Rule Financial

THE LIQUIDITY GAP

With the end of quantitative easing, is the next liquidity event just around the corner?

Are banks doing enough to strengthen their liquidity capabilities to avoid the moral hazard?

Contents

Foreword

Liquidity Management enables a bank to meet its financial commitments as and when they fall due. This requires that banks *know* their liquidity position – and that of their principal customers – at any given moment.

Yet despite the lessons of the recent past, all too fresh in the memory, it is surprising how many banks have failed to review and upgrade their liquidity management capability following the crisis.

But why? No technical or operational barriers exist and such action would reduce costs and position banks advantageously for the end of quantitative easing. At present the number of banks with an advanced liquidity management framework in place, now enjoying the associated competitive advantage, is limited to a handful.

This paper presents a strategic overview of different approaches taken, defines best practice and offers insight based on practical experience.

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Liquidity compliance: by-product of best practice?

There is an old saying that

'Cobblers' children have no shoes.'

Does this hold true for banks' liquidity management today?

Treasury and liquidity management have long been the poor relations of bank front office businesses. While significant investment has been made in many other 'income generating' areas, investment in the treasury function – its systems, controls and processes – has rarely grown at the same rate as the volume of transactions, the size of the balance sheet or the sheer complexity of the rest of the bank.

So when the liquidity crisis loomed into view three years ago, many banks struggled to respond, surviving only by bringing together multi-skilled *SWAT* teams to navigate their way through the crisis. These comprised experienced individuals from across the bank – from Treasury, Fixed Income, Equity Finance, Collateral Management, Risk and Payments. While this was highly effective, it exposed serious flaws. It demonstrated to the world – and to the bank's Board and risk officers – limitations in managing liquidity across business silos highlighting the urgent requirement for a major upgrade to liquidity management capabilities and practices.

Governments and regulatory bodies around the world have reacted to the liquidity crisis with impressive zeal. Banks now face an avalanche of regulation, with Bloomberg reporting over 50 separate proposals. Regulators are worrying where the next crisis is going to emerge while trying to make sure history doesn't repeat itself. Initiatives range from making sure banks are neither 'too big to fail' nor 'too safe to fail'. Others still are aimed at fixing some of the serious internal issues which contributed to the crisis.

Generally, banks have reacted by stuffing themselves full of liquidity, partly as a result of internal policy decisions and partly due to the impact of quantitative easing (QE).

Beyond this, their response has varied greatly. Certainly a number of European and US banks are addressing underlying weaknesses in their liquidity management systems ahead of forthcoming regulation, but by contrast some banks operating in the UK have undertaken a massive amount of work driven entirely by the regulatory threat. Much of this effort has been purely tactical, focused on meeting reporting deadlines or, as one senior Treasurer put it

'Banks are doing absolutely everything to achieve the minimum.'

Liquidity compliance: by-product of best practice?
Continued

In other words, despite meeting the reporting requirements, banks are simply not taking this golden opportunity to address the underlying weaknesses of their liquidity management. Why is this?

- **Simple, long term lack of investment.** Like the cobbler in the legend, banks often offer better liquidity management solutions to their customers than they employ themselves. Consequently they were poorly positioned to deal with the crisis and in an even worse position to comply with the emergency regulations within the timescales allowed. This is supported by the Senior Supervisors Group, who found that *'Financial Services firms need to make substantial investments in IT infrastructure if they are to overcome weaknesses in their risk management capabilities.'*
- **Responsibility for liquidity management varies** between banks and is often split between several departments: Treasury, Payments, Risk Management, Finance, Asset Liability Management (ALM), Collateral management and the Short Term Interest Rates desk. Too often a bank's liquidity experts know precisely what needs to be done but are not empowered to do it.

These issues are symptomatic of the siloed nature of many banks today and highlight a potential problem with future regulation. This is a wider banking problem, seen clearly in liquidity management, which prevents executive management insight and control across the bank as whole. The functional and business silos are reflected in banks' IT platforms and management practices. As it is unrealistic to breakdown the silos (given the scale, complexity and specialisation of many of the businesses) IT systems need to extend *across* the silos to provide the executive with the information tools to manage at an enterprise level.

No amount of regulation can address this issue: it is primarily an organisational problem, often acutely influenced by a bank's internal politics. The focus of this paper however, is on solutions to the process challenges in liquidity management rather than any organisational or management challenges.

In the context of liquidity management not all banks are the same.

One bank which invested in advanced liquidity management systems well ahead of the crisis, cites that decision as the crucial reason contributing to its survival as an independent bank. What's certain is that banks with strong liquidity management capabilities needed to expend less effort to meet the regulatory reporting requirements. Banking executives might consider asking themselves whether their own ability to comply is an indication that they have a strong liquidity management capability or if they simply have a short term tactical solution papering over the cracks.

Near term imperatives for addressing underlying weaknesses in liquidity management capabilities include: the end of QE, the mounting cost of liquidity and the opportunity to better understand customer behaviour to drive strategic decisions eg changing the customer portfolio mix, differentiated pricing, etc. In the UK the delay in introducing liquidity buffers provides a breathing space to address underlying weaknesses rather than focus on compliance.

In summary, experience suggests that compliance with reporting regulations should be a *by-product* of best practice, rather than the end goal. But, still at the cobbler's bench, here 'one size' does definitely not 'fit all'. Pragmatic, tailor-made approaches to liquidity management, where the combined priorities of safeguarding the bank, minimising the cost of compliance and delivering real efficiencies, will fuel competitive advantage.

A new perspective

Do banks simply *aspire* to comply with the new regulations or are there other business drivers at work? If they do aspire to something more than minimum compliance, what does *'good'* look like? Before answering the question directly, let's look briefly at the supermarket industry as an analogy of how banks could manage liquidity.

The following is not an in-depth case study, but it does identify some key characteristics to provide helpful comparisons with Treasury management.

Supermarkets have the following characteristics:

- A detailed understanding of the behaviour of their customers
- The ability to capture data at point of sale (EPOS) both for physical goods and the financial transaction
- Possession of central data storage allowing them to aggregate, store and analyse EPOS and supplier data
- The ability to anticipate customers' needs based on seasons, trends, the weather, pricing, advertising, customer loyalty cards, etc.
- Possession of an integrated supply chain, with automatic reordering and delivery to stores using inventory management software based on planned sales
- The ability to let buyers negotiate the best deals, with suppliers' contracts based on planned future consumption

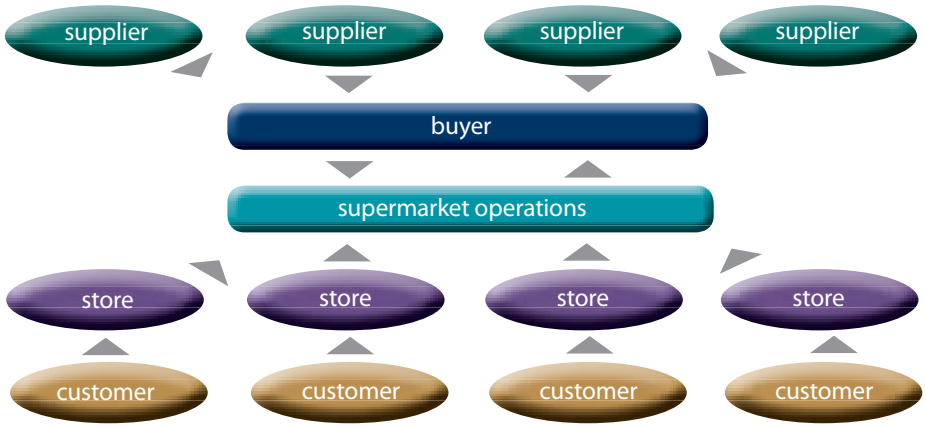


Fig.1 *The supermarket analogy*

Supermarkets' investment in these streamlined operations has improved the shopping experience for customers, saved the supermarkets money and proved simpler for their staff to operate. The continued rapid growth, profitability and customer loyalty all **testify to the importance of understanding customers' behaviour and anticipating their needs.**

Although this risks being an oversimplified analogy, it illustrates that supermarkets have used **available technology** and **strong operational processes** to good effect. Banks could usefully follow their lead in the area of Treasury management by becoming more efficient, more responsive to customers and, crucially, more resilient in a crisis.

A new perspective *Continued*

This brings us back to the poor, unshod cobbler's child, who goes barefoot while his father's clients walk tall.

Many banks are surprisingly unsophisticated in the processes they employ to manage their liquidity. If one or more of the following weaknesses applies to your organisation, now is the time to act, before another liquidity event strikes:

- Lack of comprehensive, real-time information for managing enterprise liquidity
- Little systematic understanding of the behaviour of your customers
- Limited ability to store and analyse historical cash flows or customer behaviour
- Limited use of systematic processes to predict future customer behaviour
- Poor processes to capture cash movements from across the bank
- Inaccurate intraday and end-of-day position forecasting
- Siloed liquidity management functions encouraging a lack of transparency

Managing cash and liquidity in this context is like managing commodities: just as supermarkets handle food and domestic essentials, banks need to develop highly efficient models and really take control rather than merely monitoring events. They need to manage proactively and dynamically, before events happen.

Benchmarking best practice

The diagram below *(figure 2)* shows a maturity model for liquidity management, where increasing sophistication delivers better risk protection, increased control, enhanced service and the opportunity to minimise cost.

It also highlights the challenge and benefits of an integrated approach across the Treasury, Collateral Management and Risk Management departments spanning various business and functional silos. Banks towards the right hand side of the chart are likely to have a significantly lower cost of liquidity (internal and regulatory), a firm-wide approach to dynamic liquidity management and will be benefiting from creating clear competitive advantages.

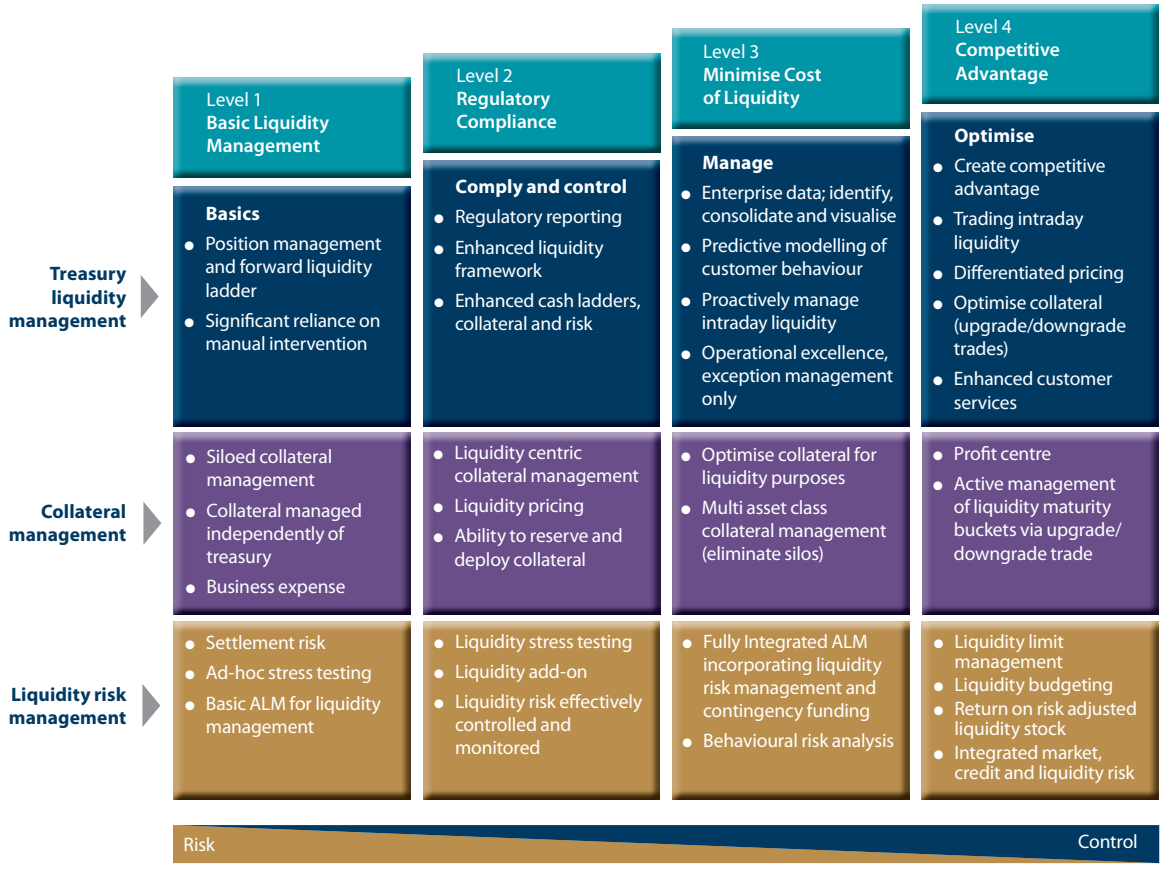


Fig.2 *Four levels of liquidity maturity*

Benchmarking best practice *Continued*

Clearly banks vary in their nature, size and complexity and therefore not all of them will aspire to be on the right hand of the graph. In most cases banks are either at (or actively working to get to) level 2. In some cases banks have level 3 or even level 4 capabilities but not across all dimensions of the maturity model.

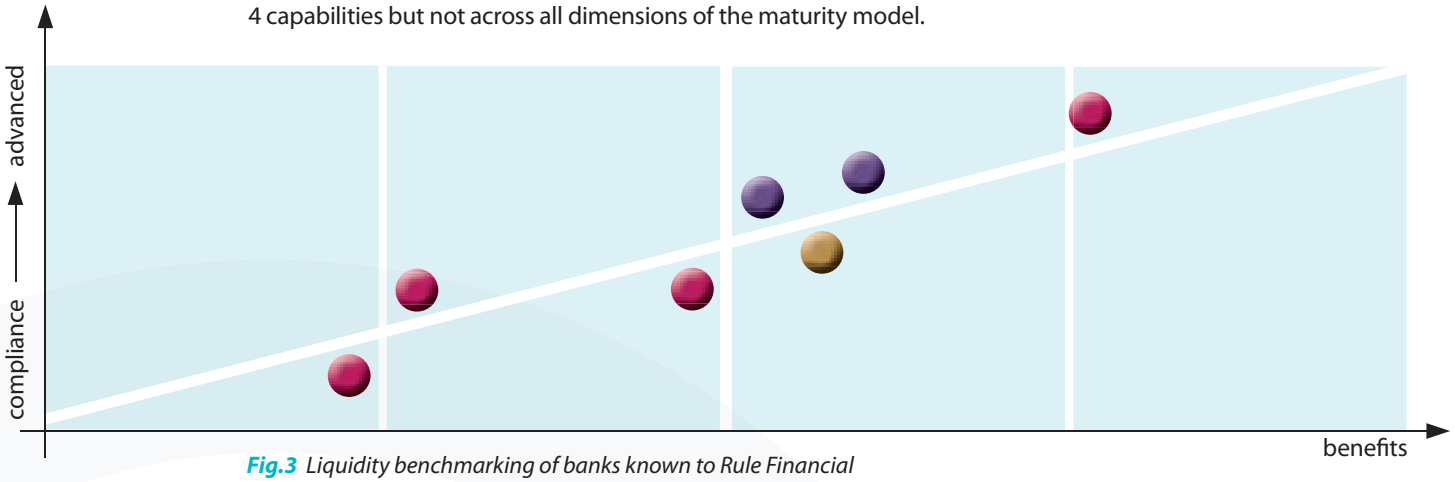


Fig.3 *Liquidity benchmarking of banks known to Rule Financial*

UK banks

European banks

US banks

There are also a small number of banks which already have advanced liquidity management capabilities. So in answer to the question *what does 'good' look like?* the bank identified on the right hand side of figure 3 has liquidity management capabilities in place to:

- Manage intraday liquidity dynamically
- Understand and track customer behaviour
- Accurately predict intraday and end-of-day positions
- Identify providers and takers of intraday liquidity, pricing them accordingly
- Manage multi-asset class collateral within a single joined-up function
- Employ STP processing capabilities, with real time reconciliation and full exception management processes
- Be compliant with the FSA's requirements and have plans in place to develop capabilities further

In the remaining sections of this paper we will explore some characteristics and benefits of pragmatic rather than tactical solutions; solutions which deliver clear benefits to banks and form important building blocks in an advanced liquidity management system.

Dynamic intraday liquidity management

Regulators rightly define liquidity management as the ability of a bank to meet its financial obligations as they fall due: they fall due when they hit the payment and settlement systems.

In other words, at any minute of any day a bank needs to have a full understanding of its own liquidity and exposure *and* those of its major customers, so that should a major event occur they can react accordingly.

Some aspects of intraday and short-dated liquidity management are clearly different from future liquidity management, such as same day transactions, the balancing of payment flows, the timing of cash movements, payment failures and timely identification of funds not received.

This is supported by BIS Principle 8 (see page 16), which states that

"A bank should actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions."

Banks are expected to

- **Measure** *expected daily gross flows,*
- **Monitor** *intraday liquidity positions against expected activities,*
- **Acquire** *sufficient intraday funding,*
- **Mobilise** *collateral as necessary,*
- **Manage** *the timing of liquidity outflows, and*
- **Deal** *with unexpected disruptions*

Managing the short end of the liquidity curve 'dynamically' is not difficult as a concept but is challenging in execution. It demands full visibility of all sources and uses of liquidity across all instruments and account balances, by currency at an enterprise level on a timely basis. Depending on the source, customer or type of transaction, the Treasurer will need different levels of granularity. Best-in-class banks will overlay contractual liquidity profiles with implied cash flows (ie from off balance sheet instruments) and predicted behavioural flows.

Dynamic intraday liquidity management

Continued

Behavioural cash flow analysis can be applied to both intraday and future cash flows and is a key risk management tool in predicting cash movements from multiple sources accurately. For example, the accuracy of predicting same day cash flows can be significantly increased through:

- **Flow analysis.** An insurance company regularly receives income from insurance premiums via direct debit. On receipt of the income, the insurance company has to do something with it. Much of the cash will flow out across the same day payment systems, perhaps into short term deposits, securities purchases and other investments. By understanding their customers' businesses, banks can balance the flows across the retail payments network with the same day flows across the intraday payment network.
- **Customer behavioural analysis.** Local Authorities tend to increase their deposit balances during the first half of the month and then pay out in the last week of the month as they make payroll and procurement runs, **except** in February and March when they have little in the way of tax receipts.

Ideally, each cash flow should be captured and stored so customer behaviour can be analysed to predict customer and counterparty liquidity patterns accurately. Visibility and predictability of cash movements are at the heart of dynamic liquidity management, but other processes are also necessary to let a bank manage short dated liquidity proactively. These are set out opposite.

The key difference between a more traditional intraday / short dated treasury environment and an environment where intraday liquidity is managed dynamically can be summarised on the following page in figure 5.

Management of Intraday Liquidity

Actual, predicted and implied cashflows are integrated into intraday and future positions. Greater accuracy gives traders significant competitive advantage

Central datastore captures all cash movements by customer for position, pricing and liquidity risk management purposes

Capability to model liquidity across a clearing day not only delivers competitive advantage in normal markets but also allows a bank to react appropriately in the event of liquidity crisis.

Life Cycle Management

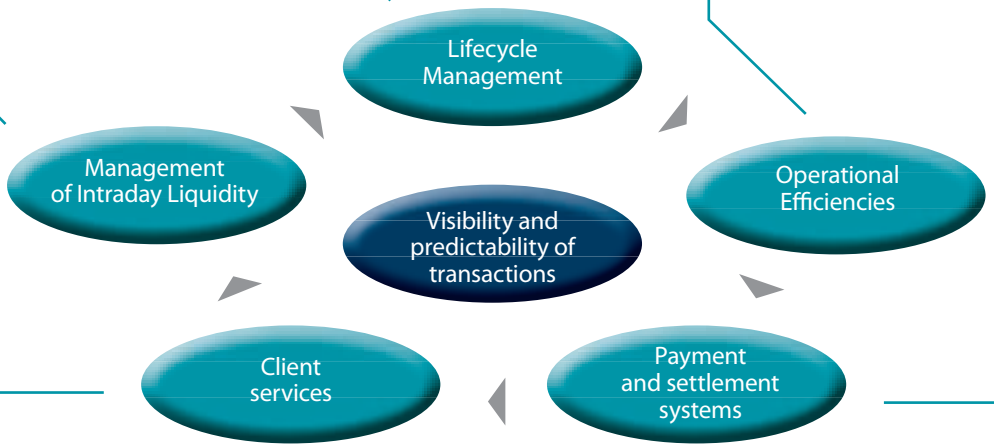
An holistic approach to treasury management, cashflow events associated with each trade or instruction are captured, tracked and traced through their full lifecycle. This approach allows for

- Full data visibility
- Full audit trail
- Highly systematised processes, with minimal manual intervention.

Operational Efficiencies

The role of the Middle Office changes from one of data acquisition and position keeping to one of added value.

- Forecasting through calibrating the behavioural modelling processes
- Identification of trends to spot stress situations earlier
- Real time exceptional management and alert monitoring
- Continuous reconciliation of expected and actual flows allowing problems to be identified and resolved same day.



Enhanced Customer Service

Techniques for dynamic intraday liquidity management can be used to provide exceptional customer service:

- Real time notification of cash movements, user defined alerts or notification, (eg delays or failures). By driving this information from the liquidity management system it is possible to significantly reduce latency
- It is also possible for banks to offer customers differentiated pricing and services based on behaviour
- Enhanced discussion with customers based on historic and new trading patterns.

Settlement Operations

- Liquidity management is closely tied to a bank's payment and settlement operation
- Integration into real time Nostro reconciliation processes increasing the percentage of automatic matching payment scheduling (flow control) to minimise intraday liquidity usage
- Identification of payment failures or non receipts in real time allowing proactive action to be taken
- Providing comprehensive MIS across all payment gateways, allowing for central monitoring of all payment activities and enhanced control.

Fig.4 *Key components of intraday liquidity management*

Before	After
Data sourced via multiple sources with a high degree of manual intervention/effort	Automatic real time and batch data feeds, little or no manual processes
Middle Office responsible for calculations of movements and projected end of day positions	**Accurate** enterprise wide system generating intraday and end of day **position management**
Limited ability to analyse and forecast expected movements	Accurate **predicted** customer behaviour to capture same day flows
Environment characterised by: manual processes, end user computing, human knowledge stores and lack of added value	**STP** with full exception management and alerts with minimal manual intervention. Smaller MO role with a high degree of focus on added value
Payment flow control managed independently of liquidity managers	**Active flow control**; timing of payments and receipts managed to minimise cost of liquidity
At times of crisis much effort on what and how questions	Key **decision support** tool allowing executives to act with confidence in times of crisis

Benefits

- ✓ Comprehensive and applied liquidity management framework
- ✓ Accurate intraday and end of day position management
- ✓ Identification and optimisation of available collateral
- ✓ Understanding of customer and client behaviour
- ✓ Enhanced controls and STP efficiencies
- ✓ New customer services and revenue streams
- ✓ Lower cost of liquidity
- ✓ Regulatory compliance

Fig.5 *Benefits of proactive liquidity management*

To make this clear, 'dynamic management' is about *proactive* management of cash flows rather than efficient operational control used for reconciliation after the event.

Liquidity centric collateral management

Banks manage collateral from a variety of business units, including fixed income repo, equities finance, prime services, derivatives, wealth, ABS and others. 'Best practice' is moving from multiple business units to a single function for collateral management, driven by

- **Clients,** who should be at the heart of a bank's collateral management strategy. Strong relationships with clients willing to accept types of collateral held by a bank provide clear channels to market, supporting banks under stressed scenarios. By aligning around clients, collateral operations can be managed more efficiently, using multi-asset class netting agreements.
- **Seizing opportunities to *optimise* liquidity** through liquidity centric collateral management. For example, by recalling a piece of AAA collateral which could be used in the liquidity buffer and replacing it with a BBB piece of collateral... or replacing a security deposited as collateral with a similarly-rated security but in a different asset class. This is not particularly complicated but it does rely on an enterprise view of deposited collateral across all asset classes and organisational design and incentives to allow banks to achieve significant efficiencies, further reducing costs. It also needs advanced systems to identify optimisation opportunities.
- **Enabling and stimulating product development.** Collateral managers with access to multi-asset classes and a strong knowledge of their customers are better placed to develop products and ideas for trading. Generating revenues, for example, by using tri-party deals to use up odd 'bin ends' of stock which would otherwise be too expensive to use. To incentivise traders, the bank could measure the trader's ability to free up quality collateral or to gauge how much collateral can be rehypothecated. Further, there might be opportunities to generate fees through moving collateral from a cost centre to a profit centre.
- The opportunity to leverage ***economies of scale*** and generate critical mass through access to a wide range of securities, bringing together key talent and presenting a more significant joined up face to the market and market participants. There are also opportunities to achieve greater levels of operational efficiency and perhaps move processes back in-house from third party agents.

Underlying all these opportunities is the ability of a bank to identify, consolidate and manage collateral from its multiple business silos at a granular level and in a timely manner. Difficulties of data consolidation on this scale are challenging. For example, while working on a project to complete an FSA liquidity submission for a major investment bank, **Rule Financial identified US$14.8 bn worth of unused liquidity collateral** (worth US$35m-US$50m pa in terms of reducing the cost of liquidity). This was partly driven by the difficulty of obtaining global data of this type and party due to incorrect calculations applied. In another example Rule Financial identified a stock of unused liquidity of US$4.5 bn* at a smaller bank.

There are also significant opportunities for proactive liquidity management to minimise the cost of liquidity. Cashflows from securities-related transactions can be significant even for the largest banks. In much the same way as intraday cash liquidity can be managed proactively, collateral can follow the same lifecycle approach, making all securities transactions and their related cashflow visible at an enterprise level. This allows for accurate intraday liquidity usage and end of day position management. All cashflows can be reconciled in real time to ensure completeness, manage margin calls, track and resolve payment disputes and drive exception processes. Some banks do this, but only to a limited extent.

*Based on 6th May 2010 exchange rate

'Banks have an incentive like never before to tackle the internal issues'

Other currencies or products where volumes are lower, may be settled through agents, so banks have failed to develop the same operational techniques for predicting and controlling intraday liquidity. Implementing this approach at an enterprise level would greatly reduce costs, minimise liquidity usage and generally enhance the bank's liquidity position.

Historically, collateral management was less important for cash rich European banks than for US investment banks. But due to the importance of collateral holdings in surviving stressed situations and the impending regulatory cost of holding liquidity the impending regulatory cost of holding liquidity collateral, banks now have an incentive like never before to tackle the internal issues and siloed structures which tend to block and blur collateral optimisation. Here is the chance to put tools in the hands of the collateral trader to make the best use of available collateral. As one trader put it

'Should I post this with a central bank, a clearing house to cover internal shorts, or should I lend it out, repo it out or use it in my matched book trading operation?'

Given timely enterprise information, access to all collateral asset classes, and the right incentives, the collateral trader is best placed to make these decisions working closely alongside the bank's Treasury.

Further reading: 'Collateral Management *Beyond The Crunch*' A Rule Financial White Paper

Liquidity centric risk management

At the heart of a bank's liquidity stress testing and scenario-planning is the need for complete and accurate data, strong behavioural modelling capabilities and the ability to assess – with real precision – how such behaviours might change under various scenarios. In many cases, the period following the crisis was the first time some banks had ever truly assembled group-wide liquidity data for analysis. This has to be a good thing, both in terms of corporate management and for safeguarding the bank from future shocks. It has also forced many banks to question the underlying principles behind their liquidity risk management systems as well as their financial management systems.

While there is a temptation to be seduced by the intricacies of behavioural modelling and scenario-planning, there are also some more basic issues to consider. For example, in a large bank where responsibilities for liquidity management are siloed, a Group Treasury or Risk Management function may place undue reliance on the liquidity management capabilities of an operating unit (eg repo or short dated liquidity management) perhaps undermining scenario-planning assumptions. Another more obvious danger is relying on insufficient, outdated or outright erroneous data which could prove extremely costly either by underestimating available liquidity or in terms of holding excess liquid assets (the example given before of US$14.8bn excess collateral) at significant cost.

We have consistently argued in this paper for **a rigorous approach to obtaining, normalising and integrating transactions, balances and static data from right across the bank** to create an enterprise view of liquidity. From the work Rule Financial has recently undertaken, it has been easy to identify the difficulties in obtaining enterprise data of this type and the large gaps in required information have been all too evident. Given the problems in reconciling future liquidity ladders, we have also argued for the need for a **full audit trail** and **the ability to reconcile flows accurately.**

Only by addressing these issues can banks start to have confidence in their liquidity risk management analysis.

In addition to the mechanics of calculating liquidity risk in terms of stress testing and scenario-planning, liquidity risk management needs to inform strategy and incentivise 'right' behaviours within individual business silos. There are a number of ways banks might integrate this into a joined-up process. For example...

- **Setting a liquidity risk appetite.** Banks need to establish risk appetite in relation to liquidity management at both Group/bank and business unit level. This appetite could be expressed in terms of a maximum liquidity mismatch at various maturity tenors over 12 to 18 months.
- **Internal pricing of liquidity.** Banks may inadvertently be raising liquidity more expensively than necessary in one area and bleeding it back out into the market too cheaply in another. Through establishing transparent internal pricing mechanisms and the infrastructure to transfer price, banks can incentivise 'right' behaviours in individual business units, both for providers and takers of liquidity within a given risk appetite.
- **Planning**. Through proactive business planning processes, banks can gain a better understanding of liquidity (and other) drivers within business silos, establish balance sheet objectives and set limits or liquidity budgets.

These examples argue for a significantly more joined-up risk management process and optimised business balance sheet management.

Drivers for change

Banks are increasingly polarised in the area of liquidity management. Only a small number of them have implemented an advanced internal liquidity management framework. However, like the cobbler, many banks as yet haven't chosen to address their underlying liquidity management issues. This is surprising, as the crisis highlighted the price of failing to manage liquidity only too clearly. It has also demonstrated the explicit and growing cost of holding liquidity to support banking activities.

It's all the more surprising, as there are no practical barriers to implementation. Many of the techniques outlined in this paper are widely known. The technology exists to deliver real time liquidity management information at an enterprise level – and right across business silos. For a small number of banks the strategies for liquidity management have been proved. Clearly, options and priorities for implementation will vary. For example, how banks choose to define their liquidity risk appetite ...or how liquidity is transferred between business units ...or whether to price liquidity on a transactional or relationship portfolio basis. Similarly, some banks may have implemented stress testing solutions based on inaccurate or incomplete liquidity data or without a good understanding of how their customers behave with predictable consequences.

Interestingly, the banks that had addressed their liquidity management capabilities prior to the crisis, recognised their vulnerability and acknowledged the risks arising from the sheer volume of their intraday liquidity requirements, as well as any unexpected and significant shifts in demands on their liquidity. As a result they were well positioned to navigate the liquidity crisis and now continue to benefit from clear competitive advantages.

So the principal drivers for change in the banks are

- **...to safeguard the bank:** a comprehensive and applied liquidity management framework has helped to ensure the survival of these banks during one of the greatest periods of stress in recent years.
- **...to understand how customers behave,** both in normal market situations and under stressed market conditions. This information can be used in customer meetings and pricing discussions.
- **...to inform strategy,** using liquidity information as an input to drive strategic decisions and the business planning processes eg from changing the customer portfolio mix, to incentivising the 'right' behaviour.
- ...**to embrace improved competitiveness,** through minimising the cost of liquidity and strongly positioning themselves to minimise the cost of regulatory liquidity.
- ...**to gain competitive advantage** through lower cost of liquidity, creating trading opportunities, differential pricing to customers, enhanced customer liquidity services, etc.

With the end of quantitative easing, these competitive advantages will become clearer.

For those banks not planning on significantly enhancing their internal liquidity management capabilities, the introduction of regulatory Liquidity Buffers may act as a call to action. While liquidity regulation worldwide is still evolving, it's likely that most regulators will undertake a supervisory review or qualitative assessment of the internal liquidity management capabilities of banks as part of the process of allocating liquidity buffers. Banks with advanced liquidity management capabilities together with stable sources of liquidity will benefit from lower regulatory buffers.

Basing the calculation on an estimate of improved position management, operational cost saving and regulatory considerations (and acknowledging that it is difficult to generalise) the annual cost saving from implementing an advanced liquidity management solution for a large bank operating in the UK is estimated between **£9m and £15m** annually.

In many cases it could be significantly higher.

Index of Regulatory Liquidity Papers

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- International framework for liquidity risk measurement, standards and monitoring – consultative document December 2009
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- Principles of Liquidity management
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- PS09/16: (October 2009) Strengthening liquidity standards
- CP09/14: (June 2009) Strengthening liquidity standards 3: Liquidity transitional measures
- CP09/13: (April 2009) Strengthening liquidity standards 2: Liquidity reporting
- CP08/22: (December 2008) Strengthening liquidity standards

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- The Bank of England's oversight of interbank payment systems under the Banking Act September 2009
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  http://www.economist.com/specialreports/displaystory.cfm?story_id=15474125
- Economist 'The gods strike back' Financial risk got ahead of the world's ability to manage it. Matthew Valencia asks if it can be tamed again
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Rule Financial sources

- 'Collateral Management *Beyond the Crunch*' a Rule Financial White Paper Download at
  www.rulefinancial.com

Rule Financial

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Our expertise in project delivery, complex technology and the management of change has helped us build long-term relationships on a solid record of success. We are currently managing projects for our principal clients in securities finance, prime services, risk management, liquidity management, mobile financial solutions and systems integration – each of them specialist domains requiring unique, in-depth understanding and clarity of vision.

For more information contact

David Goucher
T: +44 (0)20 7826 4444
E: david.goucher@rulefinancial.com

David Little
T: +44 (0)20 7826 4444
E: david.little@rulefinancial.com

www.rulefinancial.com

UK
3 Bunhill Row
London EC1Y 8YZ
T: +44 (0)20 7826 4444
F: +44 (0)20 7826 4440

USA
28 West 44th Street, Suite 808
New York, NY 10036
T: +1 646 415 9173
F: +1 646 415 7942