

# Opportunities for actuaries in banking

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# Opportunities for actuaries in banking

## Banking Seminar, Washington, 14 May 2019

- Enterprise Risk Management
- Credit Risk Analysis
- Asset and Liability Risk Management
- Capital Management, (e.g., stress testing, diversification recognition, capital efficiency)
- Model Building
- Model Validation
- Regulatory Compliance
- Capital Markets Analysis
- Risk Selection
- Predictive Analytics
- Data Science



# Opportunities for actuaries in banking

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## Experience in banking

- Quantification of capital requirements and buffers
- Retail banking product pricing and profitability

# Iain Allan – Movement into banking

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1969-74	Scottish Life	Fund management
1974-79	UK Provident	Fund management
1979-85	Phillips & Drew*	Stockbroking
1985-91	UBS	Investment banking

\*In 1985, Phillips & Drew was acquired by UBS

# Iain Allan – Experience in banking

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## 1994-2008 Group Director, Strategy, RBS

- Supermarket banking joint venture with Tesco
- Acquisition of NatWest
- Strategic partnership with Bank of China



# Iain Allan – Experience in banking

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## 2008-2019 Independent consultant

- Applications for banking licences by new entrants
- Regulatory submissions by smaller banks
- Draft responses to regulatory consultations



# Opportunities for actuaries in banking

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## Quantification of capital requirements and buffers



# Insurance companies – Solvency II

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## Three pillars

- Pillar 1: Quantification of capital requirements
- Pillar 2: Supervisory review process
- Pillar 3: Requirements for public disclosures

## Regulatory submission

- Own Risk and Solvency Assessment (ORSA)



# Banks – Basel regulations

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## Three pillars

- Pillar 1: Quantification of capital requirements  
Quantification of liquidity requirements
- Pillar 2: Supervisory review process
- Pillar 3: Requirements for public disclosures

## Regulatory submissions

- Internal Capital Adequacy Assessment Process (ICAAP)
- Internal Liquidity Adequacy Assessment Process (ILAAP)

# Banks – Quantification is fragmented

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**Pillar 1** Minimum capital requirements  
(Basel regulations)

**Pillar 2A** Additional capital requirements  
(proposed by bank, set by PRA)

**Pillar 2B** Capital buffers  
(Minimum – Basel regulations/CRR)  
Additional – proposed by bank, set by PRA)

# Pillar 1 – Minimum capital requirements

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- Basel regulations/CRR\* prescribe methodologies for quantifying credit, market and operational risk

\*CRR: Capital Requirements Regulations

# Pillar 1 – Minimum capital requirements

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- Banks can use either standardised approach (SA) or internal risk-based (IRB) approach (internal models)

# Pillar 1 – Minimum capital requirements

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- Banks must quantify RWAs for credit risk and equivalent RWAs for market and operational risk

# Pillar 1 – Minimum capital requirements

<b>Risk weight</b>	<b>SA</b>	<b>IRB (average)</b>
Mortgages		
• LTV under 50%	35.0%	4.5%
• LTV 70% - 80%	35.0%	13.9%
Credit cards		
• UK	75.0%	79.6%
• International	75.0%	112.6%
Corporates		
• Large corporates		46.3%
• Mid corporates		71.6%
• SME		59.8%

# Pillar 1 – Minimum capital requirements

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- Banks can use either standardised approach (SA) or internal risk-based (IRB) approach (internal models)
- Banks must quantify RWAs for credit risk and equivalent RWAs for market and operational risk
- Minimum capital requirements are defined as percentages of total RWAs

# Pillar 1 – Minimum capital requirements

## Capital

## % total RWAs

Total

8%

Common Equity Tier 1 (CET1)

At least 4.5%

Additional Tier 1 (AT1)

Up to 1.5%

Tier 2 (T2)

Up to 2%

# Pillar 2A – Additional capital requirements

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## Areas not captured under Pillar 1

- Credit concentration risk
- Counterparty credit risk
- Interest rate risk in the banking book (IRRBB)
- Pension obligation risk

In the UK, the PRA has given guidance on methodologies that may be used

# Pillar 2A – Additional capital requirements

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## Areas that may not be adequately captured under Pillar 1, if using standardised approach

- Credit risk
- Market risk
- Operational risk

In the UK, the PRA has given guidance on methodologies that may be used



# Pillar 2B – Capital buffers

Buffer	% total RWAs	Set by
<b>Buffers set for all banks</b>		
Capital conservation buffer	2.5%	Basel
Countercyclical capital buffer	Up to 2.5%	BoE
<b>Buffers set for individual banks</b>		
Systemic risk buffer	Up to 3%	BoE
PRA buffer	n/a	PRA

# Pillar 2B – Capital buffers

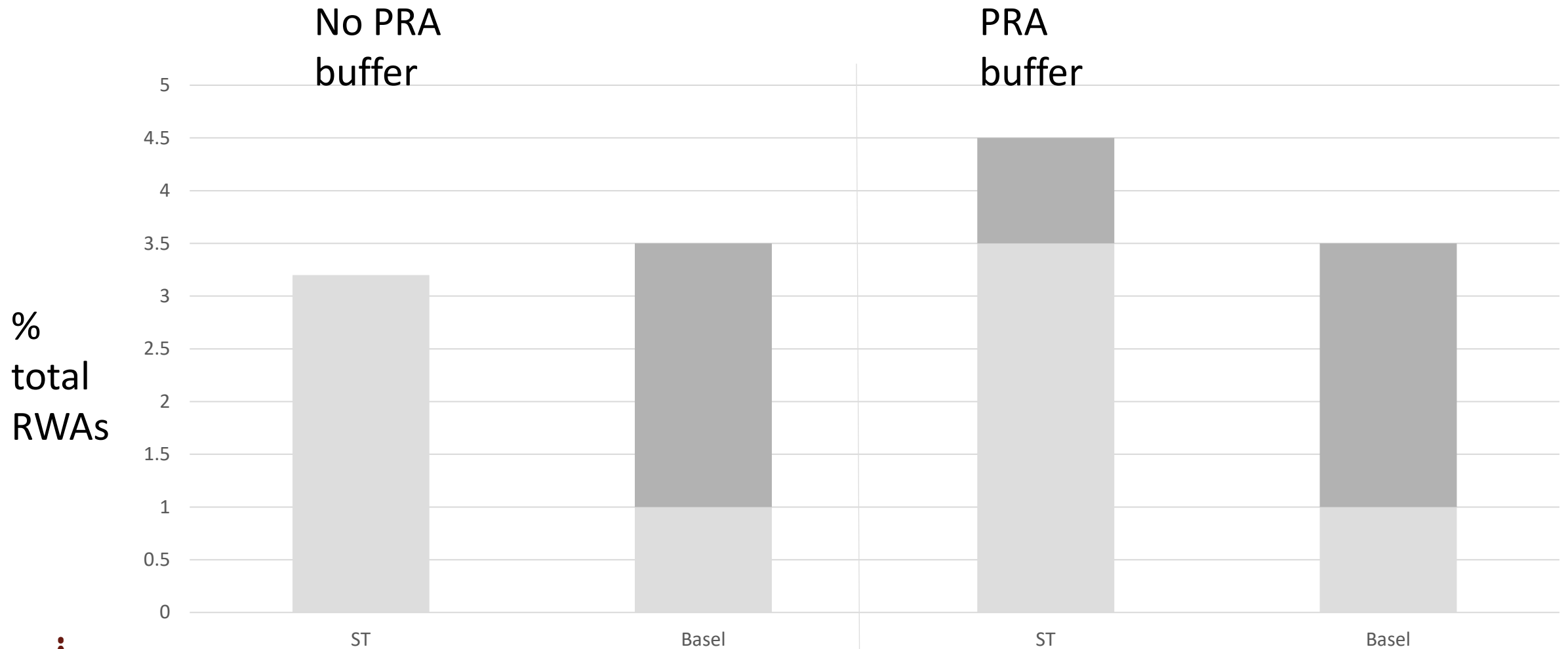
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PRA buffer ensures that bank does not breach its minimum capital requirements, even under severe stress scenarios:

- System-wide stress scenarios
- Bank-specific stress scenarios
- Combined stress scenarios

Bank must also carry out reverse stress test

# Pillar 2B – Capital buffers



ST: Buffer determined by stress testing; Basel: Buffer set by Basel regulations

# Quantification of capital requirements and capital buffers

## *Why actuaries?*

<b>Pillar</b>	<b>Requirement</b>
Pillar 1	Compliance with regulations
Pillar 2A	Understanding and judgement
Pillar 2B	Understanding and judgement

# Quantification of capital requirements and capital buffers

## *Why actuaries?*

*In the run up to the financial crisis, financial supervision relied too much on 'tick-box' compliance with rules and directives at the expense of proper in-depth and strategic analysis. Effective prudential regulation of firms requires an approach based on understanding of their business models and the ability to make judgements about the risks that their firms activities pose to themselves and to the wider financial system as a whole.*

HM Treasury



# Quantification of capital requirements and capital buffers

## *Why actuaries?*

*Some banks have announced their intention to meet the required 9% target ratio through so called 'RWA optimisation' – changes in risk measurement methodology the lead to reduction in reported RWAs. Such changes may not result in any improvements in underlying resilience.*

Bank of England

# Quantification of capital requirements and capital buffers

## *Why actuaries?*

- Actuaries are trained to understand risks and to make judgements about them
- Actuaries are used to working under professional standards (Code, CPD/PST, Standards)
- ICAAP covers all areas of business and all types of risk (Enterprise Risk Management)



# Quantification of capital requirements and capital buffers

## *Why actuaries now?*

- IFR39 versus IAS39, from 1 January 2018
- IAS39 (incurred loss accounting);
  - Make provisions in event of risk events occurring
- IFRS9 (expected loss accounting);
  - Make provision for all loans, in three stages:
    - Stage 1: Performing loans: 12 months expected losses
    - Stage 2: Underperforming loans: Lifetime expected losses
    - Stage 3: Non-performing loans: Lifetime expected losses

# Quantification of capital requirements and capital buffers

## *Why actuaries now?*

- IFRS9 (expected losses) versus IAS39 (incurred losses)

### **Base case**

- Lower capital resources (after loss provision)
- May also be lower capital requirements

### **Stress scenario**

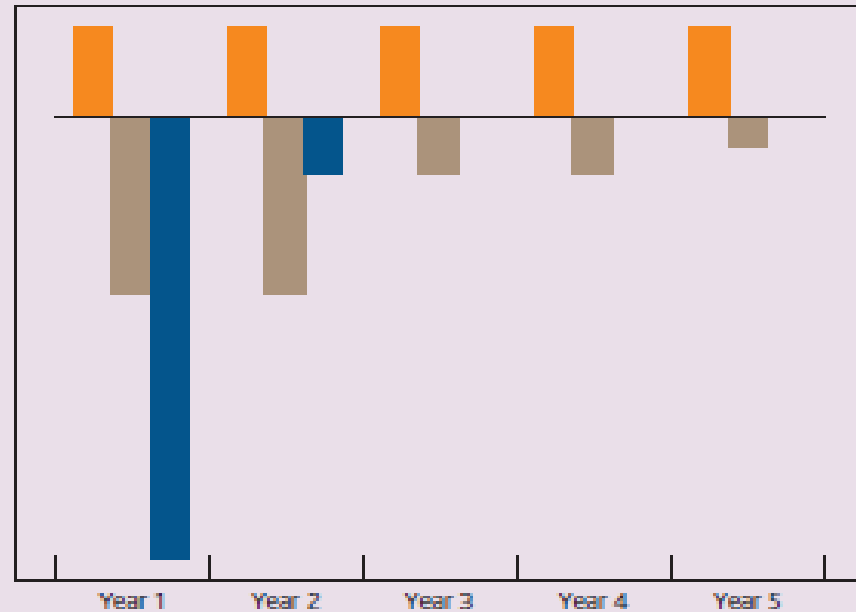
- Expected losses rise rapidly
- Capital position deteriorates more, and more quickly

# IFRS9 versus IAS39

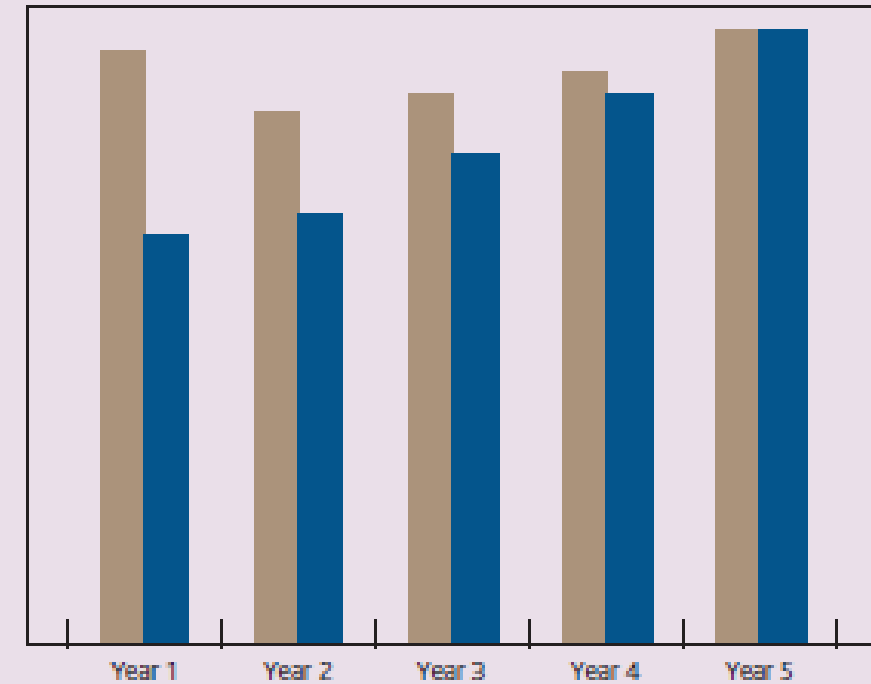
Figure 2 An illustration of the impact of IFRS 9 on a bank's capital resources during a stress scenario

Income IAS 39 losses IFRS 9 losses

Income statement



Capital resources



Source: Bank of England.

# Quantification of capital requirements and capital buffers

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## *Why actuaries now?*

- Banks need to estimate expected losses under base case conditions and under stress scenarios
- Banks need to make judgements about buffers in light of IFRS9 versus IAS39 stress tests

# Opportunities for actuaries in banking

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## Retail banking product pricing and profitability



# Product pricing and profitability

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## Products

- Current accounts
- Deposit accounts
- Mortgages
- Credit cards
- Personal loans

# Product pricing and profitability

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## Cash flows for financial model

Income                      May be fixed or variable

Costs                        May be direct or shared

Credit losses              Need to allow for IFRS9

Capital                      P1/P2A product-specific, P2B shared

Liquidity                    Balance sheet limits liquidity risk

# Product pricing and profitability

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## *Why actuaries?*

- Need for understanding and judgement
- Not rely on deterministic model, base case

# Product pricing and profitability

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## ***Why actuaries?***

*The Bank recognises that all models are simplifications of reality, with both known and – perhaps more importantly – unknown weaknesses. The results of models are therefore a baseline against which judgement should be applied and are not ‘the answer’.*

Bank of England



# Product pricing and profitability

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## Need for understanding and judgement

- Balance sheet: Maturities of loans, deposits
  - Mortgages: Behavioural shorter than contractual
  - Current accounts: Behavioural longer than contractual
- Income: Some items depend on customer behaviour
  - Interest income: Expected retention rates
  - Non-interest income: Fees on current accounts

# Product pricing and profitability

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## Need for understanding and judgement

- Costs: Shared costs include IT, Treasury, distribution
  - Allocate shared costs across products
  - May evaluate with/without shared costs
- Funding costs: regard deposits as profit centre
  - Treasury sets funds transfer pricing rates
  - Rates include term liquidity premium

# Product pricing and profitability

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## Need for understanding and judgement

- Credit losses: Allow for IFRS9
  - Initial capital for provisions as well as for loans
  - IFRS9 impairments in profit and loss account
- Capital: Allow for total capital supporting product
  - Pillar1/Pillar2A capital is product-specific
  - Allocate Pillar 2B buffers, allowing for relative risk

# Product pricing and profitability

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## Need for understanding and judgement

Discount rate for NPV, hurdle rate for IRR

- Prefer cost of equity capital, but could use weighted average cost of capital
- Use CAPM for each bank
- Apply same discount/hurdle rate to all products
- Differentiation by risk already achieved through amount of capital (including buffers) supporting product

# Product pricing and profitability

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## **Not rely on deterministic model, base case**

- NPV/IRR model is convenient and straightforward
- Evaluate sensitivities as well as base case
- If possible, use an approach that allows for a range of possible outcomes

# Product pricing and profitability

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## *Why actuaries now?*

- PSD2 (Open Banking in UK) has potential to transform retail banking
- Customers may authorise transfer of data to approved third parties:
  - Price comparison websites for individuals
  - Information and advice for individuals
  - Personal financial management services
  - Other innovative banking services

# Product pricing and profitability

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## *Why actuaries now?*

- Product pricing and profitability
  - New entrants seek profitable product/customers
  - Incumbents need to defend market shares/profits
- Likely shift from product focus to customer focus
  - Use data to evaluate customer relationships
  - Use data to enhance customer relationships

# Opportunities for actuaries in banking

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- Build on existing skills and experience in equivalent activities in insurance and pensions
- Make effective contribution because of training in understanding risks and in making judgements about them and because of their experience of working under professional standards
- Opportunities to engage in enterprise risk management and to apply data science techniques

# Opportunities for actuaries in banking

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