potential usage in production. Given the relative immaturity of the technology, DLT is not a solution for large-scale applications like BOJ-NET and TARGET2 at this stage of development.

Source: http://www.boj.or.jp/en/announcements/release_2017/rel170906a.htm/

UK central bank of England: Proof of concept RTGS

The Bank of England is executing a complete overhaul of its interbank payment system. The transformation will initially focus on modernizing its Real-Time Gross Settlement System (RTGS) by the year 2020. Officials have now confirmed that the updated payments system will be compatible with blockchain-based financial technology forms.

It won't be based on DLT-system, but we expect and hope that it will be capable of interoperate with DLT system in development by the private sector.

Martin Etheridge, Head of Division ate the Bank of England

Elsewhere: “DvP could be conceptually and technically designed in a DLT environment with cash and securities on the same ledger (single-ledger DvP) or on separate ones (cross-ledger DvP).”

Source: BoE report.

ASX progress

Information on the progress of the ASX project to replace CHESS mentioned above was given in the Winter issue of the ASX Focus.

It includes the guiding influence for ASX:

ASX's guiding principle for the replacement of CHESS is to operate for the benefit of Issuers and Investors: "Provide issuers and end investors with greater control over, and enhanced confidence in, their market activities through timely, secure and simplified access to the register of holders (for issuers), financial assets (end investors) and associated information." This includes a number of new business requirements that will better support and enhance Issuers and Investors post-trade experience. Some of the benefits include: (i) Allow more real-time understanding of changes to shareholdings. (ii) The potential to more readily identify the beneficial holder when the registered holding is in the name of a nominee company. (iii) Provide functionality to electronically elect and accept some types of corporate action events.

Source: <https://www.asx.com.au/documents/resources/listed-at-asx-winter-2018-asx-focus-dlt.pdf>

2018—Fintechs

In October 2018 the French regulatory organization Autorité des Marchés Financiers gave a license to a UK Fintech Setl.

2018–2019—SWIFT & DLT

SWIFT has been very active in the DLT space, taking part in and hosting a number of Proofs of Concept (PoC) to determine the potential of the technology.

In 2018, SWIFT completed and published the findings from its PoC for Nostro reconciliation, one of the largest and most ambitious PoCs run with DLT technology. SWIFT, alongside 34 banks, set out to work with the technology in a "many-to-many" setting, addressing a real business issue, and to draw lessons for larger scale implementations of the technology in the bank-to-bank payment area.

While the PoC showed that DLT could deliver the business functionalities and the data richness required to support automated real-time liquidity monitoring and reconciliation, it also highlighted that further progress is needed in the DLT technology itself before it will be ready to support production-grade applications in large-scale, mission-critical global infrastructures.

This was followed in January 2019 by a PoC to trial a new gateway to interlink trade and e-commerce platforms. The PoC addresses the need for

e-commerce and trade ecosystems to be supported by global, fast, secure and transparent settlement using fiat currencies by enabling “off-ledger” payment settlement based on gpi.

Two months later, it announced a PoC on e-Voting, using DLT. It is being jointly conducted in the Asia pacific region, with leading securities with leading securities software provider SLIB and the Singapore Exchange (SGX), along with Deutsche Bank, DBS, HSBC and Standard Chartered Bank.

The PoC is exploring whether DLT can help simplify the currently inefficient management of shareholder meetings and the associated voting processes that are often time-consuming and resource intensive. Proxy voting in particular often results in avoidable complexity and errors that could be eliminated through greater transparency and automation.

Brexit

Perhaps one of the recent developments that has caused significant challenges is the UK's decision to leave the European Union.

The impact of the attempts to negotiate an agreement for the exit has led to uncertainty and caused many firms to review their structure in the light of the possible outcomes. For example:

A report into the impact of Brexit on banking and finance firms says some £900bn in financial firms' assets have been moved out of the UK.^b

London Stock Exchange Group clearinghouse LCH is clearing “the vast majority” of UK-based euro-denominated repo trades and government-bond trades at its Paris operation of LCH's RepoClear. Euro-denominated cash government bonds also will be cleared in Paris.

REGIS-TR has launched a new UK trade repository (TR), REGIS-TR UK.

According to Regis TR, the new TR has its operational infrastructure firmly in place and is ready to provide full UK European Markets Infrastructure Regulation (EMIR) regulatory reporting services from the first business day after Brexit.

The Financial Conduct Authority (FCA) requires a meaningful presence for trade repositories in the UK in a post-Brexit world.

Additionally, with a focus on both Brexit and Securities Financing Transactions Regulation (SFTR) reporting, REGIS-TR is bringing in new senior regulatory staff to strengthen and expand its existing UK TR team.

^b<https://www.bbc.com/news/business-47522347>

The new company is based in the London offices of Clearstream, one of REGIS-TR's parent companies.

www.securitieslendingtimes.com/securitieslendingnews/article.php?article_id=222906

The upheaval in UK and European firms as they try to structure their operations to comply with a post Brexit regulatory environment and to continue servicing their clients is both costly and poses a significant operational risk.

These risks are likely to be:

- People risk—difficulty in relocating/recruiting staff that are experienced and familiar with the processes
- People risk—employment issues like work permits
- Controls risk—reassessing the control framework for the affected areas of the business
- Business risk—costs of operating the processes in multiple locations
- Regulatory risks—ability to comply with regulatory environment

With only a few weeks to the stated exit date of 29th March 2019, businesses are still no clearer on when, or indeed if, Brexit will happen or whether it will be an agreed withdrawal or a so called “hard Brexit” with no agreement of the terms of the withdrawal.



Brexit

- Week of 11th March 19
 1. U.K. Parliament agrees terms of the negotiated agreement with the E.U. and leave E.U. on 29th March 2019
 2. U.K. Parliament does not agree the terms and votes on leaving the E.U. with no agreement leaving E.U. on 29th March 2019
 3. U.K. Parliament does not agree to leave E.U. with no agreement
 4. U.K. Parliament votes on requesting an extension to Brexit

The UK parliament did not agree the Terms and voted to request an extension to the leaving date.

However the prime minister MIGHT bring her agreement back to Parliament for a third vote despite having lost the first two.

Possible Outcomes

- Delays at immigration and customs
- Some U.K. businesses including financial firms like banks and investment fund companies relocate some of their activity to an E.U. location
- No agreement would mean negotiating new tariffs for imports and exports
- Impact on E.U. nationals living and working on U.K. and vice versa

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There are also further implications:

Further Possible Outcomes

- Volatile currency fluctuations for the Pound and EURO affecting securities and business
- Reduction in investment in U.K. and or Europe
- Legal impacts on agreements and regulation particularly some types of financial instruments like derivatives as well as employment of non – UK/EU personnel
- Broader issues like defence, security, crime etc



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The above figures are sourced from The DSC Portfolio Ltd.

So as of 18th March 2019 firms are still waiting to know what will happen and when. This is increasingly likely to lead to damage to London's reputation as a financial center.

Summary

There are many developments ongoing in the financial markets and most will impact on clearing settlement and custody as well as fund administration.

Change is a constant and operations teams and managers need to be evaluating and creating solutions to meet the change.

As well as the issues mentioned in this chapter and elsewhere in the book which readers should continue to monitor, readers should also be following developments in European real time gross settlement RTGS—www.ecb.europa.eu/paym/html/index.en.htm, <https://www.bankofengland.co.uk/payment-and-settlement/rtgs-renewal-programme>

Also monitor the client money and assets regulations at <https://www.fca.org.uk/firms/client-money-assets>

Finally, the following websites and suggested reading may be of interest.

Some useful websites & links

1. Association of Mutual Funds in India—<https://www.amfiindia.com/>
2. The Investment Company Institute—<https://www.ici.org>
3. The Investment Association (formerly the Investment Management Association) <http://www.theinvestmentassociation.org/>
4. Thomson Reuters—www.thomsonreuters.com
5. Alternative Investment Management Association (AIMA)—www.aima.org
6. The Jersey Funds Association—www.jerseyfunds.org
7. Jersey Finance—[https://www.jerseyfinance.je](http://www.jerseyfinance.je)
8. European Securities Markets Authority—[https://www.esma.europa.eu/](http://www.esma.europa.eu)
9. US Securities & Exchange Commission—[https://www.sec.gov](http://www.sec.gov)
10. The Association of the Luxembourg Fund Industry—www.alfi.lu
11. www.issanet.org—(International Securities Services Association)
12. www.fca.gov.uk—(Financial Conduct Authority UK)
13. www.isma.co.uk—(International Securities Markets Association)
14. www.bis.org—(Bank for International Settlement)
15. www.cls-group.com—(CLS Bank)
16. www.isda.org—(International Swaps and Derivatives Association)
17. www.isla.co.uk—(International Securities Lending Association)
18. www.bba.org.uk—(British Bankers Association)
19. www.privateequityvaluation.com—(International Private Equity and Venture Capital Association IPEV)

Operations training

1. IFF courses—Fundamentals of Fund Administration, Operational Risk, Operations Management, Derivatives Operations and Clearing Settlement and Custody—www.iff-training.com
2. Euromoney—Investment Fund Operations—www.euromoney.com/Euromoney-Financial-Training
3. e-learning modules—including Operational Risk and Clearing Settlement and Custody—<https://marshallelearning.com>

Suggested reading

1. Fund Custody and Administration—David Loader published by Elsevier
2. Fundamentals of Fund Administration—David Loader published by Elsevier
3. FundsEurope magazine—www.fundseurope.com
4. Global Custody—www.globalcustody.net
5. FIA SmartBrief—www2.smartbrief.com/news
6. Measuring and Managing Operational Risks in Financial Institutions—Christopher Marshall published by Wiley
7. Controls, Procedures and Risk—David Loader published by Butterworth Heinemann
8. Advanced Operations Management—David Loader published by Wiley/CISI
9. Regulation and Compliance in Operations—David Loader published by Butterworth Heinemann
10. Against The Gods –The Remarkable Story of Risk—Peter L Bernstein published by Wiley
11. Securities Operations & Custody—Henry Stewart Publications

Glossary

- 30/360** Also 360/360, 30(E)/360 or Accrual Basis. A day/year count convention assuming 30 days in each calendar month and a ‘year’ of 360 days; adjusted in America for certain periods ending on 31st day of the month (and then sometimes known as 30(A)/360).
- AAA** The highest credit rating given by Standard & Poors for a company or asset – the risk of default is negligible. Rating scale descends i.e. AA, A, BBB, BB
- Accrual Basis** Basis for accruing for example interest income based on number of days See 30/360.
- Accrued interest** Interest due on a bond or other fixed income security from the issuer to the holder or that must be paid by the buyer of a security to its seller if purchase is between interest periods. Payment = coupon rate of interest multiplied by the number of elapsed days from the last interest payment date (i.e. Coupon date) up to but not including settlement date for the trade.
- Accruals** Amounts recorded in the accounts that refer to future income or payments but form part of the current position. Important in the NAV of a fund
- Accumulation units/shares** Unit or share where the income is reinvested in the fund.
- ACD** Authorized Corporate Director that is a corporate body and an authorized person given powers and duties under FCA regulations to operate an OEIC.
- ACH** Automated clearing house
- ACT/360** day/year count convention taking the number of calendar days in a period and a ‘year’ of 360 days.
- ACT/365** Also ACT/365 Fixed or ACT/365-F. A day/year count convention taking the number of calendar days in a period and a ‘year’ of 365 days. Under the ISDA definitions used for interest rate swap documentation, ACT/365 means the same as ACT/ACT.
- ACT/ACT** For an interest rate swap, a day/year count convention dividing the number of calendar days in the interest period that fall in a leap year by 366 and dividing the remainder by 365.
- Actual Settlement Date** Date the transaction effectively settles in the clearing house (exchange of securities eventually against cash).
- Actual settlement date accounting** Date on which a custodian or other party will give value for the settlement.
- Accumulation fund** A fund where the distribution of income is instead reinvested in the fund. Shares or units in a fund will be designated accordingly i.e. as income or accumulation shares or units.
- Agent** One who executes orders for or otherwise acts on behalf of another (the principal) and is subject to its control and authority. The agent takes no financial risk and may receive a fee or commission.
- AGM** Abbreviation for the statutory Annual General Meeting all companies must hold to report to shareholders.
- AIFMD/Alternative Investment Fund Managers Directive.** A EU Directive, the Alternative Investment Fund Managers Directive (AIFMD) seeks a common EU approach to bringing hedge funds, private equity and other types of funds without a UCITS passport within the scope of regulatory supervision. It also aims to bring transparency and stability to the way these funds operate.

Allotment The amount of a new issues (i.e. number of bonds, shares) given to a syndicate member by the lead manager.

Also the amount of an issue allotted to a subscribing investor in an offering like an IPO or a rights issue or as a result of a capitalization.

Allotment letter Formal letter or document (including in e-format) detailing the entitlement, terms and payment details of the holder of the existing shares or to an applicant for new shares.

ANNEXE IV Transparency reporting requirement for AIFMs and their AIFs under the AIFMD

Alpha A term used in investment management to describe the amount by which an investment has exceeded its performance.

American depository receipt (ADR) A depository receipt issued by an American bank to promote trading in a foreign stock or share. The bank holds the underlying securities and an ADR is issued against them. The receipt entitles the holder to all dividends and capital gains in USD. ADR's allow investors to purchase foreign stock without having to involve themselves in foreign settlements and currency conversion.

American style option The holder of the long position can choose to exercise the position into the underlying instrument until the expiry day.

Amortization Accounting procedure that gradually reduces the cost value of a limited life asset or intangible asset through periodic charges to income. The purpose of amortization is to reflect the resale or redemption value. Amortization also refers to the reduction of debt by regular payments of interest and principal to pay off a loan by maturity.

Also the amortizing of expenses of an investment fund to avoid 'spiking'.

Amortizing CDO A collateralized debt obligation (CDO) where the principal investment is repaid at intervals during the life of the instrument

Amortizing swap A swap where the notional principal decreases during the life of the swap.

Announcement In a new bond issue, the day on which a release is sent to prospective syndicate members describing the offering and inviting underwriters and selling group members to join the syndicate.

Annual general meeting (AGM) Meeting of shareholders which a company must call every year. Main purposes are to receive the accounts, vote on dividends and appoint directors.

Applies to investment companies and funds as well as commercial companies.

APP Authorized Push Payment – a scam that pressurizes a fraudulent payment

Arbitrage The simultaneous buying and selling of two different derivatives, or a derivative and its underlying, or two similar assets where the fair value and quoted prices are different but will converge at some point. The arbitrageur has a risk-less trade as the exposure is flat and the profit is the difference between the two prices traded.

Arbitrageur A trader or programmed dealing system which takes advantage of profitable opportunities arising from price anomalies between the same or similar products or instruments traded on different markets or systems.

Agent A third party who acts as an intermediary or broker in a transaction and who assumes no financial risk. For this service, the agent receives an agreed commission or fee.

Asset Allocation The process of structuring a portfolio by allocating capital to various asset classes

Asset backed securities Debt obligations that pay principal and interest; principal only or interests only; deferred interest etc. which is backed off against some kind of asset rather than being a direct exposure to the issuer.

Asset class A designated group of assets for example equities, debt, property, commodities, cash etc.

Asset manager Person or sometimes refers to a company that makes investment decisions concerning the structure of investment portfolios.

These can be investments for any type of fund or structured product like a CDO and can be in respect of portfolios either owned by or outsourced to the asset manager. Could also be referred to as investment manager or fund manager.

Asset swap An interest rate swap or currency swap used to change the interest rate exposure and/or the currency exposure of an investment. Also used to describe the package of the swap plus the investment itself.

Assets Everything of value that is owned or is due as a result of a purchase or entitlement: fixed assets (cash, buildings and machinery) and intangible assets (patents and good will)

Assignment The process by which the holder of a position is matched against a holder of a similar but opposite position who has exercised his right attributable to the instrument held. For example an option buyer exercises his right and the option seller is assigned or the holder of a short futures position tenders for delivery and a holder of a long position is assigned.

Can also refer to the assignment (passing) of the interest in a legal document or asset to another party.

ATAD (1) EU Anti Tax Avoidance Directive due to come into effect January 2019

Auction Method by which the issuer can offer securities to investors. Successful applicants pay the price that they have offered. Used for the issue of some types of Government bonds.

Authentication agent A bank or suitably recognized party putting a signature on each physical bond to certify its genuineness prior to the distribution of the definitive bonds on the market.

Authorization Status required by the Financial Services Act 2012 for any firm or individual that wants to conduct investment business or provide financial advice.

Could also apply to the authorization by a regulator or other body to an institution such as an exchange, clearing house, central securities depository or to an agent/3rd party.

Also an internal control over an instruction i.e. authorization of a payment.

Ballot A process that creates a random selection of applicants for something; for instance a new issue of shares.

Also a vote at a company meeting where a shareholder can utilize their voting right.

Ballot paper—formal document issued to those entitled to vote or, where appropriate, their proxy.

Bank—commercial Organization that takes deposits and makes loans as well as providing a variety of financial products to its customers.

Bank—investment Organization that combines corporate services, broking, trading and investment management

Bank—merchant Organization that specializes in advising on takeovers and corporate finance activities – also called corporate finance.

Bank of England (BOE) The UK's central bank which undertakes policy decided by the Treasury and determines interest rates as well as ensuring financial stability, managing inflation and the value of the currency.

Nickname: "The Old Lady of Threadneedle Street".

Bank for International Settlements (BIS) Set up in the 1920s to administer debt repayments among European countries, it is now has an important role as the vocal point in organizing discussion on International finance.

Has been involved in the issuing of many important directives, e.g., Basel II related to operational risk.

Bankers' acceptance Short term negotiable discount note, drawn on an endorsement by and accepted by banks which are obliged to pay the face value amount at maturity.

Bankruptcy Situation where a party is unable to meet its financial obligations

Base currency Currency chosen for reporting purposes for example the base currency of a company's accounts or of an investment fund.

Also applies to an FX trade where one currency is the Base and the other the Quoted currency.

Basel II/Basel III An important directive related to operational risk that financial organizations face. The Directive is the work of the Bank for International Settlement and requires certain capital adequacy to be maintained against possible loss as a result of operational risk events happening.

Basel III is now being structured and implemented.

Base Rate The rate of interest set by the banks as a basis for the rate on loans and deposits. The central bank sets a base rate that other banks then work off.

Basis (gross) The difference between the relevant cash instrument price and the futures price. Often used in the context of hedging the cash instrument.

Basis (value or net) The difference between the gross basis and the carry.

Basis point (B.P.) A change in the interest rate of one hundredth of 1% (0.01%). One basis point is written as 0.01 when 1.0 represents 1%. i.e. $0.01 = 1$ basis point $0.10 = 10$ basis points and $1.00 = 100$ basis points.

Referred to as "bps".

Basis risk The risk that the price or rate of one instrument or position might not move exactly in line with the price or rate of another instrument or position which is being used to hedge it.

Basis swap An interest rate swap where the interest payments that are exchanged between each party are different types of floating rates.

Basis trade A trade simultaneously of a future and the underlying; a facility offered by some exchanges.

BBA Abbreviation for British Bankers' Association.

Bear A nickname for an investor who believes prices will fall.

Bear market A market in which prices are falling and sellers are more predominant than buyers. Usually refers to equity markets.

Bear raid The selling of shares, generally in large volumes, to influence the price in order to acquire shares more cheaply. Strategy employed by some hedge funds involving selling short i.e. selling shares not yet owned.

Bear squeeze Where an investor having gone 'short' and sold shares they do not have in anticipation of either a share or the market as a whole falling, is squeezed by the rising price during the speculative period. The squeeze happens because the seller has sold short, borrowed shares to enable settlement of the trade and must at some point buy the shares to return the borrowed securities.

Bearer document Documents which state on them that the person in physical possession (the bearer) rather than a named individual is the owner, example being currency.

Bearer securities Unregistered securities where the holder of the document is deemed the owner. An example is a bearer bond. Income is usually paid on presentation of the coupon attached to the bond and redemption (return of original capital) also requires the presentation of the security.

Benchmark A performance comparator used to determine the relative rate of increase/decrease in a market or security for example and index.

A benchmark is often a target against which investment performance is measured.

Can also be used to measure the performance of suppliers against for instance a service level agreement.

Benchmark bond Likely to be the most recently issued and most liquid government bond.

Beneficial owner The person entitled to all benefits of ownership even though a broker, bank custodian, nominee or 3rd party like a Central Securities Depository holds the security in their name.

Bermudan option An option where the holder can choose to exercise on any of a series of pre-determined dates between the purchase of the option and expiry. See also American option, European option.

Best-Efforts basis Term describing how an instruction received by a broker or custodian will be managed. If due to factors beyond their control the instruction cannot be guaranteed to be completed it is carried out on a best efforts basis.

Best execution The requirement for a broker to obtain the best market price when buying or selling a marketable investment on behalf of the client.

BIC Abbreviation for a Bank Identifier Code – used in payment instructions

Bid The price or yield at which a purchaser is willing to buy a given security.

To quote a price or yield at which a seller is able to sell a given security.

The investor's selling price of units in a unit linked policy.

The opposite to bid is "offer".

Bid/offer spread The difference between the buying and selling price of units in a unit trust or a security. In the case of a unit trust it includes any initial charges and investment costs.

Bilateral netting A netting system in which all trades executed on the same date in the same security between the same counterparties are grouped and netted to one final delivery versus payment

Bill of exchange A money market instrument, a written promise to pay a specified sum of money (usually post-dated) that is similar to a cheque.

BIS Abbreviation for the Bank for International Settlements.

Bitcoin Bitcoin is a digital currency created in 2009. It follows the ideas set out in a white paper by the mysterious Satoshi Nakamoto, whose true identity has yet to be verified. Bitcoin offers the promise of lower transaction fees than traditional online payment mechanisms and is operated by a decentralized authority, unlike government issued currencies.

Black days There are no physical Bitcoins, only balances associated with public and private keys. These balances are kept on a public ledger, along with all Bitcoin transactions, that is verified by a massive amount of computing power (Source: Investopedia).

Prefix to a day where market disaster occurs.

Blockchain A blockchain is a public ledger of all Bitcoin transactions that have ever been executed. It is constantly growing as 'completed' blocks are added to it with a new set of recordings. The blocks are added to the blockchain in a linear, chronological order. Each node (computer connected to the Bitcoin network using a client that performs the task of validating and relaying transactions) gets a copy of the blockchain, which gets downloaded automatically upon joining the Bitcoin network. The blockchain has complete information about the addresses and their balances right from the genesis block to the most recently completed block (Source: Investopedia).

The possible use of blockchain is being looked at in terms of the financial market infrastructure including clearing and settlement

Block Trade A purchase or sale of a large number of securities normally much more than what constitutes a usual trade in the market in question. Many markets allow this type of trade.

Blue chips Denotes the companies that in theory at least provide the safest equity investment potential. Companies listed in the FT-SE 100 or S & P 500 index for instance are considered 'Blue Chip'.

Board lot Standard unit of shares commonly traded in the market, often 1 share. Shares that are issued in fractions or multiples of a board lot are referred to as odd lots and jumbo lots respectively and may not be readily negotiable.

Bond An instrument often comprising a certificate of debt, generally long-term, under the terms of which an issuer contracts, inter alia, to pay the holder a fixed principal amount on a stated future date and, usually, a series of interest payments at predetermined times during its life.

Other types of bonds exist i.e. zero coupon bonds, convertible bonds etc.

Issued by both governments and corporate companies and sometimes municipal/local authorities.

Bonus issue A free issue of shares to a company's existing shareholders. No capital is paid by shareholders and the share price falls pro rata. It is a cosmetic exercise to make the shares more marketable. Also known as a capitalization or scrip issue.

Could also be an issue of shares to investors, directors or employees at the company's expense from shares held by the company.

Book entry transfer System of recording ownership of securities by computer where the owners do not receive a certificate. Records are kept (and altered) centrally in 'the electronic book.'

Books closed day Last date for the registration of shares or bonds for the payment of the next distribution of dividend or interest and also for other types of corporate action, subscription, offer etc.

Break A term used for any out-of-balance condition. A money break means that cash debits and credits are not equal. A trade break means that some information such as that from a contra broker is missing to complete that trade.

Brexit The name associated with the UK 2016 referendum which voted for the UK to leave the EU and which resulted in Parliament passing the EU Withdrawal Bill enabling negotiations on the UK's withdrawal by 2019

Bribery Act 2010 (UK). Designed to prevent parties becoming involved in bribery in the course of their business. Heavy fines and imprisonment can be imposed for any person guilty. Many jurisdictions have similar legislation.

Bridge (The) The electronic link enabling transactions between Clearstream and Euroclear participants to settle across the two CSDs.

Broker An agent, often a member firm of a stock exchange or an exchange member himself who acts as intermediary between buyer and seller. A commission is charged for this service.

Broker/dealer Firm that operates in dual capacity in the securities market place: as principal trading for their own account and as broker representing clients on the market.

Broken date A maturity date other than the standard ones normally quoted.

Broken period A period other than the standard ones normally quoted.

Broker Organization or individual who transacts business as an agent in return for a commission.

- Broking** The activity of a broker representing a client as agent and charging commission for doing so.
- Bull** Investor who believes prices or a market will rise.
- Bull market** A market in which prices are rising and buyers are more predominant than sellers. Usually refers to equity markets.
- Bulldog bonds** A sterling bond issued in London by an overseas government agency. The term is also used for debenture type issues from a commercial organization.
- Bullet maturity** A bond that pays periodic interest and repays the principal on maturity.
- Buying in (buy in)** The action taken by a broker failing to receive delivery of securities from a counterparty on settlement date to purchase these securities in the open market for immediate delivery. All costs are passed to the “failing” party.
- BVIfsC** BVI Financial Services Commission
- Calendar spread** The simultaneous purchase (or sale) of a futures or option contract for one date and the sale (or purchase) of a similar futures contract for a different date. See spread.
- Call deposits** Deposits that can be called (or withdrawn) at the option of the lender (and in some cases the borrower) after a specified period. The period is short, usually one or two days, and interest is paid at prevailing short-term rates (call account).
- Call option** An option that gives the seller the right, but not the obligation, to buy a specified quantity of the underlying asset at a fixed price, on or before a specified date. The buyer of a call option has the obligation (because they have bought the right) to make delivery of the underlying asset if the option is exercised by the seller.
- Call spread** The purchase of a call option coupled with the sale of another call option at a different strike, expecting a limited rise or fall in the value of the underlying.
- Callable bond** A bond where the issuer has the right to redeem all or some of the bond issue prior to maturity by paying some specified call price.
- Cancellation price** The lowest possible valuation of a unit in a unit trust under FSA regulations on any one day. The actual selling or bid price is usually higher.
- Cap** Also ceiling. A package of interest rate options whereby, at each of a series of future fixing dates, if an agreed reference rate such as LIBOR is higher than the strike rate, the option buyer receives the difference between them, calculated on an agreed notional principal amount for the period until the next fixing date.
- Capital** The value of an individual's savings and investments.
The capital showing in a firms accounts including investment funds.
- Capital adequacy** Requirement for firms conducting banking or investment business to have sufficient funds to maintain a solvent business.
- Capital gain (or loss)** Profit (or loss) from the sale of a capital asset. Capital gains may be short-term (one year or less) or long-term (more than one year). Capital losses are used to offset capital gains to establish a net position for tax purposes.
- Capital adequacy rules** Regulations specifying minimum capital requirements for investment businesses and banks and how this must be met.
- Capital Gains Tax (CGT)** Tax payable by individuals on profit made on the disposal of assets.
- Capital markets** A term used to describe the market where capital is invested and raised. Large amounts of money (capital) are raised by companies, governments and other organizations for short, medium and long-term use and involve the creation of financial instruments in which investors place excess capital, via cash deposits or invest through investment funds.

Capitalization The value of a limited company as determined by the par value, issue price or market price (whichever is greatest) of its shares and the total number of shares in issue. The size of stock markets is often determined by the total aggregate of the capitalization of all the shares quoted on that market, e.g., The FTSE 100 Index is made up of the 100 shares with the highest capitalization based on the mid-price quoted on the London Stock Exchange times the shares in issue.

Capitalization issue See Bonus Issues.

Carried interest The amount of interest a fund promoter or manager has in the performance of the fund. A form of performance fee.

Carried interest partner The partner in a partnership that holds the carried interest.

CASCADE Clearstream CSD system accessed via Creation Connect.

Cash funds Another name for money market funds.

Cash market Traditionally, this term has been used to denote the market in which commodities were traded for immediate delivery against cash. Since the inception of futures markets for T-bills and other debt securities, a distinction has been made between the cash markets in which these securities trade for immediate delivery and the futures markets in which they trade for future delivery.

Cash sale A transaction for instance in a market which calls for delivery or exchange of the securities/goods for cash at the same time or during that same day.

Cash settlement In the money market a transaction is said to be made for cash settlement if the securities purchased are delivered against payment on the same day the trade is made.

Can also describe the method of settlement by stipulating that only physical cash rather than by a cheque, electronic payment etc.

CBOE Chicago Board Options Exchange part of CBOE Holdings

CCASS Clearing system for the Stock Exchange of Hong Kong (Central Clearing and Settlement System).

CCP A central clearing counterparty where positions novate for clearing and maybe guaranteed for settlement. Can also be a clearing conduit where the parties to a trade remain responsible for settlement with each other via the CCP.

CDD An abbreviation for Client Due Diligence, carrying out checks like anti money laundering etc.

CDS An abbreviation for the Canadian Depository for Securities Also an abbreviation for a credit default swap.

Ceiling See Cap.

Central bank Influential institution at the core of a country's monetary and financial system, such as the Bank of England, the Federal Reserve in the USA or the European Central Bank. Its main aim is to ensure price stability in the economy through control of inflation and safeguard the financial industry.

Central securities depository (CSD) An organization authorized in a jurisdiction that holds records of securities positions and transfer of ownership in either immobilized or dematerialized form thereby enabling transactions to be processed by book entry transfer of ownership. Also holds physical securities.

Some CSDs also provide securities custody services.

Certificate Paper form of shares (or bonds), representing ownership of a company (or its debt).

Example—a share certificate.

Can also evidence ownership of units or shares in a fund.

- Certificate of deposit** A money market instrument often in bearer form issued by a bank certifying a deposit made at the bank and which gives the purchaser a return.
- CFD** See contract for difference.
- CFE** CBOE futures exchange part of CBOE holdings
- CFMA** Commodity Futures Modernization Act introduced in the US to change the regulatory environment in derivatives markets.
- CFTC** The Commodities and Futures Commission, (United States) – a regulator.
- CHAPS** Clearing House Automated Payment System – clearing system for Sterling payments between member banks.
- Chapter 11** Area of the US Bankruptcy Reform Act 1978 that protects companies from creditors.
- Cheapest to deliver** The cash security that provides the lowest cost (largest profit) to the arbitrage trader; the cheapest to deliver instrument is used to price the futures contract.
- CHESS** Organization for holding shares in dematerialized form in Australia (Clearing House Electronic Sub Register System).
- CIMA** Cayman Islands Monetary Authority
- Chinese Walls** Artificial barriers to the flow of information set up in large firms to prevent the movement of sensitive information between departments.
- CHIPS** Clearing House Interbank Payments System – clearing system for US dollar payments.
- Chi -X Europe (BATS)** A pan European multi trading facility (MTF) started in 2007 that combined with BATS Europe in 2011
- Churning** A term used to describe dealing in a client's investments or advising a client to deal more frequently than is reasonable in the circumstances, thereby increasing commission revenue.
- City code** Principles and rules written by Panel on Takeovers and Mergers to regulate conduct during a takeover.
- Clean price** The total price of a bond less accrued interest.
- Clearance** The process of determining accountability for the exchange of money and securities between counterparties to a trade: clearance creates statements of obligation for securities and/or funds due.
- Clearance broker** A broker who will handle the settlement of securities related transactions for himself or another broker. Sometimes, small brokerage firms may not clear for themselves and therefore employ the services of an outside clearing broker.
- Clearing** The centralized process whereby transacted business is recorded and positions are maintained, the preparation of a transaction for settlement. See also Clearance Positions are sometimes matched and or registered as genuine trades during the process of clearing.
- It is a pre-settlement phase in securities and cash – hence clearing banks deal with cheques and cash payments and clearing houses/CCPs deal with securities etc.
- Clearing agent** An institution that settles transaction for a large number of counterparties.
- Clearing broker** Is the clearing agent for the trading broker in the market where the trade will be settled. It is usually the party with which the sub-custodian will actually settle the trade.
- Clearing fee** Fee charged by a clearing house or clearing broker, usually per trade or contract/lot.
- Clearing house** Company or entity that acts as central counterparty for the settlement of stock exchange transactions sometimes becoming the counterparty to the trade through a process called novation. May also offer some type of guarantee of settlement it maintains the records of transactions and settles the transactions with members.

Most clearing houses are also very much involved in the risk management of the markets and the clearing house members.

Clearing house funds Also known as next-day funds, where the proceeds of a trade are available on the day following the actual settlement date.

Clearing organization Another name for the organization that acts as the guarantor of the performance and the settlement of contracts that are traded on an exchange.

Clearing process system (CPS) Clearing system used by Euronext and NYSE-Liffe which has been replaced in 2012 by the *Universal Clearing Platform (UCP)*

Clearing system Generic term used for a system established to clear transactions.

Clearstream International CSD and clearing house based in Luxembourg and Frankfurt and linked into Deutsche Borse through its merger with Deutsche Borse Clearing.

Closing day In a new bond issue, the day when securities are delivered against payment by syndicate members participating in the offering.

Closing trade A bought or sold trade which is used to offset an open position, to reduce it or to fully offset it and close it.

Part of a “close out” of a position.

CME Abbreviation for the Chicago Mercantile Group. A commodity and financial derivative exchange now comprised of the Chicago Mercantile, Chicago Board of Trade, COMEX, Kansas City Board of Trade and NYMEX exchanges.

CME ClearPort OTC trade capture and clearing system operated by the CME Group.

CNAPS Abbreviation for the China National Advanced Payment System

Collar Also cylinder, tunnel, fence or corridor. The sale of a put (or call) option and purchase of a call (or put) at different strikes (typically both out-of-the-money) or the purchase of a cap combined with the sale of a floor in interest rates. See range forward.

Collateral An acceptable asset used to cover a margin requirement or as security against a loan, obligation or debt. A risk management process

Collateralized debt obligations (CDOs) Type of structured product where a mix of some type of debt i.e. government bonds to junk bonds (Collateralized Bond Obligation) or loans (Collateralized Loan Obligation) is put together as a new product that is then issued in tranches to investors. Each tranche carries different levels of risk of default and a different return to the investor

Collateralized mortgage obligations (CMOs) A type of CDO, CMOs are backed by a pool of mortgages owned by the issuer. They usually reimburse capital at each coupon payment as per reimbursement of the underlying mortgages. Widely criticized as being the cause of the “crash of 2008” when defaults started to occur.

Commercial book-entry system (CBES) In the US the Commercial Book-Entry System (CBES) is a multilayered automated system for purchasing, holding, and transferring marketable securities. CBES exists as a delivery versus payment system that provides for the simultaneous transfer of securities against the settlement of funds.

At the top tier of CBES is the National Book-Entry System (NBES), which is operated by the Federal Reserve Banks. For Treasury securities, the Federal Reserve operates NBES in their capacity as the fiscal agent of the U.S. Treasury. The Federal Reserve Banks maintain book-entry accounts for depository institutions, the U.S. Treasury, foreign central banks, and most government sponsored enterprises (GSEs).

At the next tier in CBES, depository institutions hold book-entry accounts for their customers, which include brokers, dealers, institutional investors, and trusts. At the next tier, each broker, dealer, and financial institution maintains book-entry accounts for individual customers, corporations, and other entities.

Commercial paper Short-term obligations with maturities between 2 and 270 days issued by banks, corporations or other borrowers to investors with temporary idle cash. They are usually discounted although some are interest-bearing.

Commission Charge levied by a firm for agency broking or other services. Also known as brokerage

Commodities The raw materials traded on specialist markets i.e. oil, coffee, copper (see also Soft and Hard Commodities).

Commodity futures These comprise five main categories; *agriculture* ('Agri'), e.g., wheat and potatoes, *softs*, e.g., coffee and cocoa, *precious metals*, e.g., gold and silver, *non-ferrous metals*, e.g., copper and lead, and *energy*, e.g., oil and gas.

There are other categories like livestock, timber etc.

Commodity swap A swap in which the rate of interest is linked to the price of a specific commodity such as cocoa or copper. Example change in the price of coffee versus Libor. Also an arrangement to exchange two commodities at some stage.

Common stock Securities that represent ownership in for instance a US corporation. The two most important common stockholder rights are the voting right and dividend right. Common stockholder's claims on corporate assets are subordinate to those of bondholders preferred stockholders and general creditors. Called ordinary shares in the UK.

Compliance officer Person appointed within an authorized firm to be responsible for ensuring compliance with the rules and regulations of the markets and jurisdictions where the firm does business as well as compliance with internal rules and controls.

Compound annual rate (CAR) The compounded annual rate of interest on a savings account taking into account the frequency of payment and assuming the re-investment of the interest.

Compound interest Interest calculated on the assumption that interest amounts will be received periodically and can be re-invested (usually at the same rate).

Conduct of business rules Rules created by a regulator such as the FSA in the UK related to how firms conduct their business. They deal mainly with the relationship between firm and client.

Conflicts of interest Circumstances that arise where a firm including directors or senior management of investment funds has a situation which could encourage it not to treat its clients favorably. The more areas in which a firm or individual is involved in activity for both itself and clients the greater the number of potential conflicts.

Confirm (ation) A communication between two parties to a trade that seeks to match the details of the trade so that settlement can take place.

An agreement for individual OTC derivative transactions that details the specific terms of the trade often used in conjunction with the ISDA Master Agreement and Schedules.

Consideration The value of a transaction calculated as the price per share multiplied by the quantity being transferred.

Contingent liability A position that has the potential for more than one settlement obligation for example variation margin on futures contracts

Continuous net settlement Extends multilateral netting to handle failing trades brought forward and to continue the process of trying to settle throughout a defined period— see *multilateral netting*

Contract The standard unit of trading for futures and options. It is also commonly referred to as a "lot".

Also an agreement between to parties for the supply of goods, services etc.

Contract for difference (CFD) Contract designed to enable an exposure to an instrument, index or basket. Movement in the price creates a profit or loss that is subject to cash settlement only so the underlying is never exchanged.

Contract note Legal documentation sent by securities house to clients providing details of a transaction completed on their behalf.

Can also apply to the document sent by a fund to an investor.

Contract specification A derivative exchange designs its own products and publishes a contract specification setting out the details of the derivative contract. This will include the size or unit of trading and the underlying, maturity months, quotation and minimum price movement and value (see also tick) together with trading times, methods and delivery conditions

Contractual settlement date Date on which seller and buyer are contractually obligated to settle the securities transaction.

Contractual settlement date accounting Settlement value posted into a client's account by a custodian on an agreed (contractual) date irrespective of whether the transaction has actually settled.

Convergence The movement toward each other of the cash asset price and the futures or other derivatives price as the expiration date of the futures contract approaches.

Conversion premium The effective extra cost of buying shares through exercising a convertible bond (see below) compared with buying the shares directly in the market. Usually expressed as percentage of the current market price of the shares.

Conversion price The normal value of one instrument or asset which may be exchanged for another instrument or asset.

Conversion ratio The number of shares into which a given amount (e.g., £100 or \$1000) of the nominal value of a convertible can be converted.

Convertible bond/convertible securities Security (usually a bond or preferred stock) that can be exchanged for other securities, usually ordinary shares/common stock of the same issuer, at the option of the holder and under certain conditions.

Convertible currency A currency that is freely convertible into another currency. Currencies for which domestic exchange control legislation specifically allows conversion into other currencies.

Convertible term assurance A term assurance policy that can be converted into a whole life or endowment policy.

Corporate action One of many possible capital restructuring changes or similar actions taken by the company, which may have an impact on the market price of its securities, and which may require the shareholders to make certain decisions.

Corporate bonds Usually fixed interest securities issued by public and private companies.

Corporate debt securities Bonds or commercial paper issued by private corporations.

Corporate finance General title that covers activities such as raising cash through new issues, creating solutions to funding requirements and utilizing a company's excess cash effectively.

Cost of carry The net running cost of holding a position (which may be negative), e.g., the cost of borrowing cash to buy a bond, less the coupon earned on the bond while holding it.

Also used in the calculation of the fair value of a futures contract.

Counterparty (ies) A trade can take place between two or more counter parties. Usually one party to a trade refers to its trading partners as counterparties.

Counterparty risk The risk that a counterparty fails to meet an obligation or fails to deliver services in accordance with a service level agreement.

Coupon A term used to describe the nominal rate of interest expressed as a percentage of the principal value. The interest is paid to the holder of for example a fixed income security by the borrower. The coupon is generally paid annually, semi-annually or, in some cases quarterly depending on the type of security.

With physical (paper) instruments the coupon is attached and must be torn off and presented to the issuer's agent to obtain the interest.

Coupon swap An interest rate swap in which one leg is fixed-rate and the other is floating rate. See also basis swap.

Covered option A written option where the writer (seller) has sufficient underlying or cash to settle the option if the buyer exercises their right. See also naked option.

Covered writing The process of the sale of options where the seller owns the underlying which would be required to cover the delivery if the position is assigned.

Seller is known as a covered writer—opposite is a naked writer.

CPSS Committee on Payment and Settlement Systems

Creation connect Clearstream communication system with access to CASCADE etc.

Creation price The highest possible buying price of units under FSA regulations before any initial charge. The actual price to the investor may be lower.

Credit default swap A swap where one side is a default event that results in the payment of the related loss and the other is the payment of a premium to secure the protection. If no event occurs then the seller of the protection keeps the premium.

Credit derivatives Credit derivatives have as the underlying asset some kind of credit default. As with all derivatives, the credit derivative is designed to enable the risk related to a credit issue, such as non-payment of an interest coupon on a corporate or sovereign bond, or the non-repayment of a loan, to be transferred.

Credit risk The risk that a borrower, or counter-party to a deal, or the issuer of a security, will default on repayment or not deliver its side of the deal.

CREST/Euroclear The organization, known as a central securities depository (CSD), in the UK that holds UK and Irish company shares in dematerialized form and clears and settles trades in UK and Irish company shares. Now merged with Euroclear and called Euroclear United Kingdom and Ireland but still often referred to as “CREST”.

Members like custodians have accounts within Euroclear where the positions and any transfer of ownership are recorded.

Cross Border Trading Trading which takes place between persons or entities from different countries.

Cross currency interest rate swap An interest rate swap where the interest payments are in two different currencies and the exchange rate, for the final settlement, is agreed at the outset of the transaction.

CSD Abbreviation for central securities depository (see central securities depository)

CSDR Under EMIR – the central securities depository regulations.

CSSF Commission de Surveillance du Secteur Financier Luxembourg.

Cum-Dividend A security that is traded with the right to the current dividend.

Cum-Rights A term applied to a stock trading in the marketplace “with subscription rights attached” which is reflected in the price of that security.

Cumulative dividend Dividend that is due but not yet paid on cumulative preferred shares. These must be paid before any ordinary dividends are paid.

Cumulative preference share A share that has preferential rights over ordinary shares. For example if the company fails to pay a preference share dividend the entitlement to the dividend accumulates and the arrears of preference dividend must be paid before any ordinary dividend.

Currency exposure Currency exposure exists if assets are held or income earned, in one currency while liabilities are denominated in another currency. The position is exposed to changes in the relative values of the two currencies such that the cost of the liabilities may be increased or the value of the assets or earning decreased.

Currency futures Contracts calling for delivery of a specific amount of a foreign currency at a specified future date in return for a given amount of say US Dollars.

Currency swap An agreement to exchange interest related payments in the same currency from fixed rate into floating rate (or vice versa) or from one type of floating rate to another. A currency swap is different to an interest rate swap as the principal amounts are also swapped.

CUSIP The Committee on Uniform Securities Identification Procedures, the body which established a consistent securities numbering system in the United States.

CUSIP number Unique nine-digit number that identifies securities, U.S. or non-U.S., which trade and settle in the United States (Committee on Uniform Security Identification Procedure).

Custodian Institution holding securities in safekeeping for a client. A custodian also offers other services to its clients such as settlement, portfolio services etc.

A custodian is an authorized/licensed entity for example a bank but can also be a securities depository such as Euroclear.

Customer-non-private An institutional or sometimes high net worth customer who is assumed to understand the workings of the capital markets and investment world and therefore receives little protection from the regulator.

Customer—private Customer who is assumed to be financially unsophisticated and therefore receives more protection from the regulator.

CySEC the Cyprus Securities and Exchange Commission the Cyprus regulator

D.K. “Don’t Know”. Term that is used in operations teams and applies to a securities transaction pending settlement where fundamental data is missing which prevents the receiving party from accepting delivery.

Daily official list London Stock Exchange produced document that provides record of prices at which all stocks were traded on the previous day.

Day count The basis for the number of days that will be used in calculations. In the UK this is usually 365 days whereas in the US it is 360 days in a year.

Day count fraction The proportion of a year by which an interest rate is multiplied in order to calculate the amount accrued or payable. Examples 30/360, Actual/365.

Day-light exposure The risk to the deliverer of securities or payer of the settlement value to the possibility of a counterparty defaulting on his obligations during the business day.

DBV Delivery By Value – a term associated with the movement of collateral

Dealer Individual or firm that acts as principal in all transactions, buying for their own account. Can also be called a trader.

Debenture Another name for a corporate bond – usually secured on assets of the company.

Debt warrant An option to purchase more bonds on fixed terms at the time of the offering of the warrants.

Decompounded rate Used primarily in the US dollar market. A scaled down rate used for a shorter period or ‘stub’ in a swap.

Default Failure to perform on a futures contract, either cash settlement or physical settlement.

Deferred share A class of share where the holder is only entitled to a dividend if the ordinary shareholders have been paid a specified minimum dividend.

Can also describe a share where the dividend payment is deferred to some future date by the payer or receiver.

Definitive bond Any bond issued in final form. It is used particularly in reference to permanent bonds for which Temporary Bonds or Interim Certificates were issued.

Deflation Opposite of inflation and can be used as a method by governments to curtail rampant inflation, normally by reducing demand thereby lowering output and investment. However severe deflation is as dangerous for an economy as high inflation.

Deliverable basket or deliverable list The list of securities that meets the delivery standards of futures contracts or other derivatives.

Delivery The delivery of an asset in settlement of a transaction.

A term used to describe the physical movement of the underlying asset on which the derivative is based from seller to buyer.

Delivery versus Payment (DVP) Settlement where transfer of the security and payment for that security occur simultaneously and also irrevocably. Also known as DVP.

Dematerialized (form) Circumstances where securities are held in a book entry transfer system with no certificates.

Department of Trade and Industry In the UK a department of government responsible for some commercial matters including monopolies and prosecution of insider dealing.

Deposit account An account where interest is paid on the balance and in most cases, notice is required to make a withdrawal without penalty.

Deposit protection scheme A fund set up by the Banking Act of 1987 in the UK, which protects depositors in banks that go bust.

Depository Organisation similar to a custodian required for investment funds under the AIFMD and for funds such as UK OEICS

Depository receipts Certificate issued by a bank in a country to represent shares of a foreign corporation issued in a foreign country. It entitles the holder to dividends and capital gains. They trade and pay dividend in the currency of the country of issuance of the certificate. For example an American Depository Receipt (ADR).

Depository Trust Company (DTC) A U.S. central securities depository through which members may arrange deliveries of securities between each other through electronic debit and credit entries without the physical delivery of the securities. DTC is industry owned with the NYSE as the majority owner. DTC is a member of the Federal Reserve System.

Depreciation The erosion of the value of something caused by a reduction in the value of a currency influenced by for example, inflation and also the declining value created by a second hand sale of those goods, e.g., a motor car.

Used in accounting to reflect the decline in the value of assets like equipment.

Derivative Generic term for a commodity, financial instrument or other type of product whose value is dependent upon the value of an underlying asset.

Derivative instruments or derivative securities Financial or commodity instruments which are based on other underlying securities, for example, options or futures. Derivative securities do not directly raise finance or create wealth, rather they provide for the transfer of risk from hedgers to speculators which in turn can result in gains or losses for the speculator.

Deriv/SERV- MarkitSERV DTCC Deriv/SERV now called MarkitSERV is a provider of automation solutions for the global over-the-counter (OTC) derivatives market, offering a range of credit, equity and interest rate products (see also Markit)

Designated account A unit holder or shareholder account with additional identification.

Deutsche Börse The German Stock and Derivatives Exchange Group that includes the derivatives exchange Eurex.

Dilution/Dilution Levy A situation where some investors interest in a portfolio is diluted by other investor's sales or purchase of units/shares in the fund. A dilution levy seeks to redress this situation

Direct debit A method of payment where, on a regular basis, funds are extracted from the payer's account and paid into the recipient's account. A direct debit is variable and as such the amount debited can change.

Direct market participant A broker, broker/dealer or any direct member of an exchange.

Direct placement Selling a new issue by placing it with one or several institutional investors rather than offering it for sale publicly. Also just referred to as placement

Dirty price The total price of a bond including accrued interest that will be used for settlement of a transaction.

Disclaimer A notice or statement intending to limit or avoid potential legal liability.

Discount The amount by which a future is priced below its theoretical price or fair value.

A money market instrument issued at a discount to the value received on redemption, for example some treasury bills.

A bond issued at a discount to the value received on redemption, for example a zero coupon bond.

Discount factor The number by which a future cash flow must be multiplied in order to calculate its present value.

Discount rate The rate of interest charged by the Federal Reserve in the US to banks to whom money has been lent. Is also a term used for the same purpose by other central banks.

Discount securities Non-interest bearing short-term securities that are issued at a discount and redeemed at maturity for full face value.

Distributions Income paid out from a unit trust or other fund that pays income.

Also the amount paid to each investor on the winding up of a fund such as a private equity fund.

The term distribution can also mean the sales/brokerage part of an investment bank.

Distributed Ledger Technology Or DLT—see Blockchain

Dividend Distribution of profits made by a company to its shareholders if it chooses to do so.

Dividend cover Dividends are paid out of a company's profits and dividend cover is the excess profits after the dividend has been calculated. For example; if a company has a profit of £60,000 and the total dividend is £10,000, the dividend is covered 6 times.

Dividend per share Indicated annual dividend based on the most recently announced quarterly dividend times four plus any additional dividends to be paid during the current fiscal year.

Dividend yield The dividend expressed as a percentage of the share price.

Diversification Investment strategy of spreading risk by investing the total available in a range of investments.

Dodd-Frank The Dodd-Frank Act—a major us regulation affecting capital markets

- Domestic bond** Bond issued in the country of the issuer, in the currency of the country and according to the regulations of that country.
- Domicile** Where an individual or a business including investment funds is legally deemed to be registered, based or living.
- Don't know** (D.K.) Applies to a securities transaction on which fundamental data is missing or there is a discrepancy in the details of the transaction that prevents the receiver from accepting the delivery.
- Double Taxation Treaty** An agreement between two countries intended to avoid or limit the double taxation of income. Under the terms of the treaty an investor with tax liabilities in both countries can either apply for a reduction of taxed imposed by one country or can credit taxes paid in that country against tax liabilities in the other.
- Dow Jones Index** A main share index used in the USA.
- Down-and-out option** A knock-out option where the trigger is lower than the underlying rate at the start. There are also up-and-in option, down-and-in option, up-and-out option.
- Drawdown** A process of calling an amount from an account or available balance. In private equity funds it is the drawdown of the committed capital agreed by the investors
- Drop-Lock** A hybrid form of floating rate note that converts into a fixed rate bond once interest rates drop to a predetermined level.
- DRP or (DRIP)** Dividend Reinvestment Plan. Dividends are reinvested into shares rather than being distributed.
- DTC** Abbreviation for the Depository Trust Company – CSD for shares in the USA.
- Dual Currency Bond** A bond which pays interest in one currency and repays the principal in another currency.
- Due diligence** The carrying out of duties with care and perseverance. Due diligence is generally referred to in connection with the investigations of a company, carried out by accountant's to ascertain the value of that company and also applies from a regulatory point of view that firms and key personnel should carry out their duties with due diligence to the regulatory environment.
- An example is the client due diligence (CDD) when a firm or fund takes on a new client.
- Dutch auction** A Dutch auction is where bids are made by an open-outcry or electronic system method and are accepted in descending order until the issue is completed.
- EBA** European Banking Authority
- EBA clearing** A bank-owned provider of pan-European payment infrastructure solutions established in June 1998 by 52 major European and international banks. Operates EURO1.
- ECB** An abbreviation for the European Central Bank which is the central bank for countries using the Euro currency.
- ECSDA** An abbreviation for the European Central Securities Depository Association.
- Earnings per share (EPS)
- The total profit of a company divided by the number of shares in issue.
- ESCB** European System of Central Banks
- Effective date** The date on which the interest period to which a FRA or swap relates, is to start which can be different from the date when the trade is agreed.
- EFT** Electronic Funds Transfer (EFT) see also Wire
- EIS** Enterprise Investment Scheme in the UK aimed at early stage investment exposure for portfolios and tax efficient investment for individuals.
- Elective event** Corporate action that requires a choice from the security owner.

Electronic order book The electronic order matching system used as the system for dealing in the shares that comprise the FT-SE 100 stock.

Embedded option An option which is included as part of a product. Can be an option that the holder or the issuer can exercise, for example callable and puttable bonds.

Emerging market Often a non or limited industrialised country with low or middle per capita income, as published annually by the World Bank, Undeveloped capital market (i.e. the market represents only a small portion of their GDP)

Can provide excellent investment opportunities but with often high risk.

EMIR An abbreviation for the European Markets Infrastructure Regulations which has led to the establishing of the clearing of OTC derivatives through CCPs

EPTA (FIA EPTA) European Principal Traders Association established with the FIA.

Equilization A process for managing out inequalities for example in the share of performance fee each investor pays.

A process of showing the amount of capital and income involved in the subscription and redemption price of a debt fund.

Equity A common term to describe stocks or shares.

Equity/stock options Contracts based on individual equities or shares. On exercise of the option the specified amount of shares are usually exchanged between the buyer and the seller through the clearing organization.

Equity Index Swap An obligation between two parties to exchange cash flows based on the percentage change in one or more stock indices, for a specific period with previously agreed re-set dates. The swap is cash settled and based on notional principal amounts. One side can involve a LIBOR reference.

Equity-Linked Bond

A bond that can be converted into shares.

Escrow A bank account specifically designed to hold money independently, for example during a dispute between two or more parties to prevent access to those funds until finalized.

ESMA European Securities Market Authority—European regulator

E-T-C An abbreviation for an electronic trade confirmation system.

E-T-D This is the common term which is used to describe Exchange Traded Derivatives which are the standardized products. It also differentiates products which are ETD as opposed to those offered Over-The-Counter (OTC).

ETF exchange-traded funds Passively managed basket of stocks that mirrors a particular index and that can be traded like ordinary shares. They trade intraday on stock exchanges, like securities, at market determined prices. In essence, ETFs are index funds that trade like stocks.

Introduced in the US in 1993 and in the UK in 2000, and based on the idea of gaining exposure to a stock index through a single tradable share (e.g., iShares).

Ethical investments The investment in specific sectors and instruments through either personal conviction or the view that such companies have a higher potential, for example investment in funds or companies supporting ‘green’ issues, or the avoidance of so-called ‘unethical’ areas such as animal experimentation, pollution etc.

EUCLID The Euroclear electronic communication system.

EURIBOR A measure of the average cost of funds over the whole euro area based on a panel of banks.

Euro The name of the single European currency used by several countries including Germany, France, Italy Spain, the Benelux countries but not Switzerland, the UK, Denmark and Sweden.

EURO1 A private sector large-value payment system for single, same-day euro transactions at a pan-European level.

Euro-commercial paper Unsecured corporate debt with a short maturity structured to appeal to large financial institutions active in the Euro Market.

Eurobond An interest bearing security issued across national borders, usually issued in a currency other than that of the issuer's home country. Because there is no regulatory protection, only governments and top rated multinational corporations can issue Eurobonds that the market will accept.

In order to avoid confusion with the Euro currency they are today sometimes called international bonds.

Euroclear A central securities depository, CSD, using book-entry clearing facility for most Eurocurrency and foreign securities. Is the CSD for Euronext and has links to other CSDs such as Clearstream through an electronic 'bridge'.

EuroMTS/MTS Group EuroMTS is part of the MTS Group that manages the pan-European electronic trading platform for government and quasi-government Eurobenchmark bonds as well as other areas of the capital markets.

MTS Group is 100% owned by the London Stock Exchange.

Euronext An exchange that was first created in 2000 by the merging of the bourses of Belgium, France, The Netherlands and later Portugal as well as the UK derivatives market LIFFE (the latter is now part of ICE Europe)

Eurosystem The central banking system of the Euro area. Owner of TARGET 2.

Eurozone The name given to the countries utilizing the Euro currency.

European style option An option which can only be exercised on the expiry day.

Exception-based processing Transaction processing where straightforward items are processed automatically, allowing staff to concentrate on the items which are incorrect or not straightforward.

Exceptional In accounting, unexpected or one-off losses and gains are known as exceptional. They are part of a company's pre-tax profit and although irregular, they are derived from the company's normal business.

Execution and clearing agreement An agreement signed between the client and the clearing broker. This agreement sets out the terms by which the clearing broker will conduct business with the client.

Exchange A market place for trading, that is authorised or licensed by a regulator. Has its own members who are subject to the rules of the exchange.

Exchange delivery settlement price (EDSP) The price determined by the derivatives exchanges for physical delivery of the underlying instrument or cash settlement.

Exchange Owned Clearing Organisation Exchange or member owned clearing organisations are structured so that the clearing members each guarantee each other with the use of a members default fund and additional funding like insurance.

Exchange rate The rate at which one currency can be exchanged for another.

Excise Duties Type of tax levied on items such as alcohol, tobacco, and hydrocarbons.

Ex-date Date on or after which a sale of securities is executed without the right to receive dividends or other entitlements.

Ex-dividend For example: after a stock has become 'ex-dividend', a buyer of stock purchases it without the right to receive the pending interest or dividend payment.

Execute and eliminate order Type of order input into dealing systems like the LSE SETS.

The amount that can be traded immediately against displayed orders is completed, with the remainder being rejected.

Execution The action of making transactions by trading in the relevant instruments and markets. Two parties “execute” the trade by being buyer and seller and a broker executes trades on behalf of their clients

Execution and clearing agreement An agreement signed between the client and the clearing broker. This agreement sets out the terms by which the clearing broker will conduct business with the client.

Execution only or give-up agreement For derivatives the tri-partite agreements that are signed by the executing broker, the clearing broker and the client. This agreement sets out the terms by which the clearing broker will accept business on behalf of the client.

Exercise The process by which the holder of an option or a warrant, may take up their right to buy or sell the underlying asset.

The process of carrying out a benefit or entitlement i.e. conversion of a convertible bond.

Exercise price (or Strike price) The fixed price, per share or unit, at which an option or warrant conveys the right to call (purchase) or put (sell) the underlying shares or units.

Exit charges Instead of or as well as making an initial charge, some investment funds make a charge if investors sell or redeem their holding within, say, five years.

Exotic options More complex structured options including look-backs, barriers, baskets, ladders, etc. They have different terms to standardized traded options.

Expenses The broker's or fund's costs incurred in buying and selling shares. Also costs associated with sales, marketing, client services, legal expertise etc.

Expiry date The last date on which a holder can exercise their right related to options. After this date an option is deemed to lapse or be abandoned.

The date at which a contract or agreement matures or ceases to apply.

Extraordinary General Meeting (EGM) Any meeting of a company's shareholders other than its AGM.

Ex-warrants The buyer will not be entitled to warrants that will be distributed to owners/holders of securities after the security goes “ex”.

Face value The value of a bond, note, mortgage or other security that appears on the face of the issue (if paper), unless the value is otherwise specified by the issuing company. Face value is ordinarily the amount the issuing company promises to pay at maturity. Face value is also referred to as *par value* or *nominal value*.

Failed transaction A transaction that does not settle on time; i.e. the securities and/or cash are not exchanged as agreed on the settlement date. Also known as a ‘settlement fail’.

FATCA The US Foreign Account Tax Compliance Act which requires Foreign Financial Institutions (FFIs) to provide details investments held by them in accounts for US citizens.

FATF Financial Action Task Force on Money Laundering.

FCA Abbreviation for the newly created financial conduct authority, a UK regulator (see also FSA)

Federal Reserve Book Entry System CSD for US government securities.

FIA Abbreviation for the Futures Industry Association based in the US.

Fill or Kill order Type of order input into a market or trading system. It is either completed in full against displayed orders or cancelled.

Final settlement The completion of a transaction when the delivery of all components of a trade is performed.

Financial futures/options contracts Financial futures is a term used to describe a legally binding contract based on financial instruments like currencies, debt instruments and financial indices.

Financial Services Act 2012 The legislation that created the UK Regulators, the Financial Conduct Authority and the Prudential Regulation Authority

Financial Transaction Tax (FTT) Proposed EU tax on a wide range of financial transactions

First notice day The first day that the holders of short futures positions can give notification to the exchange/clearing house that they wish to effect delivery.

Fiscal agent A commercial bank appointed by the borrower to undertake certain duties related to the new issue, such as assisting the payment of interest and principal, redeeming bonds or coupons, handling taxes, replacement of lost or damaged securities, destruction of coupons and bonds once payments have been made.

Fiscal years In the UK these run from 6 April to 5 April and are the periods of assessment for both income tax and capital gains tax.

Fit and proper Under UK regulation everyone conducting investment business must be a 'fit and proper person'. The Act does not define the term, a function which is left to the regulators such as FSA.

The Financial Information eXchange ("FIX") Protocol The Financial Information eXchange ("FIX") Protocol is a technical specification for electronic communication of trade-related messages. The FIX Protocol is a series of messaging specifications developed through the collaboration of banks, broker-dealers, exchanges, industry utilities and associations, institutional investors, and information technology providers from around the world. FIX is open and free, but is not software. FIX is integral to many order management and trading systems.

Fixed income Interest on a security that is calculated as a constant specified percentage of the principal amount and paid at the end of specified interest periods, usually annually or semi-annually, until maturity.

Fixed interest securities Another term for 'bonds', or a security/instrument carrying a fixed rate of interest.

Fixed leg In a swap, the flow of say a fixed-rate interest payment from one party to the other.

Fixed-rate A borrowing or investment where the interest or coupon paid is fixed throughout the arrangement.

In a FRA or coupon swap, the fixed-rate is the fixed interest rate paid by one party to the other, in return for a floating-rate receipt (i.e., an interest rate that is to be re-fixed at some future time or times).

Fixed rate borrowing A fixed rate borrowing establishing the interest rate that will be paid throughout the life of the loan.

Fixed rate payer In a swap, the party that pays the fixed-rate.

Fixed rate receiver In a swap, the party that receives the fixed rate.

Flat position A position which has been fully closed out and no liability to make or take delivery exists.

Flat yield The yield of a bond calculated as $\text{Annual Coupon} \times 100\% / \text{Current market price}$.
Also called the income yield.

Flex options Contracts which are a cross between OTCs and exchange traded products. The advantage of flex options is that participants can choose various parts of the contract specification such as the expiry date and exercise price.

Flotation When a company has its shares first quoted on the stock market it is said to have 'floated' its shares.

Floating leg In a coupon swap, the flow of a floating-rate interest payment from one party to the other.

Floating-rate A borrowing or investment where the interest or coupon paid changes throughout the arrangement in line with some reference rate such as LIBOR.

In a FRA or coupon swap, the floating-rate is the floating interest rate (i.e., an interest rate that is to be re-fixed at some future time or times) paid by one party to the other, in return for a fixed-rate receipt.

Floating rate note (FRN) Bond where each interest payment is made at the current or average market levels, often by reference to LIBOR.

Floating rate payer Payer of floating rate in a coupon swap.

Floating rate receiver Receiver of floating rate in a coupon swap.

Floor A package of interest rate options whereby, at each of a series of future fixing dates, if an agreed reference rate such as LIBOR is lower than the strike rate, the option buyer received the difference between them, calculated on an agreed notional principal amount for the period until the next fixing date. See cap, collar.

Floorbrokerage The process of delegating the execution of futures and options to another counterparty.

Foreign bond Bond issued in a domestic market in the domestic currency and under the domestic rules of issuance by a foreign issuer (ex. Samurai bonds are bonds issued by issuers of other countries on the Japanese market).

Foreign currency fund A mutual fund investing in foreign currencies.

Foreign exchange Exchange of one currency into another one.

Forex Abbreviation for foreign exchange (currency trading).

Forward market/contract Where a price is agreed now for delivery of goods in the future. Used in currency, securities and commodities markets, often in conjunction with dealing in immediate delivery (see Spot Market) as a safety net.

Forward contracts in currencies are a fixed rate for buying and selling at a date forward in time. Also known as an outright forward.

Forward rate agreements (FRAs) An agreement where the client can fix the rate of interest that will be applied to a notional loan or deposit, drawn or placed on an agreed date in the future, for a specified term.

Forward delivery Transactions that involve a delivery date in the future.

Forward swap A swap agreed today that starts at some point in the future.

Forwardation Where a dealer purchases goods on the Spot Market to meet his future obligations, especially when those goods are cheaper now than quoted on the Forward Market.

Forwards Are very similar to futures contracts but they are not usually traded on an exchange. They are not marked to market daily but settled only on the delivery date.

Franked income Where tax has already been paid on income.

Free of payment Refers to the movement of currencies where there is no associated countervalue at the time of settlement due to timing differences in the payment systems or is a situation which is not dependent on the simultaneous payment of the cash value during the movement of assets, for example in a stock loan or collateral movement.

Movement of securities with no corresponding payment for example switching assets between custodians.

Front end loading The deduction of costs from the initial contributions to savings vehicles such as investment funds, endowment policies or personal pension plans. Also applies to mortgages and loans where although spread throughout the term, in the early years the bulk of the repayment is of interest with very little reduction in the capital content. Toward the end of the term, the interest diminishes and virtually all the repayment is of capital.

Front running The illicit utilizing by brokers and market-makers of advance warning or information about orders or trades for personal or corporate profit.

FSA Financial Services Agency (Japan).

Previously the mnemonic for the Financial Services Authority the UK regulator now replaced by the FCA and PRA.

FSA Seychelles The Seychelles Financial Services Authority

FSC Mauritius Financial Services Commission Mauritius.

FT Index The Financial Times Ordinary Share Index consists of 30 large companies across a broad field and gives an indication of share price trends. The larger Index, the FT-SE 100 (known as the ‘Footsie’) provides a wider indication of 100 leading companies on the Stock Market. All stock markets have an index, e.g., The Dow Jones in the US, the DAX in Germany or the Nikkei in Japan.

FT-SE 100 index Main UK share index based on 100 leading shares.

FT-SE Mid 250 UK share index based on the 250 shares immediately below the top 100.

Fund Administrator Internal team or an organization appointed to administer a fund. Responsibilities can include calculating the NAV, maintaining records of the funds activities and dealing with investors in the fund.

Associated terms are Fund Support, Fund Operations, Fund Accounting and Transfer Agency.

Fund Administration Agreement Sets out the legal basis and terms and conditions with a third party administrator

Fund manager Individuals or specialists companies responsible for investing the assets of a fund in such a way as to maximize its value. They do this by following a strategy to buy and sell equities and other financial instruments.

See also asset manager and investment manager.

Funds General term for mutual funds, unit trusts and OEIC's (open ended investment companies) and other collective investment schemes.

Fund of funds A fund that specializes in buying shares in other funds rather than individual securities.

Common example is a Fund of Hedge Funds which invests in the shares of Hedge Funds and is in turn invested in by institutions like pension funds.

Fungible contract A futures or other contract with identical administration in more than one financial center which can be settled in one center against another.

Futures A derivative product traded on an exchange which is a contract in the form of an agreement to buy or sell an asset at a certain time in the future for a certain price that is agreed today.

Future value The amount of money which can be achieved at a given date in the future by investing (or borrowing) a given sum of money now at a given interest rate, assuming compound re-investment (or re-funding) of any interest payments received (or paid) before the end.

Futures and options fund (FOF) Type of authorised unit trust that can invest partially in derivatives.

Futures strip A series or stream of short-term futures contracts which when grossed up will generate a return for a term equal to the length of the strip.

GCC Gulf Cooperation Council -political and economic alliance of six Middle Eastern countries— Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain

GABRIEL The FCA online regulatory reporting system for the collection, validation and storage of regulatory data.

Geared Futures and Options Fund (GFOF) Type of authorised unit trust that can invest in derivatives.

Gearing The characteristic of for example derivatives which enables a far greater reward for the same, or much smaller, initial outlay. It is the ratio of exposure to investment outlay, and is also known as leverage.

Generic swap A generic swap is one for a standard period, against a standard fixing benchmark such as LIBOR. Also known as a 'plain vanilla' swap.

GFSC Guernsey Financial Services Commission

Gilt Long standing term used to describe a domestic sterling-denominated long-term bond backed by the full faith and credit of the United Kingdom and issued by the Treasury.

Gilt Edged Market Makers (GEMMs) A firm that is a market maker in gilts. Also known as a primary dealer.

Gilt edged security UK government borrowing.

Give-up The process of giving a trade to a third party who will undertake the clearing and settlement of the trade.

Global bond A (temporary) certificate representing the whole of a bond issue.

Global certificate Certificate held at the Central Depository recording the total issue of a bond.

Global clearing The channeling of the settlement of all futures and options trades through a single counterparty or a number of counterparties geographically located.

Global custodian Institution that safekeeps, settles and performs processing of income collection, tax reclaim, multicurrency reporting, cash management, foreign exchange, corporate action and proxy monitoring etc. for clients' securities in all required marketplaces.

Does so by utilising sub-custodians in each jurisdiction.

Global depository receipt (GDR) A security representing shares held in custody sold to investors in various countries

Gold Widely used commodity and regarded as a safe haven in times of uncertainty.

Good delivery Proper delivery of certificates that is negotiable and complete in terms of documentation or information.

GRA The Gibraltar Regulatory Authority

Granter Another term for a person who has sold an option position to a buyer.

"Greeks" A collective term for delta, gamma, theta and vega which relate to the movement in price of an option as a result of the movement in the underlying price, the rate of that movement and time erosion.

Grey market Generally speaking it is a market for a new issue before the securities have been distributed to subscribers.

Gross A position which is held with both the bought and sold trades kept open.

Gross domestic product (GDP) A measure of the country's entire output.

Gross redemption yield (GRY) The annual return on owning a bond, allowing both for interest and profit on redemption.

Grossing up The process of calculating the gross income from a figure net of taxation.

Growth stock Companies with or with the expectation of a rapid rise in expansion and subsequent share value.

GSCC Government Securities Clearing Corporation – clearing organization for US Treasury securities.

Guaranteed bond Bonds on which the principal or income or both are guaranteed by another corporation or parent company in case of default by the issuing corporation.

Haircut Amount by which an asset being used as collateral is discounted. Can also be called margin.

Hard commodities Commodities such as tin or zinc. Futures on them are traded on the London Metal Exchange.

Hedge fund Vary enormously but essentially funds that are investing in a wide variety of instruments and strategies often designed to generate exceptionally high return but with higher risk of loss. Can gear the fund, short sell and invest in credit risk and other types of investments that retail funds cannot use. Sales limited to high net worth individuals and other funds.

Hedge ratio Determining the ratio of the futures to the cash position so as to reduce price risk.

Hedging A trading method which is designed to reduce or mitigate risk.

Reducing the risk of a cash position in the futures instrument to offset the price movement of the cash asset. A broader definition of hedging includes using futures as a temporary substitute for the cash position.

Herstatt risk Named after a German bank that went bust which had completed (received Duetsche Marks) one leg of the settlement of an FX trade. The other leg failed to settle because Herstatt went bust before the US payment system opened and the counterparty lost their DMs and never received the dollars

High risk Volatile investments that rise and fall sharply in value. Also assets and obligations issued by a poorly credit rated party (see Junk Bonds).

High water mark A benchmark used in the calculation of performance fees for investment managers.

HKEC/HKE/HKEx The Hong Kong Exchanges and Clearing comprised of the Hong Kong Futures Exchange, The Stock Exchange of Hong Kong Ltd. and The Hong Kong Securities Clearing Company Ltd.

The Central Clearing & Settlement System (CCASS) is used for securities and The Derivatives Clearing & Settlement System (DCASS) is used for derivatives. There is also the SEOCH, the Stock Exchange of Hong Kong Options Clearing House.

Holder A person who has bought an open derivatives contract.

Holder of record The party whose name appears on a company's stockholder register at the close of business on record date. That party will receive a dividend or other distribution from the company in the near future.

Holding Company A company which owns more than 50% of the shares of another company as its holding company.

Home state regulation Under the EU regulations an investment business is authorised in the place of its head office and registered office. This home state authorization entitles it to conduct business in any member state of the European Union.

Host state regulation Any European investment business operating outside its home basis is regulated by its host for its Conduct of business.

HQLA High Quality Liquid Assets – a requirement to have a pool of liquid assets available against regulatory capital requirements

Hurdle rate A benchmark used in the calculation of performance fees for investment managers.

HVP High Value Payment.

IASB International Accounting Standards Board.

IBAN International Bank Account Number adopted as an international standard ISO 13616:1997

- ICE/ICE Clear/ICE Europe** See Intercontinental Exchange.
- ICSD** An International Central Securities Depository which clears and settles international securities or cross-border transactions through local CSD's, for example Clearstream, Euroclear, DTC.
- IFRS** International Financial Reporting Standards
- IFSRA** Irish Financial Services Regulatory Authority, became part of the unitary body Central Bank in the Central Bank Reform Act 2010.
- Immobilization** The storage of securities certificates in a vault in order to eliminate physical movement of certificates/documents in transfer of ownership.
- Implied repo rate** The rate of return before financing costs implied by a transaction where a longer-term cash security is purchased and a futures contract is sold (or vice versa).
- In-the-money** A call option where the exercise price is below the underlying share price or a put option where the exercise price is above the underlying share price.
- Income enhancement** Strategy that uses written call options to generate premium against underlying assets held.
- Income fund** A fund that concentrates on finding companies whose dividends are likely to be above average or bonds with good yields so that income can be periodically distributed to investors
- Income tax** An annual tax on the income of an individual.
- Independent Clearing Organisation** The independent clearing organisation is quite separate from the actual exchange or market that it clears. Increasingly clearing organisations are becoming part of the exchange or owned by exchanges, e.g., ICE, LSE acquiring LCH.Clearnet etc.
- Index funds** Funds that invest to perform in line with a stock market index, e.g., the FTSE 100. Also known as 'tracker' funds.
- Index linked bond** Bond whose interest payment and redemption value are linked to the retail prices index.
- Index swap** A swap where payments on one or both of the legs are based on the value of an index, such as an equity index. See Equity Index Swap.
- Indexation** Where investments, wages, contributions etc. are linked to a benchmark such as inflation. For example; a contribution to a pension scheme may increase by 3% or the retail price index, whichever is the higher.
- Indirect market participation** Non-broker/dealers, such as institutional investors, who are active investors/traders but who access markets via an intermediary like a broker.
- Individual savings account** A UK savings vehicle where the individual can save either on a regular monthly or lump sum basis with exposure to varying degrees of risk but with tax free concessions. An ISA is a 'wrapper' into which cash, unit trusts and mutual funds are placed to get the tax benefit.
- Inflation** A period of generally rising prices and devaluation of money through a number of causes such as rises in fuel, manufacturing and labor costs. For example; high salary or wage demands not covered by productivity.
- Inflation accounting** The allowing for the impact of inflation in preparing company accounts.
- Initial charge/fee** A charge - typically 0.5–5% - that is paid to cover an investment manager's expenses, such as commission, advertising, administration and dealing costs.
- Initial margin or deposit** The deposit that the clearing house calls as protection against a default of a contract. It is returnable to the clearing member once the position is closed. The level is subject to changes in line with market conditions. Clearing brokers in turn call initial margin from their clients.

Inland revenue/HMRC The government department responsible for the administration and collection of tax in the UK now called Her Majesty's Revenue and Customs.

Inside information Information relating to a security which is not publicly known and which would affect the price of the security if it was public.

Insider Directors, employees, shareholders and other persons having inside information.

Insider dealin The criminal offence whereby those with unpublished price sensitive information deal, advise others to deal or pass the information on. Maximum penalty is seven years gaol and an unlimited fine.

Institutional investor An institution which is usually investing money on behalf of others. Examples are mutual funds and pension funds.

Integration The third stage of money laundering, in which the money is finally integrated into the legitimate economy. See placement, layering.

Interbank market A market for transactions exclusively or predominantly within the banking system. In most countries, the market for short-term money is an Interbank market since banks borrow and lend among one and another in order to balance their books on a daily basis. Non-bank entities may or may not be permitted to participate.

Interbank rates The bid and offered rates at which international banks place deposits with each other.

Intercontinental exchange (ICE)/ICE Clear IntercontinentalExchange operates global commodity and financial products market places and also runs ICE Clear US, Europe and Canada plus ICE Clear Credit for credit derivatives clearing. Owns the NYSE Euronext market.

Inter Dealer Broker (IDB) Member of the London Stock Exchange that acts as a link between firms to enable them to trade with each other anonymously.

Interest rate futures Can be based on a debt instrument such as a Government Bond or a Treasury Bill or Note as the underlying product and require the delivery of a bond or will be cash settled to fulfil the contract.

Contracts based on interest rates, e.g., 3 month Sterling Interest Rate.

Interest rate cap An option product where the holder (buyer) is guaranteed a maximum borrowing cost over a specified term at a rate of his choosing. A premium is required.

Interest rate collar An option product where the holder (buyer) is guaranteed a maximum and minimum borrowing cost over a specified term at rates of his choosing. A premium may be required, but may net to zero. Involves the simultaneous trading of caps and floors.

Interest rate floor An option product where the holder (buyer) is guaranteed a minimum yield on a deposit over a specified term at a rate of his choosing.

A premium is required.

Interest rate guarantee Also IRG. Effectively an option on a forward rate agreement. An IRG can be either a borrower's option (i.e., a call on an FRA0 or a lender's option (i.e., a put on an FRA).

Interest rate swap An agreement to exchange interest related payments in the same currency from fixed rate into floating rate (or vice versa) or from one type of floating rate to another.

Interim dividend Dividend paid part way through a year in advance of the final dividend.

Intermediary A bank, broker or financial institution which accesses markets on behalf of a client or puts two counterparties together for a fee usually called a commission.

International Capital Markets Association ICMA/IPMA/ISMA The International Primary Markets Association merged with the International Securities Market Association to create the International Capital Markets Association.

International equity An equity of a company based outside the UK but traded internationally.

International Financial Centre A designated “territory” or location sometimes with very low tax rates and a different type of regulation (*an “offshore center” like the Cayman Islands or Dublin*) to the rest of the location which is home to domestic investors and companies. Also offers international banking, investment and other financial services.

In general terms financial centre also means locations such as New York, London, Frankfurt and Tokyo.

International Monetary Fund Set up by the Bretton Woods agreement into which member countries contribute to provide assistance during periods of economic instability, thereby smoothing out the world trade cycle and avoiding a major plunge into depression as seen in the 1930s.

International Securities Identification (ISIN) A coding system developed by the ISO for identifying securities. ISINs are designated to create one unique worldwide number for any security. It is a 12 digit alpha/numeric code.

International Standards Organisation (ISO) An international federation of organizations of various industries which seeks to set common international standards in a variety of fields.

Interoperability Ability of diverse systems, teams or organizations to work together.

Interpolation The estimation of a price or rate, usually for a broken date in a swap, from two other rates or prices, each of which is for a date either side of the required date.

In-the-money An option whose strike is more advantageous to the option buyer than the current market rate. See at-the-money, out-of-the-money.

Intervention The process whereby the Bank of England acts to influence the exchange rate for sterling by buying it to support its value or selling it to weaken it.

Intra-day margin Additional margins calls over and above the initial margin which the clearing organisation can call during the day when there is a very large movement up or down in the price of the contract.

Intrinsic value The amount by which an option is in-the-money.

IRS See Interest Rate Swap. Also the Internal Revenue System, tax system, in the US.

Investment banks A bank that has multiple activities i.e. Banking, principal trading, brokerage, asset management etc.

Originally “investment banking” was about providing services to key corporate and other institutional clients including financing, advisory and other such activities.

Investment business Dealing, advising or managing investments. Those doing so need to be authorised.

Investment funds General term for unit trusts and OEIC's (open ended investment companies) and their equivalents in other countries like SICAVS, Investment Companies with Variable Capital (ICVCs) and mutual funds as well as non-retail funds like hedge funds and private equity funds.

Investment Services Directive (ISD/MiFID) European Union Directive imposing common standards on investment business. Is now part of the Markets in Financial Instruments Directive (MiFID).

Investments Items defined by regulators and covered by their regulations used in the investment process. Can include shares, bonds, options, futures, life assurance, investment funds and pensions, as well as commodities and alternative investments.

Investment grade A grading level that is used by certain types of funds for determining assets that are suitable for investment in by the fund. Can be based on grading issues by organizations such as S & P, Fitch or Moodys.

Investment manager Either a person or a firm that manages assets and makes investment decisions.

See also fund manager and asset manager.

Investment Trust (Company) Company quoted on an Exchange which has a fixed number of shares. The value of these shares is determined by supply and demand. The shares do not therefore normally reflect the value of its underlying assets and can be at a premium or discount on net asset value. Basically a trading investment company, it can borrow to provide gearing, can invest in a very wide range of securities, both listed and unlisted, and can hedge any currency risks.

Invoice amount The amount calculated under the formula specified by the futures exchange, which will be paid in settlement of the delivery of the underlying asset.

IOSCO Abbreviation for the international organisation of securities commissions

Irredeemable gilt/bond A gilt or bond with no fixed date for redemption. Investors receive interest indefinitely. Can also called a perpetual bond

ISDA Abbreviation for the *international swaps and derivatives association*, previously known as the international swap dealers association. Many market participants use ISDA documentation across many products when trading over the counter

ISSA An abbreviation for The International Securities Services Association.

Issue/issuers Stocks or bonds sold (issued) by a corporation or government entity at a particular time. They are referred to as issuers.

Issue price The price at which new securities or other financial instruments are offered in the primary market i.e. the offer price in an initial public offering.

Issuer Legal entity that issues and distributed securities and other instruments.

Issuing Agen. Agent (e.g., bank) who puts original issues out for sale.

Issuing House Institutions that issue shares for companies wishing to raise capital by underwriting shares issued direct to the public through the company or by buying and selling the shares itself.

"J" Curve A term used to describe the change in an investors capital from negative to positive during the duration from capital drawdown to distribution of return of a private equity fund.

JASDEC Japan Securities Depository Centre – the CSD for Japan.

JFSC The Jersey Financial Services Commission

JSE TradeElect The Johannesburg Electronic Trading system.

JSCC Abbreviation for Japan securities clearing corporation – Clearing organisation in Japan

JSE Abbreviation for the Johannesburg stock exchange

Junk Bonds High-risk bonds that have low ratings or are in default, where there is a risk of non-payment of obligations such as interest or bond redemption. Can also be called High Yield Bonds.

Knock-in-option An option that is activated if a trigger level is reached. See barrier option, knock-out option.

Knock-out option An option that is cancelled if a trigger level is reached. See barrier option, knock-in option.

Know Your Customer (KYC) The conduct of business rule requiring investment advisers to take steps, before giving investment advice, to determine the financial position and investment objectives of the client.

Korea Securities Depository (KSD) CSD and clearing organisation for the Korean Stock Exchange.

Large caps The shares of big companies like the “Blue Chips” or those with large market capitalization which is the number of shares issued multiplied by the current share price.

Last notice day The final day that notification of delivery of a futures contract will be possible. On most exchanges all outstanding short futures contracts will be automatically delivered to open long positions.

Last trading day Often the day preceding last notice day which is the final opportunity for holders of long positions to trade out of their positions and avoid ultimate delivery.

Layering The second stage of money laundering, in which the money is passed through a series of transaction to obscure its origin. See placement, integration.

LCH/LCH.Clearne London Clearing House now merged with Clearnet to create LCH. Clearnet. The London Stock Exchange has a major stake in the firm.

LCR Under EMIR—the liquidity coverage ratio part of the standards and sound principles framework designed to ensure a bank has liquid assets to help it manage a stress scenario for 30 days.

Lead Managers In the securities markets the description given to the investment bank/broker appointed to handle a new issue.

Also used to identify the lead party in a syndication.

LEI Legal Entity Identifier – important tool for client due diligence.

Legal Title or Ownership Legal title to property is held by the person who controls the property and in whose name the property is registered.

Leverage The magnification of gains and losses by only paying for part of the underlying value of the instrument or asset; the smaller the amount of funds invested, the greater the leverage. It is also known as gearing.

In funds the term can apply to the borrowing of large amounts of capital over and above the subscription capital which then creates a liability in the fund. If the strategy does not work the investors could lose all their capital as the fund clears the liabilities first. Example would be a Leveraged Buy Out Fund (LBO).

Liability Swap A swap which is coupled with for instance a bond in order to change the structure of the bond. The bond may already have been issued by the borrower or it may be issued together with the swap as a package.

LIBID The London inter-bank bid rate. The rate at which one bank will lend to another.

LIBOR The London inter-bank offered rate. It is the rate used when one bank borrows from another bank. It is the benchmark used to price many capital market and derivative transactions. Following a major rigging scandal changes to the way LIBOR is calculated have been made.

LIBOR-in-arrears swap A swap in which LIBOR is set usually two days prior to the payment date.

LIFFE The London International Financial Futures and Options Exchange, became part of NYSE Euronext and was referred to as *NYSE Liffe*. Now part of *ICE Europe*.

Limit Order Type of order input into the LSE SETS. If not completed immediately the balance is displayed on the screen and forms the Order Book.

An order in which a customer sets the maximum price he is willing to pay as a buyer or the minimum price he is willing to accept as a seller.

Limited Partner The investor in a partnership.

Line of Credit A commitment by a bank to make loans to a borrower up to a specified maximum during a specified period.

Linked Forex When the currency is purchased via a fx trade to cover the local cost of a securities trade.

- Liquidation** Term used to describe the closing of open positions or the winding up of a fund or company.
- Liquidator** Person appointed to sell the corporate assets of a company in receivership, distributing the proceeds among the creditors.
- Liquidity** A liquid asset is one that can be bought or sold at any time or converted easily and rapidly into cash without a substantial loss of value. In the markets, a security is said to be liquid if the spread between bid and asked price is narrow and reasonable size can be done at those quotes.
- Liquidity risk** The risk that a party may not be able to close out a position because the market is illiquid.
- Listed company** Company which has been admitted to listing on a stock exchange and whose shares can then be dealt on that exchange.
- Listed Securities** Securities Listed on a stock exchange that can be traded on this exchange. Called the secondary market.
- Listing** Status applied for by companies whose securities are then listed on a stock exchange and available to be traded. The listing was a capital raising event in the primary market.
- Listing Particulars** Detailed Information that must be published by a company applying to be listed. This is typically via a Prospectus or Offering Document.
- Listing Rules** Rule book for listed companies which governs their behavior. Commonly known as the Yellow Book.
- LLC** Limited Liability Company, many investment funds are set ups a LLC's.
- LLP** Limited Liability Partnerships, some private funds are set up as LLP's with a General Partner who makes the investment decisions and limited partners provide the monies for investment. Tax is sometimes a factor in using an LLP.
- Lloyds of London** World's largest insurance market.
- Loan Stock** See *bonds*.
- Local** An individual member of an exchange who trades solely for their own account.
- Local Currency** Currency of the country of settlement.
- Lombard Rate** The rate of interest at which the German Bundesbank lends to commercial banks when the loans are against Treasury Bills or bills of exchange.
- London Inter Bank Offer Rate (LIBOR)** Rate at which banks lend to each other which is often used as the benchmark for floating rate loans (FRNs).
- London Metal Exchange (LME)** Market for trading in derivatives of metals such as copper, tin, zinc etc., as well as plastics. Is merging with the HKEx.
- London Stock Exchange (LSE)** Market for trading in securities. Formerly known as the International Stock Exchange of the United Kingdom and Republic of Ireland or ISE.
- Long/Long position** A bought position in a derivative or security that is held as an open position, i.e. an investors buys BP shares and is termed as being "long" of BP.
- Long Coupons** Bonds or notes with a long current maturity; A coupon on which the period is longer than the others or the standard coupon period.
- Long-dated** Gilt with more than 15 years until redemption.
- Long Position** Refers to an investor's account in which he has more shares of a specific security than he needs to meet his settlement obligations.
- Long/Short Fund** A hedge fund strategy involving being long and simultaneously short of different assets with the possibility of positive returns on both positions.
- Look Back Option** An option that gives the holder the right to exercise the option at the most advantageous price reached by the underlying asset during the look back period. This is often the life of the option.

Lot A term used to describe the standard unit of trading for futures and options. The term “contract” is also used.

Low risk Where the value of an investment is unlikely to fall, although there is no guarantee.

LVP Low Value Payment.

Managed Fund A collective investment scheme with an active manager.

A fund for individual investors but managed collectively often using futures contracts.

Management Expense Ratio (MER) A measurement of the expenses associated with the management of an investment fund.

Manager of Managers Unlike a fund of funds where the fund manager selects funds to buy, the owner/sponsor of a fund appoints several managers to run the portfolios (Multi Manager Fund). The Manager of Managers is responsible, not just for identifying competitive managers, but for monitoring the overall portfolios at a stock-by-stock, manager-by-manager level. The emphasis is on a clear and consistent investment process.

Manager's report Available periodically and at least annually, it details the exact position of the fund, e.g., its investments, the manager's investment commentary, the performance of the portfolio etc.

Mandate Document that sets out the terms under which the investments of a fund must be managed. Will detail investments that are not permitted etc.

Managers face penalties for breaching a fund's mandate.

Mandatory event (Corporate Action) A corporate action which affects or changes the structure of the securities without giving any choice to the security holder.

Mandatory Quote Period Time of day during which market makers in equities are obliged to quote prices under London Stock Exchange rules.

Margin *Initial* margin is collateral placed by one party with a counterparty or clearing house at the time of a deal, against the possibility that the market price will move against the first party, thereby leaving the counterparty with a credit risk.

Variation margin is a payment made, or collateral transferred, from one party to the other because the market price of the transaction or of collateral has changed. Variation margin payment is either in effect a settlement of profit/loss (for example in the case of a futures contract) or the reduction of credit exposure.

In a loan, margin is the extra interest above a benchmark such as LIBOR required by a lender to compensate for the credit risk of that particular borrower.

Money or assets that must be deposited by participants in securities lending, repo's or OTC derivatives markets as a guarantee that they will be able to meet their commitments at the due date.

Margin (trading on) Facility provide to hedge funds by a prime broker.

Marginal Rate of Tax The rate of tax which will apply to the next unit of income.

Mark-To-Market The process of revaluing the position in an OTC or exchange traded product each day.

It is the using the difference between the closing price on the previous day versus the current closing price. For exchange traded products this is referred to as variation margin.

Market Description of any organisation or facility through which items are traded. All exchanges are markets.

Market Counterparty A person dealing as agent or principal with the broker and involved in the same nature of investment business as the broker. This also includes fellow members of the SFA or trading members of an investment exchange, for those products only where they are members.

Market Forces This is supply and demand allowing buyers and sellers to fix the price without external interference.

Market Maker A trader who works for an organisation such as an investment bank. They quote bids and offers in the market and are normally under an obligation to make a price in a certain number of contracts. They create liquidity in the contract by offering to buy or sell.

Market Price In the case of a security, the market price is usually considered as the last reported price at which the stock or bond has been sold.

Market risk Also position risk. The risk that the market value of a position falls or that it becomes illiquid and cannot be acquired/disposed of.

Market Value The price at which a security is trading and could presumably be purchased or sold.

Markit Markit is a leading, global financial information services company. The company provides independent data, valuations and trade processing across all asset classes in order to enhance transparency, reduce risk and improve operational efficiency. Worked in collaboration with DTC to create MarkitSERV

Master Agreement This agreement is part of the ISDA documentation for OTC transactions and is signed between the client and the broker. It covers the basic terms under which the client and broker wish to transact business. Each individual trade has a separate individual agreement with specific terms known as a confirmation.

Matching (Comparison) Another term for comparison (or checking); can be via a matching system to compare trades and ensure that both sides of trade correspond. Is a clearing process.

Maturity The date on which the principal or nominal value of a bond becomes due and payable in full to the holder.

The time at which a derivative ceases to exist.

MCSD The Misr for Clearing, Settlement and Depository, clearing house and depository for the Egyptian Stock Exchange.

Medium Dated Bond or Note with a time to maturity typically somewhere between 1 and 15 years. Varies from country to country but in the UK, Gilts due to be redeemed within the next seven to fifteen years.

Medium risk Where the value of an investment may rise as well as fall in the short term but total loss of value is unlikely.

Merchant Banks Often relatively small but prestigious financial institutions, who deal mainly with companies and wealthy individuals in providing a range of financial services including, among others, corporate finance and portfolio management.

Mergers and Acquisition (M&A) Divisions of investment banks or merchant banks responsible for advising on take-over and merger activity. Usually work with the corporate finance department and is often kept as a single unit.

MFSA Malta Financial Services Authority

MiFID In Europe the *Markets in Financial Instruments Directive (MiFID)* has replaced the Investment Services Directive (ISD). MiFID extended the coverage of the ISD regime and introduced new and more extensive requirements to which firms will have to adapt, in particular in relation to their conduct of business and internal organisation. Reform of the regulation introduced MiFID II and now MiFID III is in process.

Mismatch Risk The risk that arises in a swap portfolio when the terms of two offsetting swaps do not exactly match, for example, a mismatch between 3- and 6-month LIBOR.

Model risk The risk that the computer model used by a bank for valuation or risk assessment is incorrect or misinterpreted.

Model Code for Securities Dealing In the UK relates to directors dealing in their own company's securities. Prohibits them from doing so during the two months before results are announced.

Modified following The convention that if a settlement date in the future falls on a non-business day, the settlement date will be moved to the next following business day, unless this moves it to the next month, in which case the settlement date is moved back to the last previous business day.

Monetary Authority of Singapore (MAS) The overall investment regulatory body in Singapore.

Monetary Interest Rate The actual interest rate received in money terms.

Money Laundering The process where criminals attempt to conceal the true origin and ownership of the proceeds of their criminal activities and to legitimize these proceeds by introducing them into the mainstream of financial activities.

Money Market The market for the purchase and sale of short-term financial instruments. Short term is usually defined as less than one year to maturity of the instrument.

Money Market Fund An open-end mutual fund that invests in commercial paper, banker's acceptances, repurchase agreements, government securities, and other highly liquid and safe securities. The fund pays money market rates of interest. Many money market funds are part of fund families; investors can switch their money from one fund to another and back again without charge.

Money Rate of Return Annual return as a percentage of asset value.

Money Supply Measure of the money available in the economy.

Monti Titoli CSD for Italian Securities that is owned by the London Stock Exchange Group.

Moody's Investment Service Moody's is one of the two most popular bond rating agencies in the U.S. The other agency is Standard and Poor's.

Mortgage A form of security on borrowing commonly associated with home borrowing.

Mortgage-Backed Security Security backed by an investment company that raises money from shareholders and invests it in stocks, bonds or other instruments (unit trust, investment fund, SICAV – BEVEK).

Multilateral Trade Facility (MTF) Electronic trading platforms set up as alternatives to established bourses and exchanges often citing speed and cheapness as advantages

Examples: Chi-X, Turquoise,

Multilateral netting Trade between several counterparties in the same security are netted such that a counter-party makes only one transfer of cash or securities to another party or to a central clearing system. Applies only to transactions due for settlement on the same day.

Mutual collateralization The deposit of collateral by both counterparties to a transaction.

Mutual Fund Term used particularly in the US to describe a fund operated by an investment company that raises money from shareholders (investors) and invests it in stocks, bonds or other instruments (examples unit trust, investment fund, SICAV).

Naked Option An option bought or sold for speculation, with no offsetting existing position in the underlying behind it.

Naked Short Selling A strategy where an investor or fund manager believes that a security will fall in price and sells the security, which they do not own, with the expectation of buying back at a lower price.

Naked Writing Where the seller does not own the stock corresponding to the call option which he has sold and would be forced to pay the prevailing market price for the stock to meet delivery obligations, if called.

Names Individuals of Lloyds of London who join together in syndicates to write insurance business. Their liability is unlimited and therefore all their personal wealth is at risk.

NASDAQ National Association of Securities Dealers Automated Quotation system, an electronic market in the US, Dubai and Europe.

National Securities Depository Depository for the National Stock Exchange in India.

NCB An abbreviation used to describe a non-central bank.

Net Asset Value (NAV) In investment funds, the market value of the fund share or unit. It is common practice for an investment trust to compute its assets daily, or even twice a day, by totaling the closing market value of all securities and assets (i.e. cash) owned. All income, liabilities and expenses are deducted, and the balance is divided by the number of shares outstanding. The resulting figure is the net asset value per share.

Hedge funds, property funds and closed end funds will calculate the NAV periodically.

Net Present Value (NPV) The net total of several present values (arising from cash flows at different future dates) added together, some of which may be positive and some negative.

NEFT Abbreviation for National Electronic Funds Transfer system used in India

Netting Trading partners offset their positions thereby reducing the number of positions for settlement and also the counterparty risk. Netting can be on a *bilateral, multilateral or continuous net settlement* basis.

Used by clearing houses who net members trades for settlement.

New Issues Companies raise capital by issuing new securities. New issue is the name given to the bonds or stocks offered to investors for the first time.

Nikkei Dow Index Main share index in Japan.

Nikkei Futures Futures contracts traded on the Tokyo Stock Exchange, SGX and OSAKA exchange.

Nil paid rights price Ex-rights price less the subscription price of a rights issue.

No-Par Value (NPV) Stock with no cash value assigned on the issuance of certificates. Note: NPV is also an abbreviation for net present value.

Nominal Amount Monetary value stated on the face of a security (principal value, par value). Securities processing: number of securities to deliver/receive.

Nominal value of a bond The value at which the capital, or principal, of a bond will be redeemed by the issuer. Also called par value or face value.

Nominal value of a share The minimum price at which a share can be issued. Also called par value. A share where the minimum price or more has been paid on issue is known as "fully paid".

Nominated Advisor Firm appointed to advise directors of companies looking to list on the LSE's Alternative Investment Market on their responsibilities. Role can be combined with that of nominated broker.

Nominate Broker Firm appointed to assist dealing in AIM listed securities.

Nominee An organisation that acts as the named owner of securities on behalf of a different beneficial owner who remains anonymous to the company.

Non-callable Cannot be redeemed by the issuer for a stated period of time from date of issue.

Non clearing member A member of an exchange who does not undertake to settle their business. This type of member must appoint a clearing member to register all their trades at the clearing organisation.

Non-competitive bid In an auction, bidding for a specific amount of securities without mentioning a price. Usually, the price paid will be equal to the average of the accepted competitive bids.

Non-cumulative preference share If the company fails to pay a preference dividend the entitlement to the dividend is simply lost. There is no accumulation.

Non-deliverable forward(NDF) A forward contract that is cash settled.

Example: A foreign exchange forward outright where, instead of each party delivering the full amount of currency at settlement, there is a single net cash payment to reflect the change in value between the forward rates transacted and the spot rate two working days before settlement.

Non-Private Customer A person who is not a Private Customer or who has requested to be treated as a Non-Private Customer.

Non-Profit Policy An endowment or whole life policy where the benefit is a guaranteed sum only.

Non-Voting Shares Some companies have two types of shares. In such cases for example an investment fund, voting shares are restricted to owners and directors to maintain control, whereas non-voting shares are held by investors.

Where a corporate has issued non-voting shares they generally are priced lower than the voting ordinary shares as they have less shareholder rights.

Normal Bonus The annual bonus paid on a with profits policy.

Normal Market Size (NMS) Minimum size in which market makers must quote bids and offers on LSE. Also the minimum shares that can be transferred, on most markets this is one share.

Nostro A bank's nostro account is its currency account held with a foreign bank.

Nostro reconciliation Checking the entries shown on the bank's nostro account statement with the bank's internal records (the accounting ledgers) to ensure that they correspond exactly.

Note Bonds issued with a relatively short to medium maturity are often called notes.

Notional The notional amount of a transaction where the value itself is not transferred in settlement. For example contracts for differences require a notional principal amount on which settlement can be calculated but that notional amount is not settled. An interest rate swap would be another example.

Novation The process where registered trades are cancelled with the clearing members and substituted by two new ones – one between the clearing house and the clearing member seller, the other between the clearing house and the clearing member buyer.

The legal transference of an interest or obligation to another party that replaces the original party.

NSCC National Securities Clearing Corporation – clearing organisation for US shares.

NSFR Net Stable Funding Ratio – under EMIR the requirement for banks to have funding ratios that will enable it to manage assets and liabilities under stress scenarios like volatility.

NYMEX New York Mercantile Exchange; the largest energy derivative exchange and part of the Chicago Exchanges Group.

NYSE New York Stock Exchange which acquired Euronext but is now part of ICE.

OASYS Trade Confirmation system for US brokers operated by Thomson Financial Services.

OATs Obligations Assimilables du Tresor – a 7–10-year French Treasury bond.

Obligation netting An arrangement to transfer only the net amount (of cash or a security) due between two or more parties, rather than transfer all amounts between the parties on a gross basis.

OEICs A style of investment funds similar to unit trusts and common in European countries. Abbreviation for open ended investment company. OEICs Are investment funds that “pool” investor's money

ICVC (Investment Company with Variable Capital) is a newer name for the well-established OEIC structure.

In Europe a common product that is an open ended investment structure is a SICAV.

Unit trusts differ from OEICs & ICVCs, in that they often have dual pricing, with a bid to offer price spread. OEICs/ICVCs have a single price for buying and selling, based on the daily valuation of the underlying investments carried out at their mid-market price. While technically speaking the structure of the three types of funds are different, from an investor's perspective they are all collective investments.

OFAC The Office of Foreign Assets Control (OFAC) of the US Department of the Treasury administers and enforces economic and trade sanctions based on US foreign policy and national security goals against targeted foreign countries and regimes, terrorists, international narcotics traffickers, those engaged in activities related to the proliferation of weapons of mass destruction, and other threats to the national security, foreign policy or economy of the United States. OFAC acts under Presidential national emergency powers, as well as authority granted by specific legislation, to impose controls on transactions and freeze assets under US jurisdiction. Many of the sanctions are based on United Nations and other international mandates, are multilateral in scope, and involve close cooperation with allied governments.

Off-balance sheet A transaction whose principal amount is not shown on the balance sheet because it is a contingent liability or settled as a contract for differences. It is not an asset.

Off-Market Coupon Swap A swap in which the coupon is above or below the current market value.

Offer for Sale Historically, the most popular form of new issue in the UK for companies bringing their securities to the stock market for the first time. The company offers its shares to the general public. Often called an IPO, initial public offering and is made via the issuing of a Prospectus or Offering Document.

Offering Memorandum An offering document or letter which sets out the terms of the offer of shares in a company or fund.

Offer Price The price at which a trader or market maker is willing to sell a contract.

Office of Fair Trading (OFT) Government department which advises the Secretary of State for Trade and Industry on whether or not a proposed takeover should be referred to the MMC for full investigation.

Offshore Relates to locations outside the regulation, tax and legislative authorities of the investor. Popular offshore locations are Channel Isles, Cayman, BVI, Isle of Man, Bermuda etc.

Offshore may not necessarily be outside the national boundaries of a country. In some countries, certain banks or other institutions may be granted offshore status and thus be exempt from all or specific controls or legislation. In others areas are designated as benefiting from different tax and or regulatory regimes, e.g., Luxembourg, Dublin.

Offshore locations allow investors to have a different tax and or regulatory regime applied to their investments whilst in that location however should the money be brought back “onshore” i.e. from the Bermuda to the UK then it would become subject to the tax and regulation of that jurisdiction.

Offshore Financial Centre Another name for an international financial centre located in a recognized offshore location. May be certain tax and regulatory advantages.

Omnibus Account Account containing the holdings of more than one client.

On-balance sheet A transaction whose principal amount or value is shown on the balance sheet.

On-line Processing which is executed via an interactive input onto a PC or stationary terminal connected to a processing centre.

Open Economy A country where there are no restrictions on trading with other countries.

Open Ended Fund Type of investment such as Unit Trusts or OEICs which can expand by issuing more units or shares usually without limit. Can of course also reduce in size by cancelling shares or units upon redemption by investors.

Open Ended Investment Company (OEIC) New corporate structure introduced in 1997. It is a form of collective investment vehicle. See OEICS.

Open Order A purchase or sale order at a stated price that is good until cancelled or executed.

Open Outcry The style of trading whereby traders face each other in a designated area such as a pit and shout or call their respective bids and offers. Hand signals are also used to communicate. It is governed by exchange rules.

Opening Trade A bought or sold trade that is held open to create a position.

Open Interest In derivatives exchanges the number of contracts both bought and sold which remain open for delivery on an exchange. Important indicator of liquidity.

Open Position The number of contracts or shares which have not been off-set. The resultant position will be held in the clearing organisation, firm or custodian records at the close of business.

Operational risk The risk of losses resulting from inadequate systems and control, human errors or management failings.

Option An option is in the case of the *buyer*; the right, but not the obligation, to take (call) or make (put) for delivery of the underlying product and in the case of the *seller*; the obligation to make or take delivery of the underlying product.

Option Premium The sum of money paid by the buyer, for acquiring the right of the option. It is the sum of money received by the seller for incurring the obligation, having sold the rights, of the option.

Note: It is the sum of the intrinsic value and the time value that makes the price of the option.

Optional Dividend Dividend that can be paid either in cash or in stock. The shareholders entitled to the dividend make the choice when the option is offered by the issuer.

Options On Futures These have the same characteristics as an option, the difference being that the underlying product is either a long or short futures contract. Premium is not exchanged as the contracts are marked to market each day.

Order driven market A stock market where brokers acting on behalf of clients match trades with each other either on the trading floor of the exchange or through a central computer system.

Ordinary Shares Known as common stock in the US and equities in the UK. Shareholders are the owners of a company and are protected so the maximum loss is the value of their shares and not the full debt of the company. In addition to ordinary shares there can also be preferred and deferred shares.

Oversubscribed Circumstances where people have applied for more shares than are available in a new issue.

Out-of-the-money A call option whose exercise price is above the current underlying share price or a put option whose exercise price is below the current underlying share price. This option has no intrinsic value.

Out of Pocket Expenses Expenses and costs which are charged to the client without taking any profit.

Outperformance Term used to describe a fund/fund manager that beats a stock market index or an average of competing funds.

Out-Trade A trade which has been incorrectly matched on the floor of an exchange.

Over-The-Counter (OTC) A one-to-one agreement between two counterparties where the specifications of the product are completely flexible and non-standardized. A bilaterally negotiated transaction.

Overdraft Use of a financial facility where there is withdrawal of more money than is in a bank account at a given time.

Overnight Money Money placed on the money market for repayment for the next day.

Oversold Where a rush of selling shares has depressed the market for no justifiable reason. Can also be a term used to describe a dealing error i.e. Sold 100 instead of 10.

Panel on Takeovers and Mergers (PTM) A non-statutory body comprising City institution which regulates take-over activities.

Par Value See *Nominal Value*.

Par Yield Curve A curve which measures yield over time.

Pair Off Back-to-back trade between two parties where settlement occurs only by exchanging the cash difference between the two parties.

Pari Passu Without partiality. Securities that rank pari passu, rank equally with each other.

Participant The term used to describe a user or member of a payment system.

Participation Swap A transaction which operates as a cap on a full notional principal if LIBOR is set above the agreed interest rate and operates as a swap on a portion of the notional principal if LIBOR is set below the agreed interest rate.

Passive Manager A fund or manager where the fund is invested in such a way that it replicates all or a large part of a market. An example is a tracker fund where the fund is invested proportionally to an index it tracks.

Payer The payer in a swap is the counterparty which pays the fixed rate and receives the floating rate. The other party is the payer of floating and receiver of fixed.

Paying agent A bank which handles payment of interest and dividends on behalf of the issuer of a security.

Payment Date Date on which a dividend or an interest payment is scheduled to be paid.

Payment System A system or network by which a payment is processed between payer and payee.

PSD2 Payment Services Directive, updated EU Directive applicable to the payments industry.

PSR Payment System Regulator in the UK.

Pension Fund Fund set up by a corporation, labor union, governmental entity or other organisation to pay the pension benefits of retired workers. Pension funds invest billions of dollars annually in the securities markets and are therefore major market players.

In the UK individuals can set up personal pensions and an individual can also contribute to corporate pension schemes.

Performance Fees Fees payable to a fund manager when the value of a portfolio has risen above a previous level (high water mark) and or has met a benchmark over a period (hurdle rate). Usually a percentage of the growth in the period. Common in hedge funds.

Perpetual bond A bond which has no redemption date.

Physical Delivery Used to describe a derivative contract that on delivery will result in the asset being delivered, e.g., bond futures, stock options, commodities.

Also the delivery of a security in paper rather than electronic form.

PICs Term used for property index certificates, a type of bond.

PIFs Term used for forward contracts based on a property index i.e. property index forwards.

Pit The designated area on the market floor where a particular contract is traded. In the LME it is termed the ring.

Placement The first stage of money laundering, in which the money is passed placed in the banking system. See layering, integration. *Note:* not to be confused with the placement of new securities directly with the clients of an investment bank rather than being offered publicly or the placing of shares in a hedge fund.

Placement Memorandum Offering document for a hedge fund.

Placing Another term for the procedure used for new issues where a securities house contracts its own clients to offer them stock. It is almost always used for new issues of international/eurobonds and sometimes for equities.

Plain Vanilla or Vanilla Swap A swap which has a very basic structure.

Portfolio List of investments held by an individual, fund portfolio or company, or list of loans made by a bank or financial institution.

Power of Attorney The legal authority for one party to sign for and act on behalf of another party.

Pre-emption Rights The right of existing shareholders purchase shares in a new issue to maintain their percentage holding. Normally happens either when a company is trying to raise cash or as a result of a take-over for paper which the seller does not want.

Preference Shares Shares that have preferential rights to dividends, usually a fixed sum, before dividends are paid out to ordinary shareholders. They usually carry no voting rights. The rights of preference shareholders are established in a company's articles of association and may differ between companies in a variety of ways.

Premium An option premium is the amount paid up-front by the purchaser of the option to the writer.

Also the amount of a price above the fair value of the instrument.

Pre payments An accounting process to reflect a payment in one accounting period that is for services in a different period.

Present value The amount of money which needs to be invested (or borrowed) now at a given interest rate in order to achieve exactly a given cash flow in the future, assuming compound re-investment (or re-funding) of any interest payments received (or paid) before the end. See future value.

Pre-settlement Checks and procedures undertaken immediately after execution of a trade prior to settlement. Can be part of clearing. Often carried out in the Middle Office.

Price/earnings Ratio The share price of a company divided by its earnings per share. A high p/e ratio implies that the company is well thought of for its future prospects.

Price (Conversion) Factor The price at which a bond would trade, per 1 nominal, to yield the notional coupon of the futures contract on the delivery day (or the first day in the deliverable month if this applies).

Price/Pricing Policy The method of establishing a price for the valuation process associated with assets. Used by fund administrators to value a portfolio and by middle office to value traders position. Assets can be 'easy' or 'difficult' to value and most firms will have a pricing policy that sets out the methodology to be used in the process.

Primary Dealer A dealer in the primary market for securities and other instruments.

Primary Market Market for the offer or placement of new securities such as international, domestic and foreign bond issues or equities. Any subsequent resale or purchase is handled on the secondary market.

Prime Broker Usually a major investment bank that offers hedge funds (and others) a broad range of services including execution, stock lending, loans, sales, custody services etc.

Prime Broker Agreement Key agreement between the customer (i.e. hedge fund) and the PB, can also cover Custody services offered by the PB.

Prime Rate Term used in US banks for the rate at which they lend to prime or first class customers. Similar to the base rate in the UK.

Principal protected product An investment whose maturity value is guaranteed to be at least the principal amount invested initially.

Principal Trading When a firm buys from or sells to another firm for its own account. Trades result in a profit or loss for the firm.

Principal-To-Principal Market A market where the clearing-house only recognizes the clearing member as the entity it will deal with and hold liable to settle transactions, and not the underlying clients of the clearing member.

Principal Value That amount inscribed on the face of a security and exclusive of interest or premium. The amount is the one used in the computation of interest due on such a security.

Private Customer An individual person who is a client of a broker.

Private Equity Shares in non-quoted (unlisted) companies i.e. privately owned companies.

Private Equity Fund A type of investment fund that invests in private companies often with a definitive life of the fund, typically ten years. Capital is committed to the fund by investors and drawn down over a period as the investments are made. The sponsor of the fund is often a private equity firm which uses investment advisers to identify the companies the fund will invest in. Can be established as a limited liability partnership (LLP) or limited liability company (LLC).

Private placement Issue of securities that is offered to a limited number of investor.

Privatization Process whereby the government puts state owned industries into the private sector, e.g., water, electricity. Usually involves an offer for sale of the shares in the newly created company. The government may continue to hold some shares.

Property Derivatives A market in derivatives traded OTC and based mainly on swaps utilising the Investment Property Databank (IPD) indices versus Libor or index versus index

Property Management Company (PMC) A management company that deals with the day to day operation of physical property owned by another party for example a property fund

Proprietary Trader A trader who deals for an organisation such as an investment bank taking advantage of short term price movements as well as taking long term views on whether the market will move up or down. See also principal trading.

Prospectus A document that sets out the terms of the offer to subscribe for shares in a company or investment fund.

Protected Funds Funds other than money market (cash) funds which aim to provide a return of a set amount of capital back to the investor, with the potential for some growth.

Proxy Appointee of a shareholder who votes on his behalf at company meetings.

Proxy Statement Material information to be given to a corporation's stockholders prior to solicitation of votes.

PSD2 Payment Services Directive, updated EU Directive applicable to the payments industry.

PSR Payment System Regulator in the UK.

Public Offering Offer of securities to the general public.

Public Placement An issue of securities that is offered through a securities house to institutional and individual clients.

Put Option An option that gives the buyer the right, but not the obligation, to sell a specified quantity of the underlying asset at a fixed price, on or before a specified date. The seller of a put option has the obligation (because they have sold the right) to take delivery of the underlying asset if the option is exercised by the buyer.

Putable In the case of a bond, it is the right of the investor to sell the bond back to the issuer. In the case of a swap, it is the right of the fixed rate receiver to cancel the swap.

Queuing A process used by a system or originator of an instruction such as money transfer or a transaction settlement pending sufficient cover such as cash, credit, collateral or assets to complete the process.

Quoted Colloquial term for a security that is traded on the Stock Exchange.

Quote Driven Dealing system where some firms accept the responsibility to quote buying and selling prices.

Ramp A method employed to inflate a share price with the intention of selling before the price drops back again.

Also the period associated with a CDO where there is no return to the investors while the value "ramps up".

Range forward A forward outright with two forward rates, where settlement takes place at the higher forward rate if the spot rate at maturity is higher than that, at the lower forward rate if the spot rate at maturity is lower than that, or at the spot rate at maturity otherwise. See collar.

Rating Evaluation of risk by rating services such as Moody's or Standard and Poor's on companies, governments, countries and financial products.

RCH Abbreviation for recognized clearing house under the UK financial services act

Real Interest Rate The rate of interest after taking inflation into account.

Real Time Gross Settlement Gross settlement system where trades are settled continuously through the processing day – abbreviate to RTGS.

Realized profit/loss Profit or loss which has arisen from a purchase and sale of an asset.

Receiver Person, usually an accountant, appointed by creditors in an attempt to rescue an ailing company through tighter financial controls than were already in place. Generally, they succeed only in utilising the company assets to reimburse secured creditors after which any remaining creditors can appoint a liquidator.

Also applicable in swaps as the opposite of the payer.

Recession Temporary reduction in trade that creates a downturn in the economy. A number of causes can create this situation such as falling share and property prices, lack of consumer confidence, unemployment etc.

Usually two successive months or periods of no or negative growth in an economy is considered a recession.

Recognized Investment Exchange (RIE) Status given by a regulatory body to an approved exchange.

Reconciliation The comparison of a person's, a fund's or firms records of cash and securities positions with records held by another party and the investigation and resolution of any discrepancies between the two sets of records,

For example a fund portfolio to assets held by a custodian or a cash position to a bank account.

Record Date The date on which a securities holder must hold the securities in order to receive an income or entitlement.

Redemption The purchase and cancellation of outstanding securities including shares or units in a fund through a cash payment to the holder by the issuer.

Redemption Price A price at which bonds may be redeemed, or called, at the issuer's option, prior to maturity (often with a slight premium).

The redemption (sale) of units or shares in a fund.

Reference Term used in OTC derivatives to determine the entity or price or source that will in turn determine value, settlement etc. e.g., Libor as the reference entity in an interest rate swap.

Referral A proposed takeover is investigated thoroughly and if there are concerns that it is not good for the market i.e. it may create a monopoly, it may be referred to a government department for a decision on whether to allow the offer to proceed.

Reflate The opposite of deflation is reflation and is used by governments to increase consumer spending.

REGIS-TR Clearstream operated trade repository for OTC derivatives.

Registered Bond A bond whose owner is registered with the issuer or its registrar.

Registered Title Form of ownership of securities where the owner's name appears on a register maintained by the company.

Registrar An official of a company who maintains its share register.

Registrar of Companies Government department, in the UK Companies House, responsible for keeping records of all companies.

Relative Return A fund's performance relative to the rest of its sector, or an index.

Renminbi/Yuan Currency of China, approved as a world main currency by the International Monetary Fund in 2015.

Reorganization Generally any event where the equity, debt or capital structure of a company is changed.

Replacement cost The mark-to-market loss which would be incurred if it were necessary to undertake a new transaction to replace an existing one, because the counterparty to the existing transaction defaulted.

Repurchase Agreement (Repo) Borrowing funds by providing a government security for collateral and promising to 'repurchase' the security at the end of the agreed upon time period. The associated interest rate is the 'repo-rate'.

Reputational risk The risk that an organization's reputation will be damaged.

Reserve Currency The trading balance of a country, normally held in readily convertible currencies such as sterling, dollars, yen etc.

Reserves The assets of a country are made up of in part, its financial reserves such as gold, convertible currency, International Monetary Fund credits and special drawing rights. Other assets include property, overseas investments etc.

Reset Date The date when periodic payment terms are established i.e. floating rate on a swap. See also rollover.

Resettable Coupon A bond that allows the issuer to reset the coupon midway through the life of the bond.

Residence The status determining the extent to which a person is taxed in a country with a global system of taxation. Residence is determined according to periods of physical presence in the country.

Resolution Proposal on which shareholders vote, put them at a meeting.

REIT Real Estate Investment Trust.

Retail Fund An investment fund authorised by a regulator that can be marketed to almost any kind of investor including those with limited understanding of capital markets. There is a correspondingly high level of protection for investors through the regulations.

Retail Price Index (RPI) Index that shows the movement of a basket of prices, in the UK used as a measure of inflation.

Retractable Coupon A bond that allows the investor to sell the bonds back to the issuer at par if the new fixed rate on a resettable coupon bond is unacceptable.

Return The amount by which savings may increase due to a combination of interest or dividend income and capital growth.

Reverse Repo Purchase of gilt where the price and date for its re-sale is fixed at the same time.

Reverse Take-Over The acquisition of a company by a smaller concern. Can also apply where a large organisation takes over a smaller one but the overall running of the amalgamated company would be by the latter.

Reverse Yield Gap Usually equities produce a higher yield than bonds. When the converse applies it is known as the Reverse Yield Gap.

Rights Issue Offer of new shares made to existing shareholders under a pre-emptive right where the shares are first offered to existing shareholders but they have no obligation to buy them.

Right Of Offset Where positions and cash held by the Clearing Organisation in different accounts for a member are allowed to be netted.

Risk A measure of the probability that the value of savings and the income from them will fall as well as rise.

Risk Warning Document that must be despatched and signed by private customers before they deal in traded options.

Risk-weighted assets See capital adequacy ratio.

Roller coaster swap A swap in which the notional principal amount varies up and down over the life of the swap.

Rollover A rollover can be when the next leg of a swap is calculated or when a futures position in an expiring month is “rolled” to the next maturity. For example the position in the March expiry is closed out and reopened in the next available maturity, say the June expiry.

Rolling Settlement System used in most countries including England. Trades are settled a set number of days after being transacted.

Rouble Currency of Russia.

Round Lots The minimum amounts for which dealer's quotes are good.

Round Tripping The combined commission or fees for both the opening and closing leg of a trade.

Running a Book Firms who are buying and selling stock for themselves hoping to profit from price differences are said to run a book in that stock.

Safekeeping Holding of securities on behalf of clients. They are free to sell at any time. Part of the services offered by custodians.

Sale of rights nil paid The sale of the entitlement to take up a rights issue – see also nil paid price.

Same Day Funds Refers to the availability of funds on the same day as they are deposited.

Samurai Bond A bond denominated in JPY and issued in the Japanese capital market by a foreign borrower.

Savings Account An interest bearing account with a bank or other savings institution which normally does not provide cheque and other transaction facilities.

Sawtooth risk A swap in which the notional principal amount varies up and down over the life of the swap, with an overall upward or downward trend.

Scaling Down When a new issue is oversubscribed, the procedure whereby applicants receive a proportion of the number of shares for which they applied.

Scheme Particulars Offering document associated with for example Unit Trusts.

Scrip Dividends Scrip dividends options provide shareholders with the choice of receiving dividend entitlements in the form of cash, shares or a combination or both. The amount of stocks to be distributed under a scrip option is calculated by dividing the cash dividend amount by the average market price over a recent period of time.

Scrip Issue See *Bonus Issue*.

SD Indeval Clearing House and Depository for the Mexican market.

SEATS Plus An order-driven system used on the London Stock Exchange for securities which do not attract at least two firms of market makers and for all AIM listed securities.

Secondary Market Market place for trading in existing securities. The price at which they are trading has no direct effect on the company's fortunes but is a reflection of investors' perceptions of the company.

Sectors Investment funds are divided into a variety of categories to keep together funds of a similar type, for example, 'cash', 'North American, European. The areas they operate in are called sectors.

Stock markets are also divided into sectors, e.g., financials, energy, transport etc.

Secured A debt issued by a company that is charged against an asset, or a private transaction like a mortgage, where the property is charged against the loan to purchase it.

Securitization The use of securities and other assets to guarantee the repayment of a debt. An example would be using the rents from a property to guarantee a bond that is issued to raise capital to purchase more property.

Securities Can mean any instrument in the markets but generally refers to bonds and equities.

Securities House General term covering any type of organisation involved in securities although usually reserved for the larger firms.

Securities Lending Loan of securities for a fee by an investor to another (usually a broker-dealer), usually to cover a short sale or to enable settlement of a trade. Collateral is required see also stock lending.

Securities and Exchange Commission (SEC) The overall securities and equity derivatives regulatory body in the USA.

SEDOL Stock Exchange Daily Official List, a securities numbering system assigned by the International Stock Exchange in London.

Segregated account Account in which there is only the holdings of one client.

Segregation Of Funds Regulatory requirement where the client assets are held separately from those assets belonging to the broker, custodian or other firm operating for the client.

SEHK Stock Exchange of Hong Kong.

Selective Marketing See *Placing*.

SEPA Single Euro Payments Area—integrated payment process for euro denominated transactions for EU and EFTA countries.

Service Level Agreement An agreement between the service supplier and the customer for instance a custodian and the customer will have a SLA covering their relationship.

Can also apply internally within a firm particularly in the area of IT and the business units.

SETS Abbreviation for the London Stock Exchange Trading System.

Settlement The fulfilment of the contractual commitments of transacted business.

Settlement Date The date on which a trade is cleared by delivery of securities against funds (actual settlement date, contractual settlement date).

Share Futures Based on individual shares. Delivery is fulfilled by the payment or receipt of cash against the exchange calculated delivery settlement price.

Share Option A right sold to an investor conferring the option to buy or sell shares of a particular company at a predetermined price and within a specified time limit.

Shell Company A company in name only but quoted on the stock exchange. Shells are used when setting up a new business avoiding the sometimes long and expensive process.

Shogun Bond Straight bond denominated in foreign currency, other than JPY, issued by a foreign issuer on the Japanese capital market.

Short/Short Position A sold position in a derivative or security that is held as an open position.

Short Coupons Bonds or notes with a short current maturity.

Short Cover The purchase of a security that has been previously sold short. The purpose is to return securities that were borrowed to make a delivery.

Short-dated Gilt Gilts due to be redeemed within the next seven years, according to the LSE, (FT states up to 5 years).

Short Position Position created by the selling of securities, commodities etc. which are not owned.

Short Sale The sale of securities not owned by the seller in the expectation that the price of these securities will fall and can be bought later at a lower price or as part of an arbitrage.

Short Selling Selling stock that you do not own. Requires the borrowing of securities to settle the trade.

Short-term Security Generally an obligation maturing in less than one year.

Short Termism An investment view that assumes a quick realization of profits.

SGX The merged central Stock Exchange of Singapore and the derivatives exchange SIMEX.

SICAV Abbreviation for the French: Sociétés d'Investissement à Capital Variable. A UCIT domiciled in Luxembourg or France

SICOVAM CSD for French corporate securities and OATs (now merged with Euroclear).

Simple interest Interest calculated on the assumption that there is no opportunity to re-invest the interest payments during the life of an investment and thereby earn extra income.

Single Currency Interest Rate Swap An interest rate swap where the interest payments are exchanged in the same currency.

Sinking Fund In the case of a loan repaid by instalments, each instalment can be considered to consist of two parts. One portion of each instalment represents the interest payable on the loan, the other portion, which represents the repayment of capital, is known as the “sinking fund”.

SIS SEGA Inter Settle – CSD for Switzerland.

Slump An excessive long-term recession with disastrous economic implications.

Soft Commodities Description given to commodities such as sugar, coffee and cocoa, traded through exchanges such as the NYSE Liffe.

Solvency II Directive An EU Directive that came into force in January 2016.

Sovereign Debt Securities Bonds issued by the government of a country.

Sovereign Wealth Funds Investment management operated on behalf of a country for example the Abu Dhabi Investment Authority.

SPAN Abbreviation for standardized portfolio analysis of risk. A form of margin calculation which is used by various clearing organizations

Speculation A deal undertaken because the trader or investor expects prices to move in his favor and thereby realize a profit.

Speculator The speculator is a trader or investor who wants to assume risk for potentially much higher rewards.

Sponsored Member Type of CREST member whose name appears on the register but has no computer link with CREST.

Spot delivery A delivery or settlement of currencies on the value date, two business days later.

Spot market Market for immediate as opposed to future delivery. In the spot market for foreign exchange, settlement is in two business days ahead.

Spot Month The first month for which futures contracts are available.

Spot Rate The price prevailing in the spot market.

Spread The difference between bid and asked price on a security.

Difference between yield on or prices of two securities of different types or maturities.

In underwriting, difference between price realized by an issuer and price paid by the investor.

Difference between two prices or two rates. What commodities traders would refer to as the basis.

A trading strategy in which a trader buys one instrument and sells another, related instrument with a view to profiting from a change in the price difference between the two. A futures spread is the purchase of one futures contract and the sale of another; an option spread is the purchase of one call (or put) and the sale of another.

The difference between the bid and offer prices in a quotation.

The difference between one price or rate and another, e.g., the extent to which a swap fixed-rate is higher than a benchmark Treasury bond yield, or the extent to which the floating-rate in a swap is above or below LIBOR.

Splitting Rights This is where an investors using a formula work out how many rights to sell to take up the rest of their entitlement for no cost.

SPV Special Purpose Vehicle, a structure used to create and hold assets. Found as or in structured products, some types of investment funds and offshore companies.

SRI An abbreviation for Socially Responsible Investment.

SSRC/CSCCRC The China Securities Central Clearing & Registration Corporation(CSCCRC) is responsible for the central depository, registration and clearing of securities. It carries out the T+1 settlement for A shares and T+3 for B shares.

Stamp duty Tax on purchase of property including shares in the UK.

Stamp Duty Reserve Tax (SDRT) (UK) Tax payable on the purchase of UK equities in uncertificated form (i.e. those held within the Euroclear system).

Standard and Poors U.S. indices on which futures and options contracts are based. CME introduced S & P 500 index futures as the first index based derivative.

Standard Settlement Instructions Instructions for settlement with a particular counterparty which are always followed for a particular kind of deal and, once in place, are therefore not repeated at the time of each transaction.

Standing Instruction Default instruction, e.g., provided to an agent processing payments or clearing securities trades; provided by shareholder on how to vote shares (for example, vote for all management recommended candidates).

Standing Order An instruction to a bank to pay regular agreed amounts on specified dates. These cannot be altered by the bank.

Stepped A stepped coupon is one that rises or falls in a pre-determined way over the life of an arrangement.

Stock In some countries (e.g., U.S.), the term applies to ordinary share capital of a company. In other countries (e.g., U.K.), stock may mean share capital that is issued in variable amount instead of in fixed specified amounts, or it can describe government loans, e.g., 'gilt edged stocks'.

Can also form part of the balance sheet of a company being the amount of assets held.

Stock Dividend Dividends paid by a company in stock instead of cash. Also called scrip dividend

Stock Exchange Electronic Trading System (SETS) Electronic dealing system for some stocks on the London Stock Exchange. It is an order book system.

Stock Market Indices They show how a specified portfolio of share prices are moving in order to give an indication of market trades. Each stock market of the world is represented by at least one index. The FT-SE 100 Index, for example, reflects the movements of the share prices of the UK's largest 100 quoted companies.

Stock market Term used to describe where securities are/have been traded, i.e. "today on the stock market shares closed higher".

Stock Index Futures/Options Based on the value of an underlying stock index like the FTSE 100 in the UK, the S & P 500 index in the US and the Nikkei 225 and 300 in Japan. Delivery is fulfilled by the payment or receipt of cash against the exchange calculated delivery settlement price.

These are referred to as both indices and indexes.

Stock Lending Process of lending, for a fee, securities against collateral.

Stock Lending Agreement The terms under which the lender and borrower enter into the loan and which carries important information about early termination of the loan, substitution of collateral etc. A Global Master Securities Lending Agreement has been created by the International Securities Lending Association (ISLA).

Stock (or Bond) Power A legal document, either on the back of registered stocks and bonds or attached to them, by which the owner assigns his interest in the corporation to a third party, allowing that party the right to substitute another name on the company records instead of the original owner's.

Stock Split When an issuer splits its equity, it divides existing shares on a ratio, e.g., 1 x 50p nominal share becomes 5 x 10p nominal shares or 1 share with a price of €50 becomes 4 shares with a price of €12.50. There is no change to the overall value of the investors holding.

STP See Straight through Processing.

Stop (Order) An owner of a physical security that has been mutilated, lost or stolen will request the issuer to place a stop (transfer) on the security and to cancel and replace the security.

Also used when placing a deal i.e. "stop loss" sell or buy if a certain price is hit after I have traded.

- Straight Debt** A standard bond issue, without right to convert into the common shares of the issuer.
- STRATE** Electronic settlement and depository organisation for the Johannesburg Stock Exchange (Share Transactions Totally Electronic).
- Straddle** The purchase (or sale) of a call combined with the purchase (or sale) of a put at the same strike (generally purchased with both at-the-money).
- Straight-through processing (STP)** Computer transmission of the details of a trade, without manual intervention, from their original input by the trader to all other relevant areas – position keeping, risk control, accounts, settlement, reconciliation.
- Street Name** Securities held in street name are held in the name of a broker or another nominee such as a custodian.
- Strike price** The fixed price, per share at which an option (or warrant) conveys the right to call (purchase) or put (sell) the underlying shares.
- Strike price/rate** Also exercise price. The price or rate at which the holder of an option can insist on the underlying transaction being fulfilled.
- Strip** The purchase or sale of a series of consecutive interest rate futures contracts or forward rate agreements.
- Stripped Bonds (Strips)** Bonds where the rights to the interest payments and eventual repayment of the nominal value have been separated from each other and trade independently. Facility introduced in the UK for gilts in December 1997.
- Structured Product** A package of products, often but not always derivatives, created to meet the needs of a specific investor or group of investors. Can be designed in response to a request from a client or by a bank and then marketed to clients.
- Stump period** A calculation period, usually at the beginning or end of a swap, other than the standard ones normally quoted.
- Sub-custodian** A firm in a foreign country that acts on behalf of the global custodian as its custody agent.
- Subscription Price** Price at which shareholders of a corporation are entitled to purchase common shares in a rights offering or at which subscription warrants are exercisable.
- Subscriptions** In a bond issue, the buying orders from the lead manager, co-managers, underwriters and selling group members for the securities being offered.
- The amount payable by investors to acquire units or shares in a fund or new securities being offered by way of an offering or corporate action.
- Subsidiary** A company, at least 50% of which is owned by another company. See *Holding Company*.
- Surrender Value** The value for which a life assurance policy can be cashed in for prior to maturity.
- Swap** A transaction where two parties agree directly or through an intermediary to exchange flows and sometimes assets. Examples are interest rate swaps where interest flows based on a notional amount and a benchmark floating rate against a fixed rate are exchanged and currency swaps where the currencies and interest rates are exchanged at the beginning and end of the swap. Traditionally traded over the counter but some swaps are now being standardized and traded on exchanges.
- Swap Spread** The difference between the bid and offered side of a swap. Can also refer to the spread over treasuries – that is, the difference between the yield on the treasury note and the bid or offer on the swap.
- SwapClear** A clearing-house and central counterparty for swaps operated by LCH Clearnet.

Swaption An option convertible into a predetermined swap transaction. Options can be payers or receivers, American or European.

SWIFT Society for Worldwide Interbank Financial Telecommunications – secure electronic communications network between banks and other financial market institutions.

Switching The facility to move the money invested in a unit-linked policy or other type of investment from one fund to another.

Syndicate A group of bond houses which act together in underwriting and distributing a new securities issue or a group of insurers who operate as a syndicate each taking some of the exposure to the risk.

Takeover When one company obtains more than 50% of another company's shares.

Tap Stocks A portion of Gilt-edged securities that are held over after the day of issue and made available by the government broker to satisfy demand and to control interest rates, market prices and liquidity.

Tap issues are so called because amounts of the total issue can be issued as and when i.e. by turning on or off the “tap”.

TARGET(2) Trans European Automated Real Time Gross Settlement Express Transfer – system linking the real-time gross settlements for euros in the 15 European Union countries. Now superseded by TARGET2.

TARGET 2 Securities(T2S) A project to create a single securities and payment system in Europe to replace the current country by country systems. Migration of Euro stocks completed on the 18th September 2017.

Tax Avoidance The legitimate arrangement of a taxpayer's affairs so that he receives income or gains in such a way that takes him out of the tax regime altogether or reduces his tax liability. Tax avoidance is not illegal.

Tax Evasion Tax evasion means ignoring or concealing a tax liability which has already arisen. Tax evasion is a criminal offence.

Tax Haven Another name for an international financial centre where favorable tax laws apply.

Tax Reclaim The process that a global custodian and/or a holder of securities performs, in accordance with local government filing requirements, in order to recapture a allowable percentage of taxed withheld.

Tender Short futures positions that will, depending on the specific exchange, be tendered for delivery on expiry of the contracts or during a defined delivery period.

Tender Offer Formal offer to buy made to holders of a particular issue by a third party. Detailed offer is made by public announcement in newspapers and sometimes by personal letter of transmittal to each stockholder.

TER Abbreviation for Total expense ratio

Terms For a new securities issue, the characteristics of the securities on offer: coupon, amount, maturity.

Termination The cancellation of a swap or other derivative, agreement or contract. The terms and conditions under which termination can and will take place is set out in the documentation agreed between the parties to the trade or the agreement or contract.

Termination date The end date of a swap.

Tier Capital Capital adequacy related capital of a bank. Tier 1 is core capital Tier 2 is other undisclosed reserves, subordinated loan etc.

Theoretical Spot Rate The rate used as a discount factor to derive the zero-coupon yield curve.

Theoretical Value Another term for fair value of a futures or options contract.

Thin Market A period of sparse trade on the stock market that can affect prices and the ability to trade.

Tick Size The value of a one point movement in the contract price of a future.

Tied Agent An individual or business which only sells one company's products (such as life assurance) making no pretext of offering independent advice on all the products available.

Time Deposit Deposit on an account held with a financial institution for a fixed term or with the understanding that the depositor can withdraw only by giving notice.

Time Value The amount by which an option's premium exceeds its intrinsic value. Where an option has no intrinsic value the premium consists entirely of time value.

The element in the price of something that relates to the time to maturity, for instance it is part of the "fair value" of a futures contract.

Tom-Next Money placed on the money market from tomorrow for repayment the day after.

Tom/Spot Week Money placed on the money market from tomorrow for repayment one week after (Tom/Spot Month).

Total Expense Ratio (TER) A measurement of the expenses of an investment fund against the return of the fund.

Total Return Swap A total return swap is a derivative where one party, the ratepayer, makes periodic fixed or floating rate payments to another, the total return payer, and receives from the other the total return on some reference asset. Used in relation to credit and is therefore a term sometimes used in relation to credit derivatives.

Touch The best prices available for a stock on the stock market, looking at all market makers or other prices available.

Tracking Error The difference in returns between a fund and its benchmark; also the extent to which a tracker fund tracks its benchmark.

Trade Date The date on which a trade is made.

Trade Guarantees Guarantees in place in a market which ensure that all compared or netted trades will be settled as compared regardless of a counterparty default.

Trade Repository An organisation that records and reports to regulators non centrally cleared OTC transactions

Traded Option An option which is traded on an exchange.

Trader An individual who buys and sells securities with the objective of making short-term gains.

Transfer Change of ownership of securities or other assets. Final process of settlement of a trade or the movement of collateral.

Transfer Agent(Agency) Agent appointed by a corporation to maintain records of stock and bond owners, to cancel and issue certificates and to resolve problems arising from lost, destroyed or stolen certificates.

Maintains the record of subscriptions, redemptions and the register of ownership of units and shares in an investment fund. Also responsible for carrying out CDD and communicating with investors. Is an element of the fund administration process.

Transfer Form Document which owners of registered documents must sign when they sell the security. Not required where a book entry transfer system is in use.

Transparency The degree to which a market is characterized by prompt availability of accurate price and volume information which gives participants full knowledge of the details of transactions being executed on the exchange.

TRAX See Xtrakter.

Treasury Arm of Government responsible for all financial decisions and regulation of the financial services sector, for example HM Treasury in the UK.

Also Division within a firm dealing with funding, capital liquidity and cash flow management.

Treasury Bill Money market instrument issued with a life of less than one year issued by the US and UK governments.

Treasury Bonds (US) US government bond issued usually with a 30 year maturity. (also known as the “long” bond).

Treasury Note A government obligation usually with maturities of one to ten years, carrying a fixed rate of interest.

Treasury Notes (US) US government bond issued with 2-, 3-, 5- and 7- year maturity.

Treasury Operations The management of excess cash and funding requirements through purchasing and issuing financial instruments and the depositing and taking of cash deposits.

Treasury Operations teams support this process by recording and settlement of the transactions.

Tri-party Repo Repo which utilizes an intermediary custodian to oversee the exchange of securities and cash.

Triple A—rating The highest credit rating for a bond or company by Standard & Poors—the risk of default (or non-payment) is negligible.

Trust A legal arrangement where one person (the trustee) holds property (the trust property) on behalf of one or more other persons (the beneficiaries).

Trust Property The property put into trust by the settlor.

Trustee A trustee is appointed to oversee the management of certain funds. They are responsible for ensuring that the fund is managed correctly and that the interests of the investor are protected and that all relevant regulations and legislation are complied with including the trust deed, offering documents, prospectus etc.

The trustee owns the assets of the fund on behalf of the investors and only the trustee can create or cancel units in a unit trust.

Turn See *Spread*.

Turnaround Securities bought and sold for settlement on the same day.

Turnaround Time The time available or needed to settle a turnaround trade.

Turquoise Turquoise is a multi-lateral trading facility established by nine leading European investment banks, Its is a competitor to exchanges but is now owned by the London Stock Exchange.

Two-way Price Simultaneous prices in a stock quoted by a market maker, the lower at which he is willing to buy and the higher at which he is willing to sell.

Some unit trusts are quoted on a two or dual pricing basis being the price at which the manager is prepared to buy or liquidate units or sell or create new units. The pricing mechanism is controlled by regulations.

UCITS A European Union Directive for a retail fund template when authorised in a member state and complied with can then be marketed in all EU countries without need for further authorization. It stands for ‘*Undertaking for Collective Investments in Transferable Securities*’ and it is currently operating under its 4th version with UCITS V already in process.

Uncovered Dividends A dividend that is not paid out of profits and therefore means that the organisation has had to liquidate assets to make the payments.

Underlying Asset or Underlying The asset or product from which the future or option's price is derived and which may be deliverable. Another term used is reference entity.

Undersubscribed Circumstance when people have applied for fewer shares than are available in a new issue.

Underwrite Accept financial responsibility for (a commercial project); sign and issue (an insurance policy), thus accepting liability.

Underwriter(s) As part of a syndicate, a dealer who purchases new issues from the issuer and distributes them to investors.

Also the structurer of a CDO.

Institutions which agree to take up shares in a new issue if it is undersubscribed. They will charge an underwriting fee.

Insurance underwriters take on the risk of the insurance usually through syndication.

Unit Investment Trust A closed end fund used by small investors to spread investment risk.

Unit Linked Policy An endowment or whole life policy which invests in a unitized fund and the value of the policy is the value of the units purchased.

Unit Trust A system whereby money from a number of investors is pooled together and invested collectively on their behalf under trust law. Each owns a unit (or number of them) the value of which depends on the value of those items owned by the trust.

Unrealized profit Profit that has not arisen from a sale or purchase that offsets the original transaction – an increase in value of an asset for long position and a decrease in value for a short position. There can also be an unrealized loss on a position.

Up-and-in option A knock-in option where the trigger is higher than the underlying rate at the start. See down-and-in option, up-and-out option, down-and-out option.

Up-and-out option A knock-out option where the trigger is higher than the underlying rate at the start. See up-and-in option, down-and-in option, down-and-out option.

Value Added Tax A type of sales tax used in Europe.

Value at Risk (VaR) The maximum amount which a bank expects to lose, with a given confidence level, over a given time period.

Variance/Volatility Swap Swaps based on the volatility of an underlying index not the price or value.

Variation Margin The process of revaluing an exchange traded product each day.

It is the value created by recalculating the position using the closing price on the previous day versus the current closing price. It is physically paid or received each day by the clearing organisation to members and by members with their clients, although in the latter case a cash position in the client account is updated. The calculation is done on a mark-to-market basis.

Vega Another part of the “Greeks” and is a measure of the rate of change in an option's price caused by changes in volatility.

Venture Capital Funds Funds that are designed to raise capital from investors and to then invest the capital in newly formed unquoted or private equity companies.

Venture Capital Trusts Trusts set up to encourage investment in small to medium size businesses by investing in a range of companies thereby reducing some of the risk.

Volatility The degree of scatter of the underlying price or market when compared to the mean average rate. A volatile market experiences high degrees of scatter whereas a price or market lacking volatility is experiencing little movement away from the average.

Volatility trades like volatility swaps or option straddles use the degree of volatility change during a period.

Vostro A vostro account is another bank's account held at our bank in our currency.

VPC Swedish Central Securities Depository (Värdepappercentralen).

Wall Street Term used to describe the financial centre around the New York Stock Exchange, which is situated on the corner of Wall Street. Much the same as the Square Mile in London also known as the ‘City’.

Warehouse A swap portfolio held by a market-maker. The market-maker may enter into a swap and put it in the warehouse until a suitable counterparty can be found.

Used for storage of commodities during the delivery.

“Warehousing” may also be a term used when a large order for securities or derivatives is being completed over a period of time. The trades done are “warehoused” until the order is completed and allocated to the client or accounts within a client.

Warrants An option style product which can be listed on an exchange and raise money for the issuer, with a lifetime of generally more than one year.

Warrants are also issued for some commodities like for instance copper and these warrants entitle the holder to delivery of a certain amount of the metal, e.g., Copper warrants on the LME in London.

Warrant agent A bank appointed by the issuer as an intermediary between the issuing company and the (physical) warrant holders, interacting when the latter want to exercise the warrants.

Waterfall A term given to the order of the distribution of return in a private equity fund.

Withholding Tax. In the securities industry, a tax imposed by a government's tax authorities on dividends and interest paid to a person or entity outside of that country, which may be reclaimed if a tax treaty exists between the jurisdiction and the investor's jurisdiction.

Wire Term used to describe making a payment – “we have wired you te money today” Today the term electronic funds transfer is also used.

World Bank Survivor along with the International Monetary Fund of the 1944 Bretton Woods agreement. Officially the International Bank for Reconstruction and Development, its aim is to lend or guarantee loans to poorer countries by utilising aid from member countries.

Writer A person who has sold an open derivatives contract and is obliged to deliver or take delivery upon notification of exercise from the buyer.

In the insurance market the company, person or syndicate that is issuing the insurance i.e. the “writer” of insurance.

See also “underwriter”.

XETRA Dealing system of the Deutsche Börse.

Xtrakter MarketAxess operated trade repository for OTC derivatives and owner of the TRAX trade matching, transaction reporting, market and reference data system.

Yankee bond A US dollar bond issued in the USA by a non-USA issuer.

Yield Internal rate of return expressed as a percentage.

Yield Curve For securities that expose the investor to the same credit risk, a graph showing the relationship at a given point in the time between yield and current maturity. Yield curves are typically drawn using yields on government bonds, corporate bonds, swaps etc. of various maturities.

In effect a forecast of future returns that can be then used to present value instruments like IRS etc.

Yield to Maturity The rate of return yielded by a debt security held to maturity when both interest payments and the investor's capital gain or loss on the security is taken into account.

YUAN/Renminbi Currency of China.

Zero coupon Bond A bond issued with no coupon but at a price substantially below par (discount) so that only capital is accrued over the life of the loan, and yield is comparable to coupon bearing instruments.

Zero-Coupon Yield Curve When the theoretical spot rates are constructed as a curve to show yield over time.

Zloty Polish currency.

Important Note

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