

Regulation and Risk

Financial Foundations

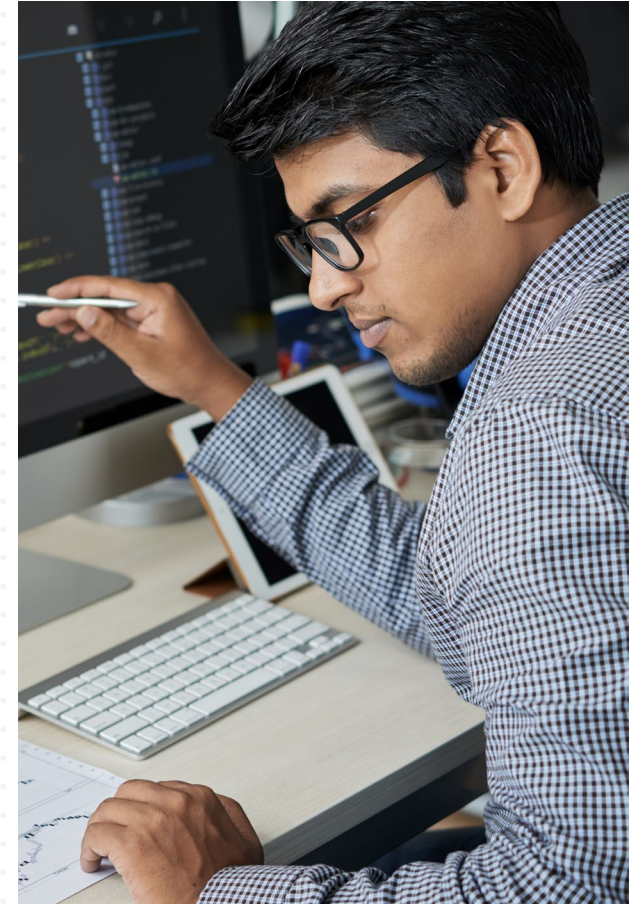
- > Regulators
- > Scale of regulation
- > Risk agencies
- > Types of regulations





Objectives

- > The objective of this lesson is to provide an overview of some of the regulatory scrutiny in the financial markets today, as well as the risk banks have to take into consideration while operating on a day-to-day basis.



Regulation and Risk

Canada

Bank of Canada – **BoC**
The Office of the Superintendent of
Financial Institutions – **OSFI**

United Kingdom

Bank of England – **BoE**
Financial Conduct Authority – **FCA**
Prudential Regulation Authority – **PRA**

United States of America

Federal Reserve System – **The Fed**
Securities Exchange Commission – **SEC**
Commodity Futures Trading Commission
– **CFTC**

Europe

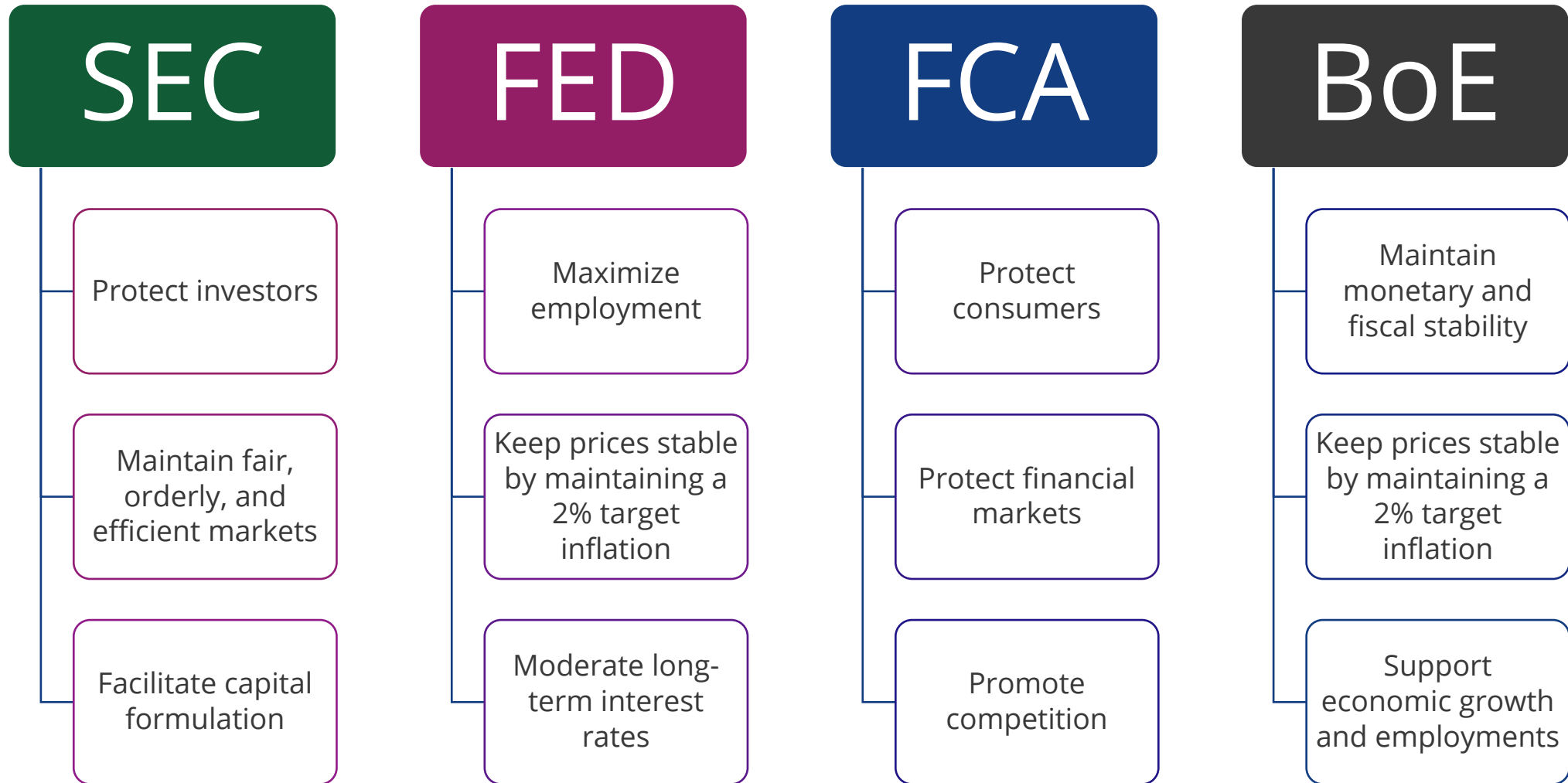
European Central Bank – **ECB**
European Banking Authority – **EBA**
European Securities and Markets
Authority – **ESMA**

Hong Kong

Securities & Futures
Commission of Hong Kong –
SFC
Hong Kong Monetary
Authority – **HKMA**



Regulator Objectives





Regulatory Rules

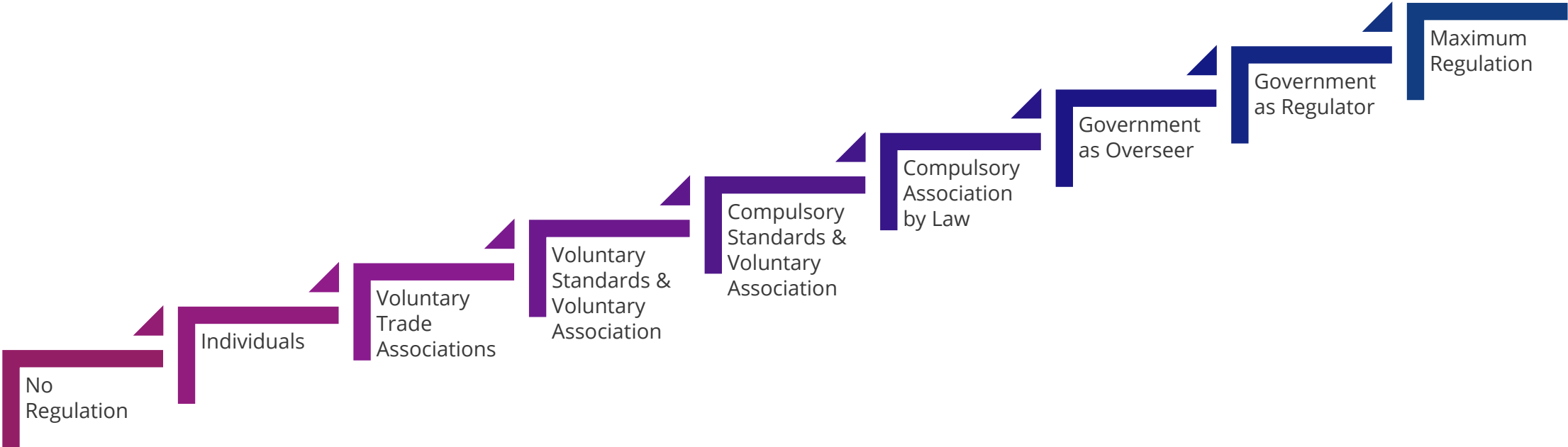
> Below details some of the frameworks in place by regulators that impact the day to day operations of a bank.





Scale of Regulation

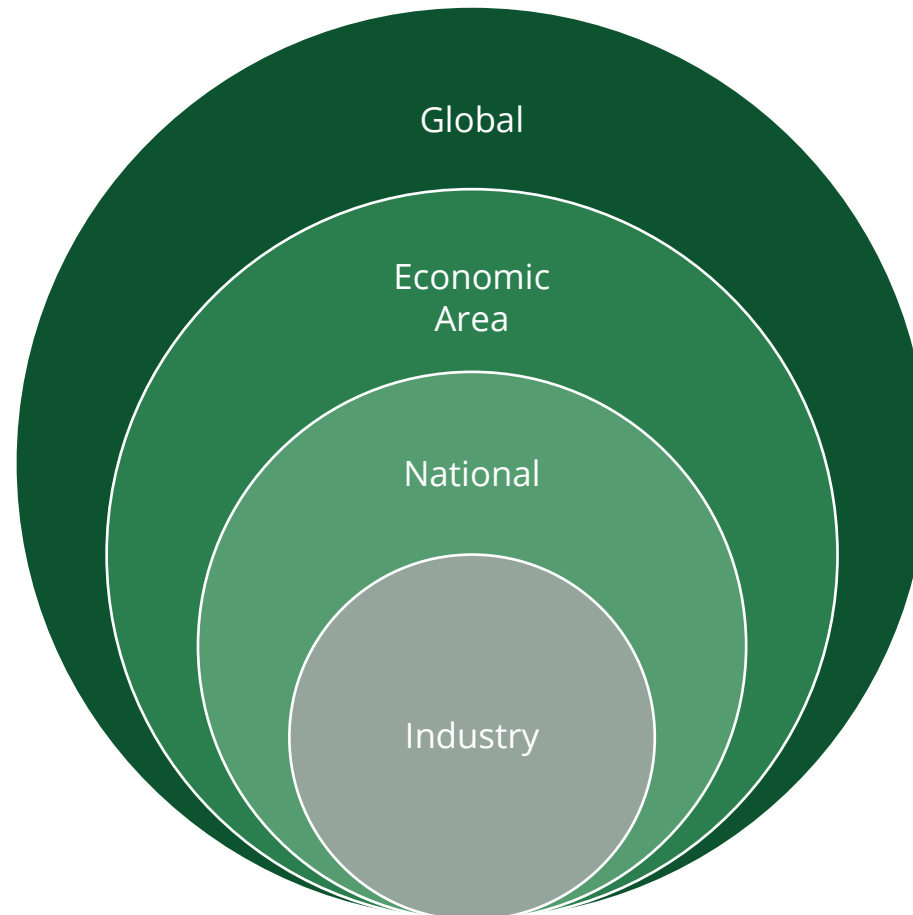
> We are now in an era of maximum regulation.





Layers of Regulation

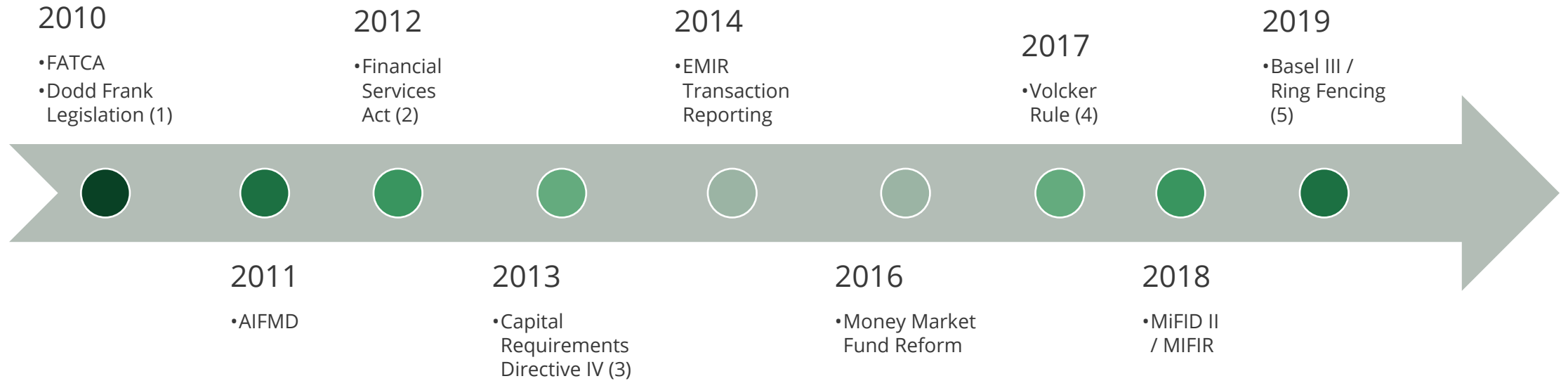
> Regulation can be applied at multiple levels – and all rules need to be complied with.





Exercise: Regulatory Compliance Timeline

> These are just a few of the regulations introduced in the last few years.





Risk Metrics: Value at Risk

- > VaR –It is the loss in value in the portfolio that can be expected over a given period of time (e.g. 1 day) with a probability not exceeding a given number (e.g. 5%)
- > Probability (Portfolio Loss \leq VaR) = K, where K = Given probability

VaR

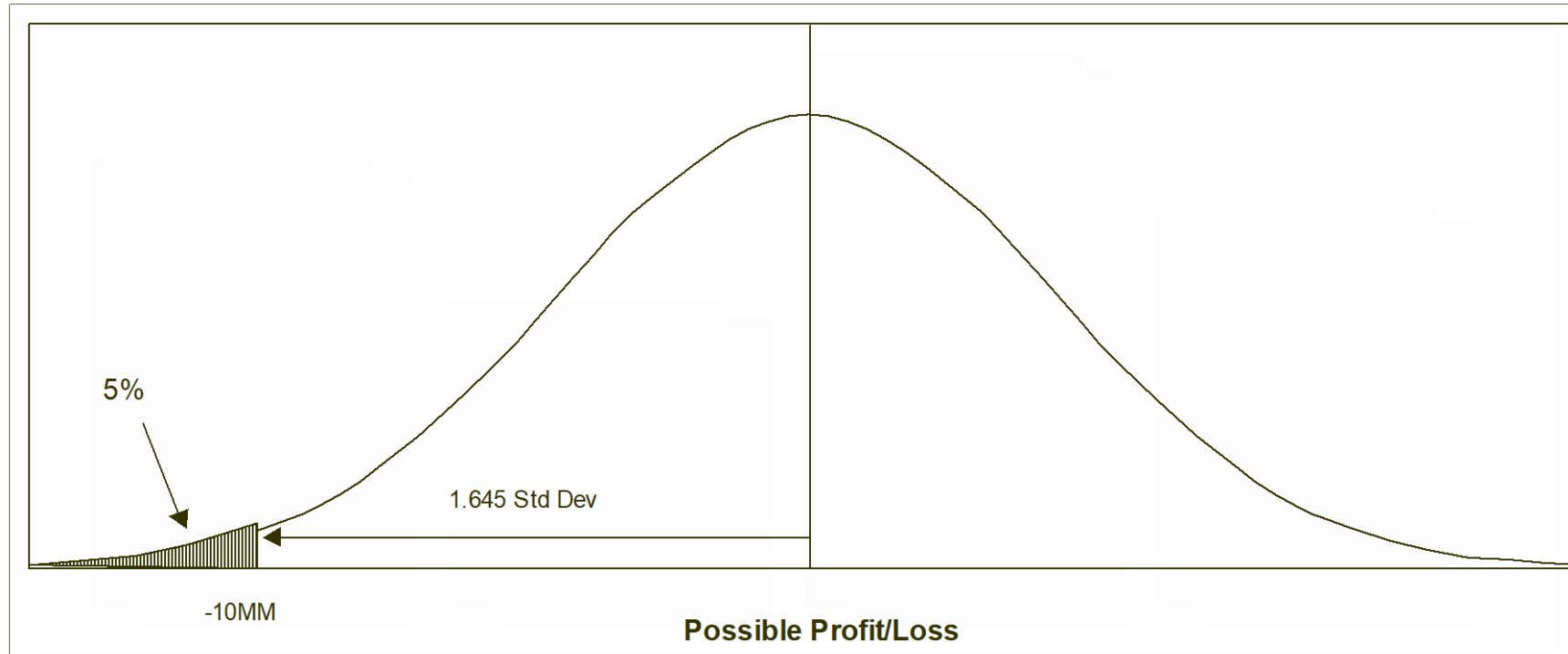
Assessing the VaR considers the following:

- Time period holding the asset
- Confidence level in the asset
- Loss amount

“We expect that our worst daily loss should not exceed 5% on 99% of occasions if we invest £5000 in this asset.”

VaR Visually

- > A 1-day VaR of \$10mm using a probability of 5% means that there is a 5% chance that the portfolio could lose more than \$10mm in the next trading day. The following graph shows profit/loss distributions of a portfolio.



VaR in Market Risk Capital Requirements

VaR is used in market risk capital requirements for banks

- > Regulatory Capital = Market Risk Capital + Specific Risk Capital + Counterparty Risk Capital
- > Market Risk Capital = Max [Ave. of 10-Day 99% VaR x Multiplier, yesterday's 10-Day 99% VaR]
- > Multiplier is >3, depending on the regulatory requirement
- > Regulators require that you use at least one year of historical data
- > Three methods to use:
 - Historical Simulation
 - Variance/Covariance Method
 - Monte Carlo Simulation



Credit Risk

> The risk of a debt issuer defaulting on a credit obligation. This will result in:

- \\ Loss of principal investment
- \\ Loss of expected cash flows

> This can be mitigated by:

- \\ Upfront and continual assessment of the credit risk of debt issuers the bank is involved in

> Examples include:

- \\ A company is unable to repay asset-secured fixed or floating-charge debt, e.g., pepo.
- \\ A business or government bond issuer does not make a payment on a coupon or principal payment when due.
- \\ A consumer may fail to make a payment due on a mortgage loan, credit card, line of credit, or other loan.


Credit Events

ALUMNI
BY MTHREE CONSULTING

Credit Events on an underlying asset trigger a CDS insurance payment

They include:

1. Bankruptcy
2. Credit Rating Falls
3. Failure to Pay
4. Repudiation
5. Restructuring





Credit Rating Agencies

Fitch

Standard & Poor's (S&P)

Moody's

> These agencies rate the credit worthiness of companies, products and countries, borrowers of debt and debt products, effectively asking:
"How likely are they to repay their loan?"

Debt or Debtor	Type	Rating	Outlook
USA	Bond	Aaa	Stable
UK	Sovereign	Aa	Stable
Greek Government	Sovereign	BB-	Positive
Canada	Sovereign	AAA	Stable
Mexico	Sovereign	BBB+	Negative


Sortable Table Key	Moody's
Highest grade credit	Aaa
Very high grade credit	Aa1, Aa2, Aa3
High grade credit	A1, A2, A3
Good credit grade	Baa1, Baa2, Baa3, Baa4
Speculative grade credit	Ba1, Ba2, Ba3
Very speculative credit	B1, B2, B3
Substantial risks - In default	Caa1, Caa2, Caa3, Ca

Credit Rating Agencies: Comparison

Credit Rating Scales by Agency, Long-Term

Moody's	S&P	Fitch	
Aaa	AAA	AAA	Prime
Aa1	AA+	AA+	High grade
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper medium grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Lower medium grade
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	Non-investment grade speculative
Ba2	BB	BB	
Ba3	BB-	BB-	
B1	B+	B+	Highly speculative
B2	B	B	
B3	B-	B-	
Caa1	CCC+	CCC	Substantial risk
Caa2	CCC		Extremely speculative
Caa3	CCC-		Default imminent with little prospect for recovery
Ca	CC	CC	
	C	C	
C	D	D	In default
/			
/			

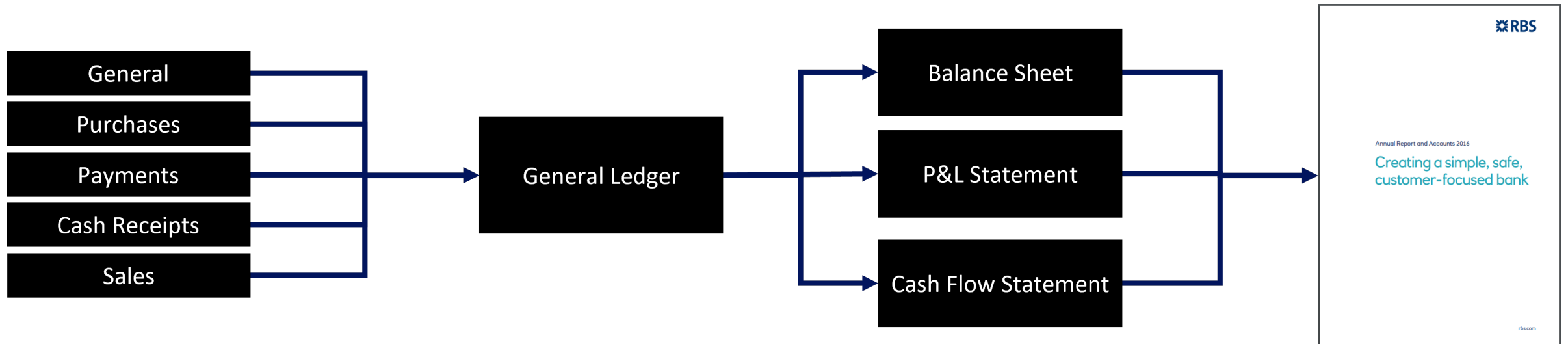
"Junk"





Financial Statements

- > Public companies issue annual and interim financial statements. These offer a comprehensive view into the health of a company.
- > Financial statement key components:
 - \ Income Statement
 - \ Balance Sheet – shows the assets, liabilities and equity
 - \ Cash Flow Statement





Financial Statements – Key Points

> The financial statement is needed for the following reasons:

- \ It helps the company make purchasing or corporate decisions.
- \ It helps investors evaluate the value of a company.
- \ It helps regulators audit the company to ensure they are complying with regulations (e.g., make sure they are not hiding cash and laundering money).

> Key terms in the statement:

Revenue

- Money coming in

Expenses

- Money going out (not including tax, interest, depreciation, amortization)

Gross Profit

- Revenue minus expenses

Net Profit

- Revenue minus expenses, interest, tax, depreciation and amortization

EBITDA

- Revenue minus expenses but including interest, tax, depreciation and amortization

Exceptional Items

- Unusual things that adversely impact profits for the period



Asset Depreciation

- > Depreciating assets include machinery, buildings, computers, vehicles, furniture, equipment and fixtures
 - \ The cost of a depreciating asset is divided across income statements for the life of the products in question.
- > Why is it important?
 - \ The cost of an asset is not captured in expenses as it is a non-cash expense.
 - \ The cost of the asset can be divided through multiple statements rather than all at once.
 - \ Helps to match the cost of the asset with the revenue it generates.
 - \ Companies dilute large value assets across their lifetime making balance sheets healthier.

Example:

Laptop purchased in 2014
Amount paid: £1000
Expected life: 5 years
Salvage value: £250

Laptop will lose
 $(1000 - 250) / 5 = £150 \text{ p/a}$

Year 0 (2014): £1000
Year 1 (2015): £850
Year 2 (2016): £700
Year 3 (2017): £550
Year 4 (2018): £400
Year 5 (2019): £250



Company Share Metrics

Earnings per share (EPS)

$$> EPS = \frac{\text{net income} - \text{dividend payout}}{\text{outstanding shares}}$$

- > Company ABC has a net income of £50m
- > It has 14m shares outstanding.
- > It pays a dividend of £0.50 a share (£7m)
- > Earnings per share = £3.07
- > Earnings per share is the portion of the company's profits allocated to each outstanding share.

Price to Earnings Ratio (P/E)

$$> PE = \frac{\text{current share price}}{\text{earnings per share}}$$

- > Company ABC shares are currently priced at £22.24 a share.
- > Earnings per Share = £3.07
- > The P/E Ratio is 7.24
- > A high P/E usually represents investors are expecting higher future earnings growth
- > A low P/E usually means a company is outperforming or is undervalued



Return on Investment (ROI)

$$> ROI = \frac{\text{profits from investment}}{\text{cost of investment}}$$

> An investor buys £1000 shares

> 2 years later they are worth £1250

> The profit is £250

> The ROI is 25%

> Used in company financial analysis to assess:

\ Profitability of past expenditure

\ Potential profitability of future expenditure

\ Investment worthiness

\ Investment comparisons



Regulations In Detail

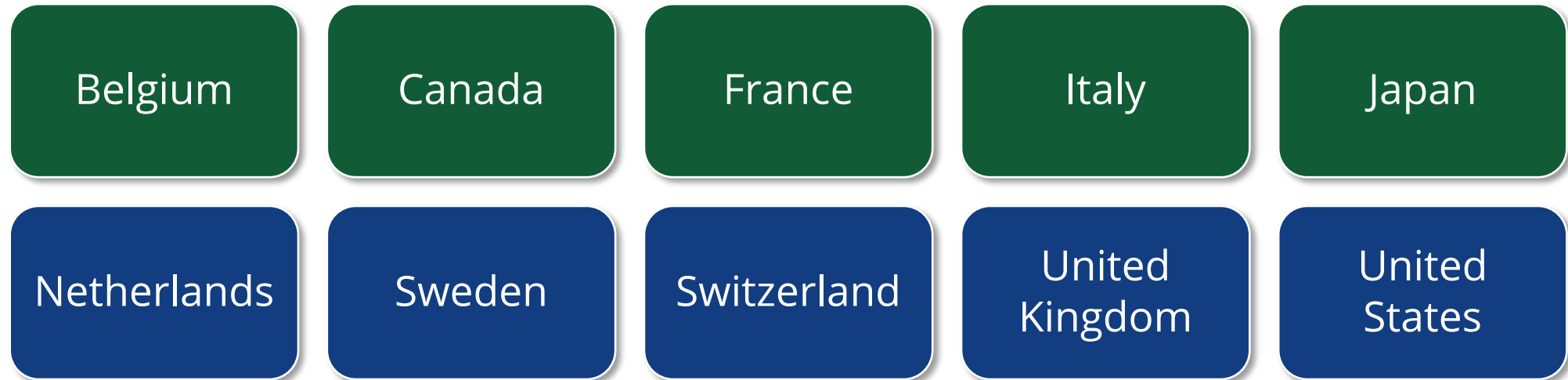
- Basel
- MiFID
- ESMA
- EMIR





The Basel Committee

- > The Basel Committee on Banking Supervision (BCBS) was formed in 1974 – a committee of central bank governors from 10 countries with the aim of enhancing finance stability by improving banking supervision globally.

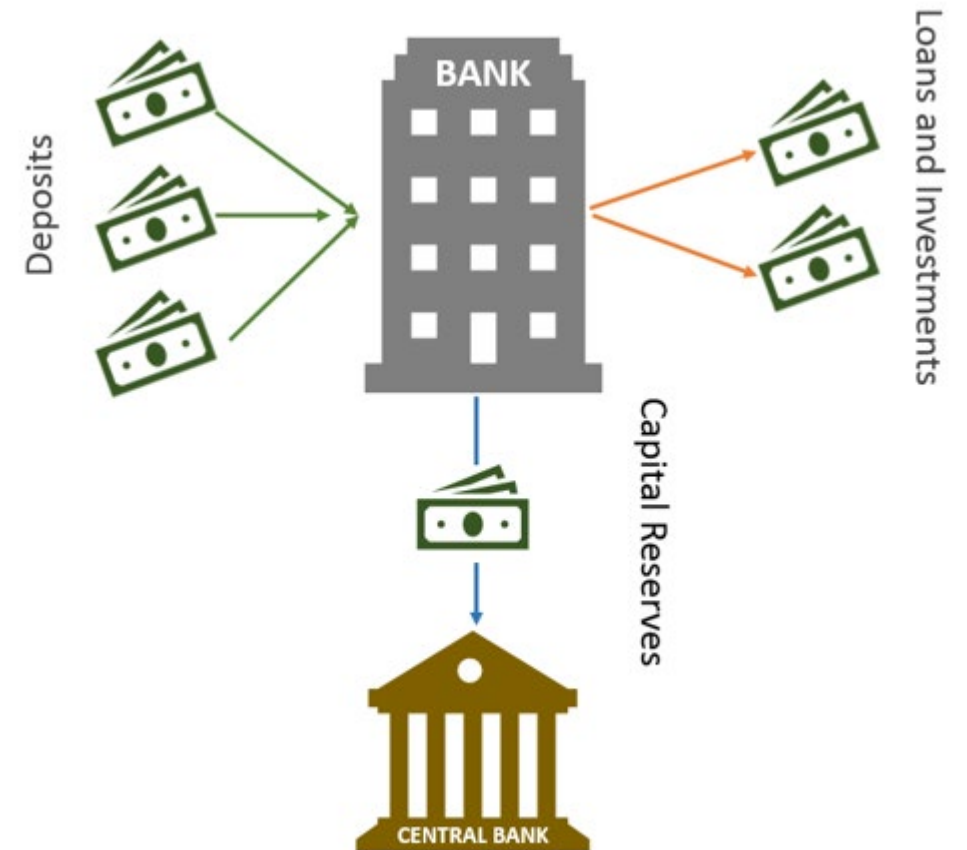


- > The committee now has 45 members from 28 different countries.



Capital Adequacy

- > The minimum capital reserves a bank must have available to be available to absorb losses
 - \ This acts as a protection for depositors.





Basel I

> In 1988, the Basel Capital Accord (Basel I) required a minimum of 8% ratio of capital to risk weighted assets. Standards were adopted by more than 120 countries and focused mainly on credit risk.

> 5 Risk Capital Weights:

\ **0% Risk:** Cash, central bank reserves, government debt

\ **10%:** Public sector debt

\ **20%:** Bank debt

\ **50%:** Residential mortgages

\ **100% Risk:** Private sector debt, real estate, equipment, capital instruments

$$\text{Risk Assets Ratio} = \frac{\text{Capital}}{\text{Total Risk Weighted Assets}}$$

> The Basel Accord states a bank must have Capital (Tier 1 or 2) \geq 8% Risk Weighted Assets



Limitations of Basel I

> Basel I had several limitations:

- \ The broad risk weights are a blunt tool: for example, is all mortgage risk equal at 50%?
- \ Newer securitized products and derivatives are not accounted for and therefore skew the profile.
- \ It doesn't account for diversification as a strategy to manage risk.
- \ Difficult for regulators to assess based on the opaque portfolio view.
- \ Doesn't consider market risk .

> More relevant for banks that include retail and corporate banking services rather than pure investment banks exposed to large market risk.



Basel I: Market Risk Amendment (MRA)

- > In 1996, Basel I was amended to account for Market Risk:
 - \ A methodology to account for market risk in capital requirements
 - \ Specifically addresses risks arising from trading activities vs. holding loans
 - \ Banks can calculate VaR daily
 - \ Or use 'building block' approach: Calculate general market risk and specific security risk and combine

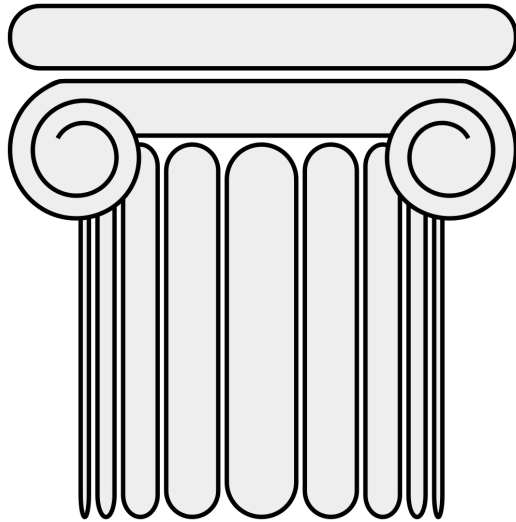
- > *"This asset has a 3% 10-day VaR of 1%, representing a 3% chance of the asset declining in value by 1% in 10 days"*



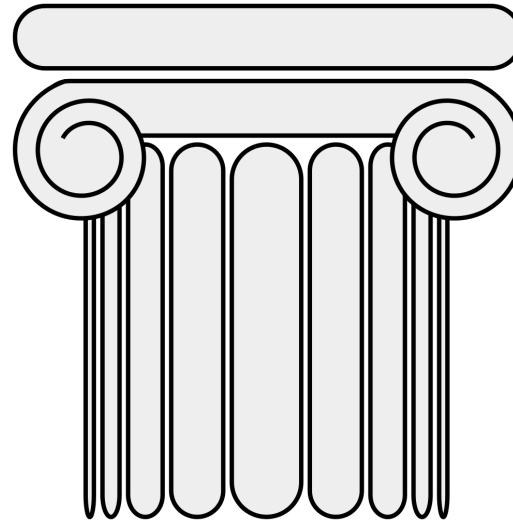
Basel II

- > In 1999, a new Capital Framework was proposed to replace the original accord. The framework was finally published in 2004.
- > The framework consisted of 3 pillars:

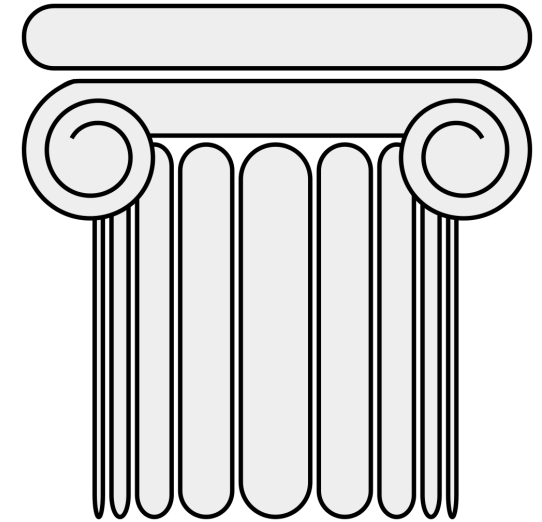
Minimum Capital
Requirements



Supervisory Review
and Internal Risk
Assessment Process



Market Discipline via
Disclosure of Risk



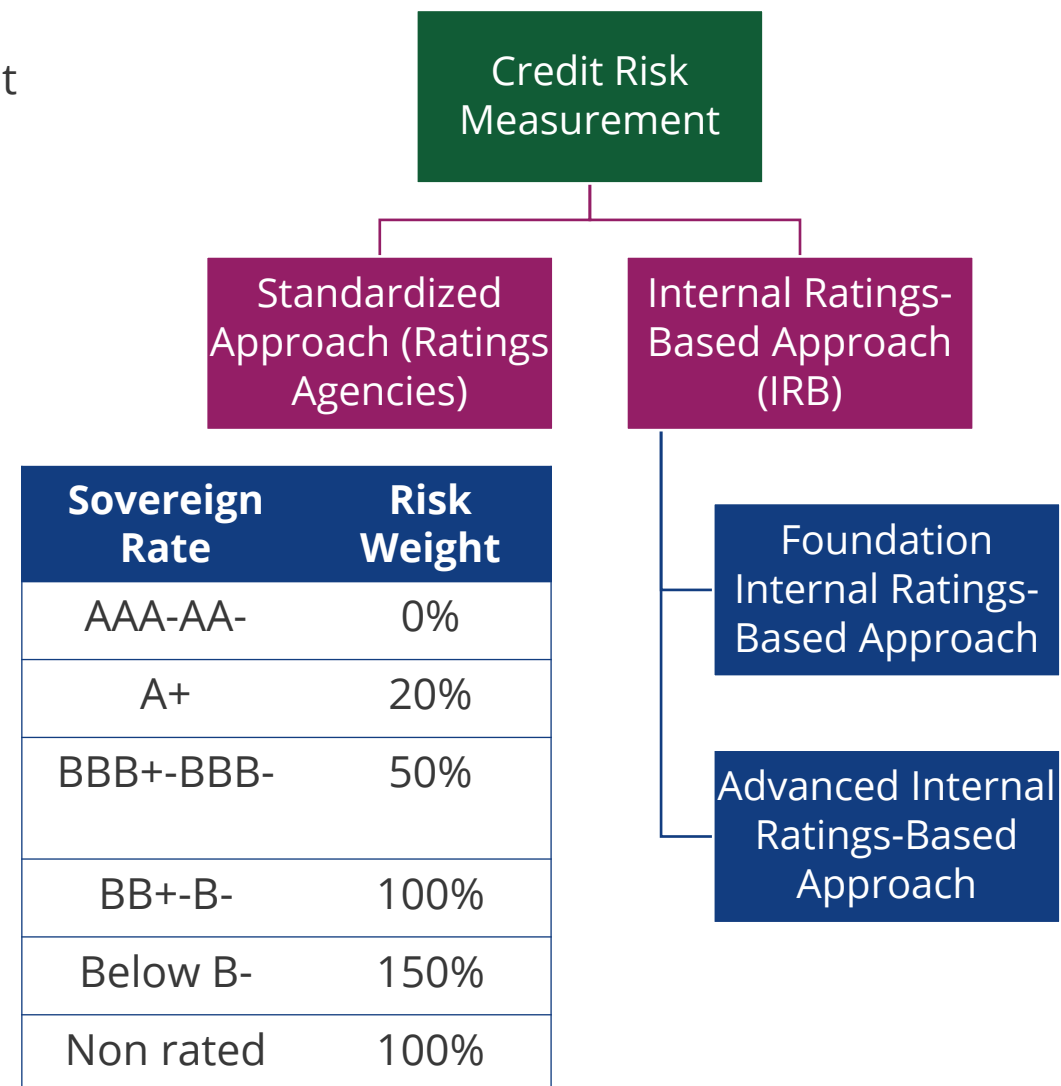


Basel II – New Credit Risk Assessment

- > In the new assessment, the 8% ratio of capital to RWA was kept, but banks had the option to use either external credit rating agencies' risk assessment values or internal risk categorizations.

It wasn't enough.

- > As Lehman Brothers failed in 2008, it became clear it wasn't enough. The Basel committee published the following on Lehman:
 - \\ Too much leverage and inadequate liquidity buffers
 - \\ Poor governance and risk management
 - \\ Inappropriate incentive structures





Basel III

> In 2010, Basel III was created:

Capital Buffers

- Requires banks to hold more capital of higher quality

Leverage Ratio

- A minimum leverage ratio to ensure banks are not over-leveraged

Liquidity Coverage Ratio

- Requires banks to have sufficient liquid assets to withstand a 30-day stressed funding scenario

Net Stable Funding Ratio

- Long-term structural ratio designed to incentivize banks to use stable sources of funding



MiFID I

- > **2004 Markets in Financial Instruments Directive** – applicable to banks across Europe since 2007, primarily focused on equities. Its aim was to facilitate cross-border trading within the EU.
- > It covers:
 - \ Business conduct for investment firms
 - \ Authorization requirements for regulated markets
 - \ Regulatory reporting requirements to prevent market abuse
 - \ Trade transparency obligations for shares
 - \ Rules on the admission of financial instruments to trading
- > After the 2008 financial crisis, it became apparent that it was not adequate and needed a full overhaul.



ESMA – European Securities and Markets Authority

> Began operating in 2009 as an independent EU authority accountable to the European Parliament.

> It has 3 objectives:

- \ Investor protection
- \ Orderly markets
- \ Financial stability

> It achieves these objectives by:

- \ Assessing risks to investors, markets and financial stability
- \ Completing a single rulebook for EU financial markets
- \ Promoting supervisory convergence
- \ Directly supervising specific financial entities





MiFID II

- > Changes needed for greater investor protection and improved functioning of markets post-2008 has led to:
 - \ revised Markets in Financial Instruments Directive (MIFID)
 - \ new Markets in Financial Instruments Regulation (MIFIR)

- > Aims:
 - \ Increased market and costs transparency
 - \ Move to trading on structured marketplaces
 - \ Lower cost market data
 - \ Improved best execution
 - \ Orderly trading behavior

**Effective 3
Jan 2018**



MiFID II Coverage

- > MiFID II became very ambitious in coverage compared to Basel II
 - \ OTF (Organized Trading Facility) – a new trading platform to capture unregulated trades on non-regulated platforms
 - \ Increased transparency, pre- and post-trade
 - \ New commodity derivative position limits to reduce speculative trading
 - \ New rules for algorithmic and high-frequency trading
 - \ Increased product and service information to safeguard investors
 - \ Increased coverage of transaction reporting



Non-Financial Reporting (NFR)

- > NFR is a 2014 EU Non-Financial Reporting Directive to harmonize non-financial reporting across EU member states.
 - \ Applicable to public-interest entities with 500+ employees
 - \ UK is due to create legislation based on the directive

- > It mandates disclosure of policies, risks and outcomes relating to:
 - \ Environmental matters
 - \ Social and employee aspects
 - \ Respect for human rights
 - \ Anti-corruption and bribery issues
 - \ Diversity of their Board of Directors





EMIR Reporting

- > In 2012 the European Market Infrastructure Regulation (EMIR) Reporting was introduced:
 - \ Applies to all types of derivative contracts:
 - \ Interest rates, FX, credit, equities, commodities

- > Parties involved in any Derivative Contract must:
 - \ Report every contract to a trade repository (TR)
 - \ Clear applicable trades via a central counterparty (CCP)
 - \ Implement new risk management standards for all bilateral OTC derivatives not cleared via a CCP

LEI: Legal Entity Identifier

UTI: Unique Trade Identifier



Clearing and Counterparty Credit Risk

In every trade, both parties of the trade are at risk of the other party defaulting on the obligation of the trade – this is Counterparty Credit Risk.



Central Counterparty Clearing has been introduced to try to reduce this risk. Once a trade has been agreed, the CCP (Central Counterparty) will sit between the two parties of the trade and acts as a trade guarantor.



An example is CME Group.

A key benefit of central clearing is 'multilateral netting' - consolidates all transactions with a client into one transaction - Simplifies outstanding exposures vs. complex web of bilateral trades.



FATCA

2010: Foreign Account Tax Compliance Act

- > To promote cross-border tax compliance
 - \ Aims to reveal US persons investing and earning income via non-US institutions
 - \ Implements an international standard (CRS) for the automatic exchange of information relating to US taxpayers
 - \ At least 96 countries will share information on residents' assets and incomes
 - \ Tax withholding by the US can be used if reporting is not provided
 - \ Biggest burden is on Foreign Financial Institutions (FFIs)
- > It includes significant structural changes to improve global tax compliance.





The Dodd-Frank Act

2010: The Dodd-Frank Wall Street Reform and Consumer Protection Act

- > Created in response to the 2008 financial crisis
- > Aims to decrease risk in the US financial system
- > Approximately 2,300 pages of provisions
- > Named after sponsors US Senator Dodd and US Representative Frank
- > Provisions are being phased in over a number of years

New Agencies Established by Dodd-Frank

> Several new agencies were introduced as part of Dodd Frank regulation on the basic idea that if there is not a governing body to oversee banks and related financial agencies, then the system is exposed and vulnerable.

The Financial
Stability Oversight
Council (FSOC)

- Monitors the stability of companies “too big to fail”

The Federal
Insurance Office

- Monitors insurance companies that are “too big to fail”

The Consumer
Financial Protection
Bureau (CFPB)

- Aims to prevent financial harm to consumers via abusive financial practices

SEC Office of Credit
Ratings

- Monitors ratings agencies with the aim of improved accuracy

Swap Execution
Facilities (SEFs)

- Exchange platforms for transparent trading and processing of swap securities



OTC Derivative Regulations

- > **Regulatory authority of the swap market is divided between SEC (Securities Exchange Commission) and CFTC (Commodity Futures Trading Commission)**
- > Implemented in 2012, with the reporting of interest rate swaps and credit index swaps first via clearing houses, then from the dealers themselves. Then reporting of FX swaps, commodity and equity swaps followed.
 - \ Moved derivative contracts from OTC on to exchanges – SEFs
 - \ Created more transparency and standardization in the market
 - \ Introduced clearing to reduce the risk of counterparty default
 - \ Mandated rigorous transaction reporting of derivatives contracts to an SDR (swap data repository)
 - \ Best execution demands a minimum of three independent quotes



Criticisms of Dodd Frank

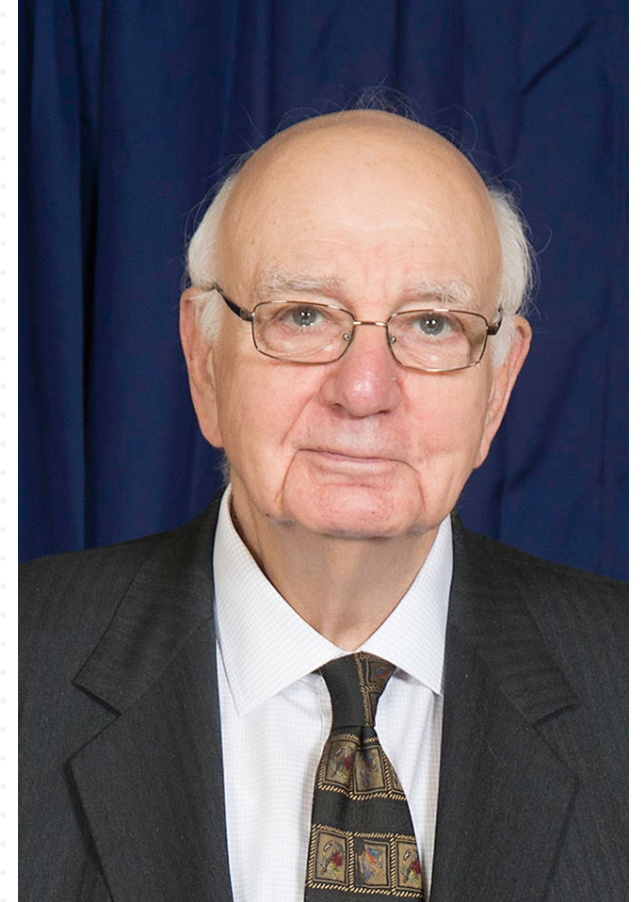
- > President Trump was extremely vocal in criticizing Dodd-Frank and its effectiveness:
 - \ No evidence it has made US banks safer
 - \ Might make the US anti-competitive
 - \ Limiting risk to such an extent hinders profit-making ability
 - \ Too cumbersome and expensive for smaller financial institutions
 - \ Capital reserve requirements have reduced liquidity in the market
 - \ Lending regulations have blocked business and middle class borrowing



The Volcker Rule

- > Part of the Dodd-Frank Act – named after the former US Federal Reserve Chairman Paul Volcker who encouraged Obama to include it in new legislation.
 - \ Legislates against proprietary (prop) trading by banks
 - \ Aims to prevent banks from acting like hedge funds
 - \ Banks cannot trade with their own funds for their own profits
 - \ Legislates against banks owning hedge funds or private equity funds
 - \ Stemmed from banks taking on complex, high-risk positions and losing

- > Bear Stearns were a US-based global investment bank; their hedge fund division made big bets on real estate investments that failed in 2008. A year later after huge losses and a lack of confidence, the bank collapsed.





CNN Video explaining the Volcker Rule



The Volcker Rule Explained: 4 mins



SOX (Sarbanes Oxley)

> 2002 – The Sarbanes-Oxley Act

- \ US legislation that applies to all public companies
- \ Aims to ensure confidence in financial statements
- \ Aims to prevent accounting fraud

Key provisions include:

> Section 302

- \ Senior managers must certify the accuracy of the financial statement

> Section 404

- \ Internal controls must be established and their adequacy reported on
- \ IT departments must keep specific company records for set periods





Challenges with Regulations

Costly

Reactive

Ineffective

Anti-
competitive

“Regulatory
arbitrage”

Government
bailouts
underwrite
risk taking



Self Regulation

- > In US law, self-regulatory organization is a defined term: they operate either in addition to state regulators or in their absence (i.e., in industries where there is no state regulation).
- > Avoid ties to specific country regulation: useful when business activities are across countries
 - \ Responsible for regulating itself
 - \ Either through external agreements between businesses or internal operations and process mechanisms
 - \ Governing from within
 - \ Sets regulations and guidelines for those associated with it
- > **FINRA: Financial Industry Regulatory Authority**
 - \ An example of an SRO
 - \ Regulates the US broker-dealer industry
 - \ Independent, not for profit





FINRA's Five Steps to Protecting Market Integrity

1. Deter misconduct by enforcing the rules

- \\ Write and enforce rules and regulations for every single brokerage firm and broker in the U.S.
- \\ All brokers are licensed and registered by FINRA, pass their qualification exam and satisfy continuing education requirements.

2. Detect and prevent wrongdoing in the U.S. markets

- \\ Uses variety of data-gathering techniques to detect firms or individuals with wrongdoing
- \\ Processes, on average, 37 billion transactions every day to build a complete, holistic picture of market trading in the U.S.

3. Discipline those who break the rules

- \\ If brokers break the rules, they are fined, suspended or barred from industry.

4. Educate and inform investors

- \\ Through FINRA Investor Education Foundation, teach investors to protect themselves against financial fraud.

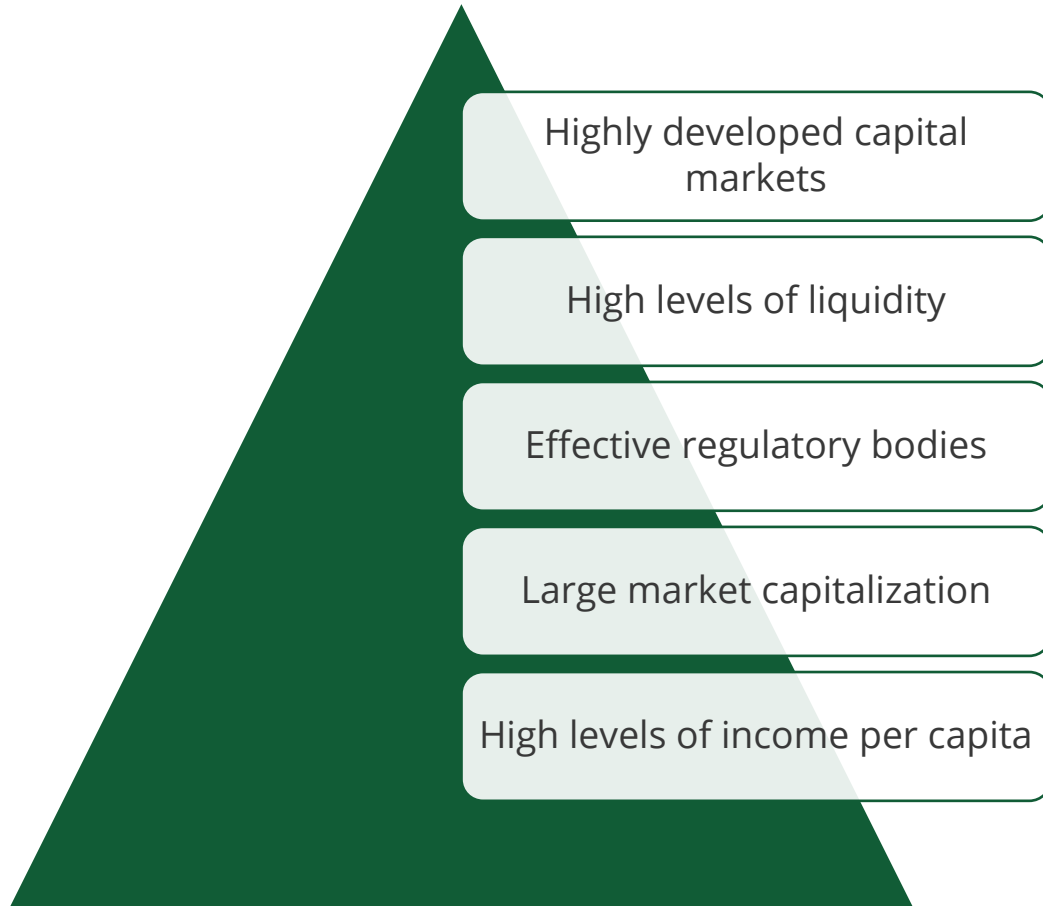
5. Resolve securities disputes

- \\ Dispute resolution forum is the largest in the country for the securities industry.

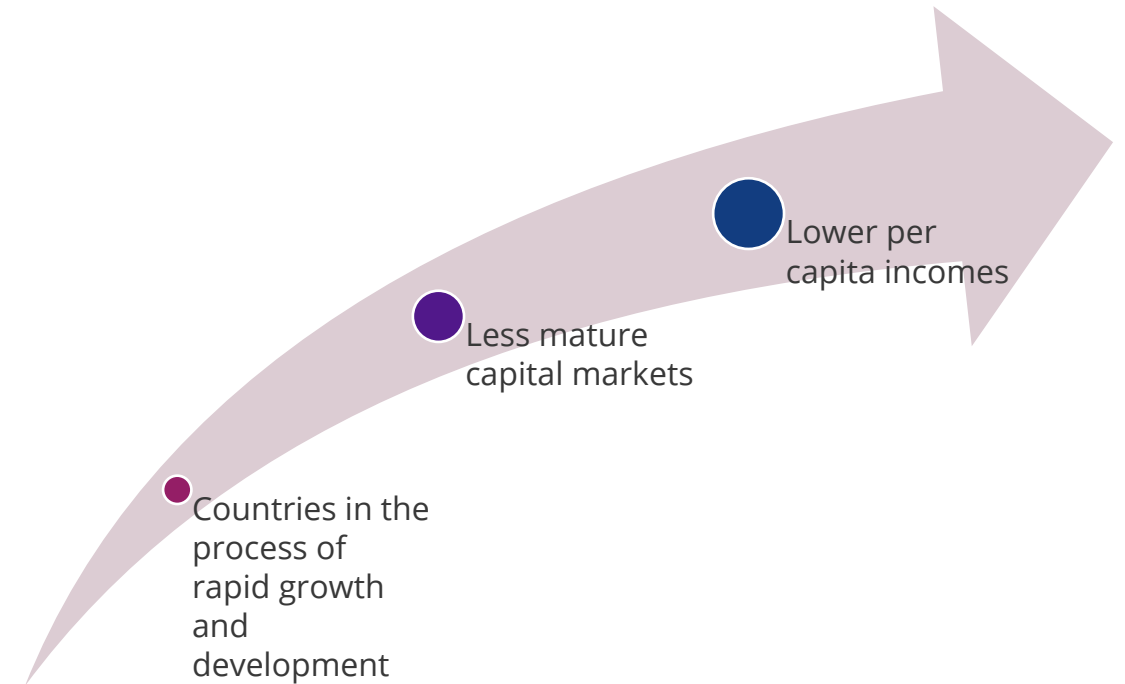


Developed vs Emerging Markets

Developed Markets



Emerging Markets (EM)





White Collar Crime and Money Laundering



Corporate Crimes

> There is a vast array of “corporate crimes” – it is the responsibility of every employee to be vigilant and report any misdemeanors seen in the workplace.

Corruption

Bribery

Fraud

Tax Evasion

**Money
Laundering**

> A fraud example: Bernie Madoff

- \ Fraudulent Ponzi scheme: pays old investors with funds from new investors
- \ Deceived investors, banks, and regulators over 16 years
- \ Largest Ponzi scheme in history: \$20bn taken from investors
- \ A former Chairman of the Nasdaq exchange and vice-chairman of the National Association of Securities Dealers – the industry self-regulatory body

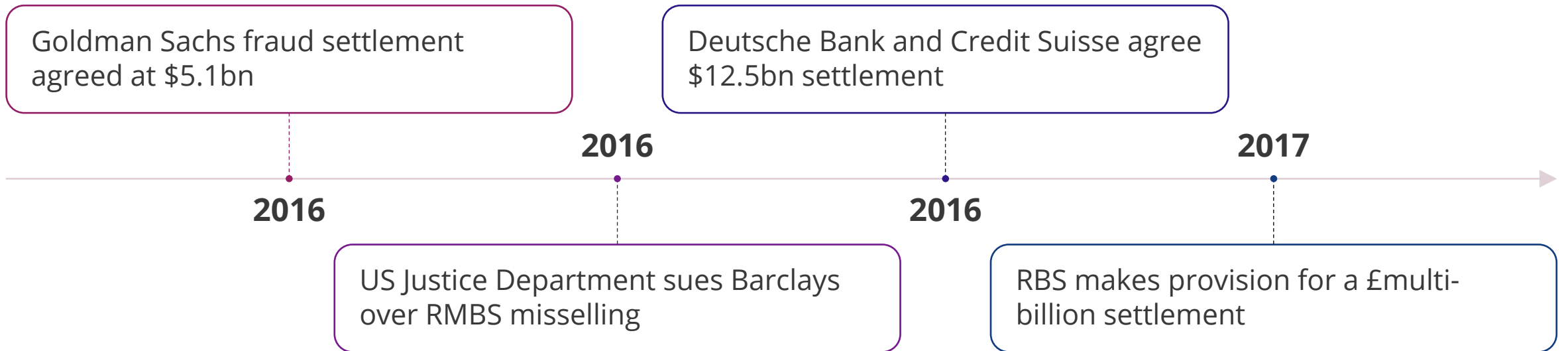


Sentenced to 150 years



Fraud – RMBS Mis-Selling

- > Pre-2008, banks marketed residential mortgage-backed swap (RMBS) to investors as safe investments despite underlying loans being sub-prime.





Whistleblowing

- > Making a disclosure in the public interest
- > When an employee reports suspected wrongdoing at work like:
 - \ a criminal offence
 - \ covering up wrongdoing
 - \ damage to the environment
 - \ danger to someone's health and safety
- > 2015 UK FCA Whistleblowing rules mandate firms to:
 - \ Appoint a senior whistleblowers' champion
 - \ Implement whistleblowing arrangements
 - \ Inform UK based employees about the FCA whistleblowing services
 - \ Present an annual report on whistleblowing to their board
- > In the US, Dodd-Frank strengthened the whistleblowing program by allowing whistleblowers to receive some of the proceeds of any litigation settlements. The scope of people considered to be an employee was widened for whistleblowing purposes and it lengthened time whistleblowers have to report violations.





What is a Bribe?

- > What is the difference between a bribe and a gift? A gift is given without expectation of anything in return; it becomes a bribe when something is expected in return.
- > It is likely that the bank will make it very clear what is acceptable and what is not acceptable as a gift from a client, and all gifts must be declared.
- > What do you think of the following?

**A secret bundle
of cash**

**Tickets to a
football match**

A ski weekend

A bottle of wine

- \ US: 1977 Foreign Corrupt Practices Act
- \ The first legislation to criminalize bribes
- \ Prohibits the payment of bribes to foreign officials to assist in obtaining or retaining business
- \ Applies to conduct anywhere in the world and all company stakeholders

Politically Exposed People (PEPs)

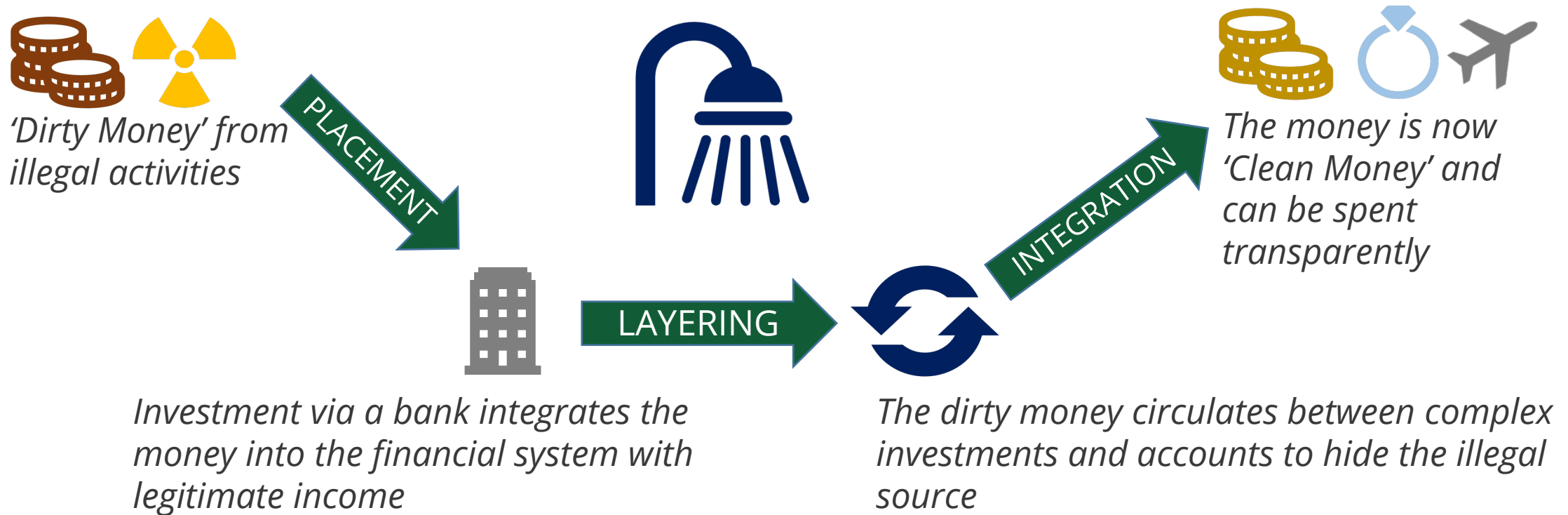
> Clients at higher risk of potential involvement with bribery and corruption are subject to enhanced due diligence; this also extends to relatives and close associates.

- \ Heads of State
- \ Members of Parliament
- \ Public office holders (past or current)
- \ Members of Courts of Auditors
- \ Ambassadors
- \ High-ranking Armed Forces officials
- \ Board members of central banks



Money Laundering

- > Money laundering involves the placement, layering and integration of illegally-sourced funds into a legitimate business in order to 'wash' them. They then appear to be from legal activities





Money Laundering



How does Money Laundering Work? (5 mins)



Anti-Money Laundering

After the 9/11 attacks, counter-terrorist finance strategies have been introduced

> Terrorism Financing:

- Finances illegal terrorist activities, or supports persons engaged in illegal activities or who intend to engage in illegal terrorist activities
- The collection or provision of funds with the intention that they should be used in order to support or commit terrorist activities

> Counter Terrorism Financing (CTF) measures:

- CTF recommendations were modelled on the AML framework
- Both terrorist financiers and money launderers want to disguise the source and destination of funds

> Fines for Money Laundering Violations

- Jan 2017: Deutsche Bank fined by UK and US £506m for not preventing \$10bn worth of Russian money laundering between 2012-2015
- Feb 2017: Coutts (RBS) fined 6.5m Swiss Francs by Swiss regulators for breaching AML laws by processing \$2.4bn of unlawfully generated funds



Compliance

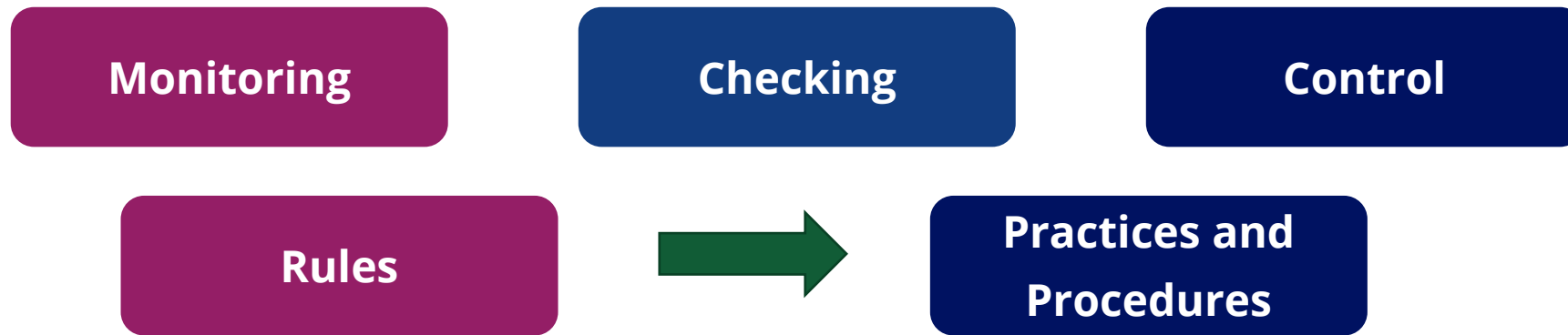
The role of compliance
in the bank





Compliance Responsibilities

> The compliance team in a bank have many responsibilities. Each business area will have a compliance team.



> The team will translate new rules into procedures as well as advise the business and interact with regulators.

> For example – sales and trading compliance will monitor deal sizes and impact to market; counterparties involved; trading mandates; recording agreements; electronic trading.