Actuarial Society of South African

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Subject F206 – Banking
Specialist Applications

Solutions

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates using past papers as a revision aid.

The Examiners examine the F206 syllabus and have access to the reading material and references contained in the reading material. The report contains more points than the Examiners will expect from a solution that scores full marks. The list of points is not exhaustive and marks were awarded for alternative solutions as well.

The report is written based on legislative and regulatory context at the date the examination was set. These circumstances may change.

QUESTION 1

This question covers the treasury aspects of the syllabus. Most candidates scored well on the first two parts of the question, however a surprising number failed to generate the breadth and depth of points required, especially on part (iii) of the question.

You are an Executive Committee member of the Treasury department of a large South African bank. The bank's Treasury department is well established and considers asset and liability modelling, funding and liquidity management, capital management as well as execution services. The activities of the Treasury department are governed by an Executive Committee, the Asset Liability Committee (ALCO).

The first question was bookwork from the core reading. Most candidates scored well on this part of the question.

i. List the activities that are covered in the terms of reference of the ALCO.

The ALCO will review and make recommendations on the following activities:

- The market and political environment and potential changes in the near and long term and their impact on interest rate risk and trading activities;

- Funding rollover or "gap" limits, actual gaps and their sensitivities together with any recommendations to amend the limits;

- Liquidity ratios and metrics including
    - Loan to deposit ratio
    - 1 week and 1-month liquidity ratios
    - Cumulative liquidity model
    - Liquidity risk factor
    - Concentration and funding source report
    - Group entity reports
    - Inter-entity lending reports
    - NSFR & LCR

- Deposit and funding trends, including deposit concentrations, programmes / products, deposit promotion campaigns and forecasts;

- Exceptions / breaches of internal and regulatory policies and limits;

- Allocation of capital and profit contribution by business line and current and forecast regulatory and economic capital adequacy;

- Capital issuances for the group, subsidiaries and inter group;

- Authorised instruments and permissible hedging and position taking strategies for gap management, trading and customer sales;

- New trading activities recommended under the policy;

- Policies, objectives, risk appetite and limits;

- Internal Funds Transfer Pricing arrangements;

- Quantitative limits for all Treasury trading activities;
- Stress testing output for both the ICAAP and ILAA;
- Addressing board requests falling within duties and responsibilities of the ALCO;
- Centre of excellence for all ALM related policy and governance issues

This question required the candidates to apply the liquidity metrics to the limited data provided and comment on the gaps. Most candidates performed well, however, some candidates failed to make sufficient points to achieve all the marks on offer. Candidates would have scored better had they followed a more structured approach to analyzing the metrics. Candidates also generally failed to discuss the differences between Retail and Non-Retail funding and the implications of duration. Some candidates also unnecessarily focused on the differences between European and South African banks, which was not relevant to this question.

At a recent ALCO, the head of risk presented a case study of a European bank that has recently experienced severe liquidity stress and was placed into resolution as a result. Based on her presentation the ALCO has requested you to review the funding and liquidity risks the bank are exposed to and to explain the risk mitigating actions the bank can take.

Details of the bank's contractual balance sheet as at 31 December 2017 are presented below:

R'm	Overnight to 30 Days	31 Days to 6 Months	More than 6 Months	Total
Assets				
Sovereign	27,404	15,333	45,109	87,846
Banks	8,314	655	0	8,969
Corporate	27,779	37,777	54,611	120,167
Secured Retail	2,900	160	6,400	9,460
Unsecured Retail	34,533	23,199	131,224	188,956
Other	1,365	4,687	24,909	30,961
Total Assets	102,295	81,811	262,253	446,359
Liabilities and Equity				
Retail	174,342	5,230	34,587	214,159
Corporate	63,091	9,874	15,654	88,619
Debt securities	835	42,239	27,711	70,785
Other	7,658	1,204	22,099	30,961
Total Liabilities	245,926	58,547	100,051	404,524
Total Equity				41,835

ii. Describe the points you would make to the ALCO.

1) Funding and liquidity risks

Liquidity refers to the ability of a bank to service its obligations as they become due. The business of a bank creates maturity mismatches between assets and liabilities and hence liquidity risk arises.

The following indicators provide an overview of the level of liquidity risk that the bank is running:

Loan to deposit ratios

Loan to Deposit	Total	Retail	Corporate
Loans	318,583	198,416	120,167
Deposits	302,778	214,159	88,619
	105%	93%	136%

The loans of the bank should preferably be funded entirely by deposits. As a result, a ratio of 85% to 95% is considered best practice. The bank currently does not lie in this range and relies more on debt securities in issue.

The bank aims to fund loans in its entirety and therefore differences may very well arise in different business lines. The retail banking funding profile is much stronger than the corporate funding profile.

The retail funding will arise from transactional and savings products. The transactional funding tends to have high margins while the savings products less so. Both tend to have higher spreads than wholesale funding. The strong retail funding ratio therefore points to stronger margin as well, however the exact level cannot be inferred from the data provided.

The corporate funding margin tend to be lower than retail funding margins and therefore the bank may use wholesale funding instead.

Liquidity ratios

Liquidity ratios consider the contractual and behavioural in and outflows on a daily basis for the next month with particular focus on the next week.

Contractually the bank will experience the following gaps

Liquidity ratios	1 month	6 months	Total
inflows	102,295	81,811	262,253
Outflows	245,926	58,547	100,051
Gap	143,631	120,367	-41,835

The funding gap on a contractual basis is significant. This is because of the business of a bank to provide long term financing on the back of short term liquidity, i.e. maturity transformation. It is well acknowledged that this is too severe a view to manage to. An alternative is to use either an internal behavioural view or the view prescribed by the regulator as part of the liquidity coverage ratio.

Liquidity coverage ratio

The liquidity coverage ratio considers the stock of high quality liquid assets (HQLA) to net cash outflows over a 30 day time period.

The inflows are restricted and in principle 50% of retail exposures are expected to be repaid while 100% of corporate exposures are expected to be rolled into new lending.

Similarly, the outflows are evaluated for their likelihood of outflow. Retail deposits are expected to show outflow of between 5% and 10% while corporate deposits will show 100% outflow except where operational relationships are in place.

There is a requirement for the bank to hold high quality liquidity assets to mitigate this risk. As an approximate guide all sovereign exposures (0% RWA rating) should qualify as HQLA due to the level of liquidity in those markets. The bank has R87,846m of sovereign exposure. Assuming these exposures qualify as HQLA these assets will be available to meet net outflows.

Liquidity risk factor

The liquidity risk factor considers the average tenor of assets to the average tenor of liabilities and therefore indicates the level of mismatch. It also indicates the potential sensitivity to interest rate movements. Generally, this ratio will be high given maturity transformation of a bank. The balance sheet indicates relatively low LRF.

Assuming tenor of 15 days, 90 days and 365 days the LRF is marginally higher than 2.

This does not appear to be correct. The wholesale funding, debt securities in issue appear to be too long term in nature.

Net stable funding ratio

Apart from the shorter-term focus on liquidity, there is also a need to ensure a more stable medium and long-term funding base thereby securing a closer match between assets and liabilities. The net stable funding ratio is used for this purpose and defined as the available amount of stable funding divided by the required amounts of stable funding.

Where stable funding is provided from instruments with tenor more than 1 year. Haircuts of 15% are applied to stable retail deposits and 25% to less stable deposits with residual maturity less than 1 year. A 50% deposit is applied to corporate deposits with a maturity of less than 1 year.

The required amount of stable funding is driven by the residual maturity of the assets on balance sheet. All loans more than 1 year require 100% Available Sources of Funding, ASF, and less than 1 year 85% on retail loans and 50% on corporate exposures.

By way of example, the ASF and Required Sources of Funding, RSF would be as follows if the factors for 1 year are applied to the >6months bucket:

	ASF	RSF
Equity	41,835	
>1 year	100,051	217,144
Retail	125700.4	51673.2
Corporate	36482.5	32778
	304,069	301,595

This shows the banks has a strong funding structure assuming limited off-balance sheet exposure.

Funding concentrations

Funding concentrations refer to the reliance on a single source of funds. Concentrations may arise in the wholesale and corporate markets due to the size of individual funding exposures. Specific concentrations are not apparent from balance sheet information provided and further interrogation will be required.

Inter-entity lending

This bank is a large South African bank and will therefore have group companies and intergroup lending. Specific details regarding intergroup lending is not provided in the balance sheet and further interrogation is required.

2) Risk mitigating actions

The funding and liquidity risks identified can be addressed through the following actions. This list is not exhaustive:

- Governance: The ALCO should ensure that the key metrics are monitored daily, and clear escalation procedures are in place. This should include early warning indicators and escalation actions.

- The ALCO should have liquidity stress plan with corrective actions that can be invoked, including engaging the Board and the SARB.

- The plans should be developed for each currency and jurisdiction the bank operates in. The most significant items will most likely consider ZAR liquidity first. However, given the levels of liquidity in other jurisdictions can be more restricted than South Africa a comprehensive approach is required.

- Improving HQLA:
  - The bank can increase its portfolio of HQLA noting there will be a cost associated with holding such assets.
  - In addition, the bank can develop its level 2 type HQLA which will include assets that are AA rated or better

- Secure liquidity facilities:
  - The bank can enter liquidity facilities with other banks and liquidity providers especially for non-ZAR currencies where the portfolios might be smaller.
  - The bank may utilize the contingent liquidity facility provided by the SARB provided it can secure appropriate collateral against the facility.

- Manage balance sheet structure (through product design or incentivizing behaviour):
    - Transactional retail deposits and to a lesser extent corporate deposits are sticky and have low expected outflows; As such they will reduce the HQLA and liquidity facilities required to address liquidity risk.
    - Extend the term of deposit products. By introducing a notice period, for example 31 days, the bank secured the funding for a set period. Such product will however provide a lower spread as customers have to be compensated for the lack of liquidity.
    - And reducing term products with a shorter term.
    - By the same measure the asset liability structure of the bank can be extended to reduce the mismatch.
    - Especially in the retail and SME markets when focusing on transactional business

- Reduce off-balance sheet exposure
    - Reduce all undrawn commitments provided when there is no evidence of customer need.
    - Or stop providing increases to such products where it is unwarranted

This part of the question was not well answered. Due to the maturity transformation conducted by a bank, the treasury function may, on a behaviouralised basis, still generate a profit. This question explored that dynamic given a competitive market background.

After your presentation, the head of the corporate business notes that the ALCO has too strong a focus on risk management. He explains that the business cannot compete in the market as the Funds Transfer Pricing set by Treasury makes his business uncompetitive. He asks you to review the funds transfer pricing applied to aid the growth of his balance sheet.

iii. Outline your response to the head of corporate business.

One needs to look at all elements of pricing and service models to determine where potential uncompetitive issues arise from. Could be inefficient cost structures being passed on to clients as example.

Even though pricing may be perceived to lead to uncompetitive business, it may not be the case. Detailed customer feedback will be required to ensure no other reasons exist for the perceived competitiveness of the products.

Funds transfer pricing is the price curve at which business lines buy and sell funding from and to the Treasury desk.

As a result, the curve set by Treasury does impact the business lines and can be perceived as negatively impacting on business growth.

However, the Treasury team do not own the profit and loss on its funding activities as this would impose a moral hazard and a clear incentive to act as per the head of corporate business concern. The following principles can be considered:

Governance

- The treasury team is not incentivized to favour or constrain any business line
- Any profit that treasury secures through maturity transformation is allocated back to business
- The ALCO review the activities of treasury and includes challenges such as the one addressed here.

The FTP curve is based on

- The base cost of funds which reflects the general level of interest rates in the relevant market
- The term liquidity premium, which reflects the additional spread above base cost which is required by depositors / investors of the bank
- The repricing characteristics of the product

The pricing is based on the following which may result in uncompetitive pricing

- FTP as discussed above
- Cost allocations based on activity based costing and transfer pricing
- Capital intensity and consumption based on the product characteristics
- Tax treatment

Distribution avenues may also result in uncompetitive pricing. Banks with deep relationship may be able to secure more business irrespective of price. In addition, new product types may result in the existing offering becoming redundant.

It is less likely that the FTP results in uncompetitive pricing as it is based on the cost of funds as noted above. A change in FTP would simply generate an income gap in another business.

However, through the maturity transformation mechanism the treasury will generate a profit if the behavioural assumptions lead to longer term assets compared to shorter term liabilities. The balance sheet does confirm this.

The profit allocation made by treasury to business areas may be changed to incentivize business growth. However, such an approach will only generate a positive result if the main driver of business growth is indeed price.

The treasury team can then apply treasury allocations to incentive business growth. Such an initiative will yield a positive outcome if the reallocation results in business growth sufficient to reduce cost to compensate for the revenue forgone.

Such incentives are not sustainable indefinitely and a limit will need to be set as to how much incentive can be applied.

In return the head of corporate bank will be required to commit to business growth to justify the reallocation required in the group.

QUESTION 2

The bookwork components of this question were well answered. Some candidates still struggled with the application even though the Basel framework forms a key part of the syllabus.

Most candidates only managed to generate between 3 and 4 items included in Tier 1 capital. A surprising number of candidates listed items that are not included in Tier 1.

i. List the items included as Tier 1 capital under the Basel I framework.

- Ordinary Shares
- Non-redeemable, non-cumulative preference shares
- Share premium
- Accumulated profits
- Surplus on realization of capital assets
- Other general or special reserves

The regulator for a small developing banking market requires companies to calculate capital under a Basel I - equivalent approach. In a recent market survey, the majority of banks in the market noted that the capital requirements imposed by the regulator were a major contributor to their lack of expansion in the local retail market. *Candidates generally scored well on this part of the question and were able to demonstrate an understanding of the limitations of applying standardised risk weights to bank's with portfolios of potentially different quality.*

ii. Explain why a Basel I approach could lead to a lack of growth in retail banking portfolios.

A Basel I (or Standardised Approach) may lead to a lack of growth in Retail Banking for the following reasons:

- Under Basel I capital charges are based on standardised weights, and do not take into account the actual underlying riskiness of the business being written

- As a result, each Rand unit of additional new business will require the same additional unit of capital to be held

- The weights imposed by the regulator may be set at a level such that the ROC for retail is unattractive for banks when compared to other business lines.

- If the industry as a whole believes the weights are inappropriate, this may indicate that the weights imposed by the regulator need to be reviewed. It may be that they are too large given the underlying overall risk in the market.

- Under a risk-based approach, each bank is able to allocate appropriate amounts of capital to business units. This allocation will be a more accurate reflection of the riskiness of the different portfolios, and therefore reward / penalize good / bad decisions.

- A bank would therefore be able to assess it's individual retail portfolio risk and assign appropriate capital, which may be far lower than the weight imposed under the SA.

- Banks that are able to reduce capital weightings for retail portfolios would be incentivised to grow their retail business.

- Banks with the best scorecards will still be able to originate better risk profiles provided they can originate accordingly.

The regulator has developed a risk-based approach to calculating capital requirements, and has hired a consulting actuary to provide a report explaining:

- The impact on different groups of consumers of changing to the new approach
- The impact on banks of changing to the new approach
- The practicalities of implementing the new regulations

Candidates who followed a structured approach to this question, by first considering the impact on customers, then the impact on banks, and finally the practical issues, scored well. Most candidates however failed to generate a sufficient number of points. Some candidates also failed to discuss that the risk based approach will result in a better outcome for some customers and a worse outcome for others.

iii. Suggest the points that might be made in the report.

<u>The impact on consumers</u>

The financial impact on consumers ultimately depends on the significance of the cost of capital component in the calculation of bank interest rate charged and fees.

A customer of a bank where capital requirements under the new regime decrease is likely to experience a decrease in bank fees / interest rates on loans, reflecting the lower cost of capital.

Conversely, a customer of a bank whether there is an increase in capital will likely see an increase in fees / rates, as the bank will now have a higher cost of capital.

Customers may shop around cheaper rates if they experience an increase in their fees. Certain products are, such as personal loans, are however driven by availability and process time.

… but this depends on the significance of the fee relative to:

- The customer's preference for a certain bank due to factors such as brand loyalty and customer service.
- The customer's ability to switch between banks, e.g. if a customer has a significant

amount of credit products at a particular bank they may be unable to move in the short-term.
- The dependence of the market on branch banking. Since in developing economies, proximity to a bank branch could be a significant factor in determining the choice of bank.
- The ease of closing and opening accounts in the market.

Given that the new rules are risk based, consumers are likely to be better off in terms of the security of their money within the banking system. However, this may not be readily acknowledged.

Consumers may be emotionally affected by the changes:

- Consumers that experience an increase in fees may feel it is unfair.
- Consumers may be pleased, where they experience a decrease in fees
- … this may increase the propensity of consumers to purchase banking products.

Banks who can differentiate risk levels more accurately will be advantaged compared to those banks who do not.

<u>The impact on banks</u>

Banks will incur the costs of moving to the new approach as a result of:

- Acquiring the expertise to understand regulations
- Implementing changes to process and systems
- Any requirements for validation of new models for the calculation of capital as well ongoing maintenance.

The extent of these costs will depend on the complexity of the rules relative to the previous regime, and any changes to reporting requirements.

Banks may need to hire external consultants or increase headcount to assist with the implementation of the rules, which will also increase costs in the short-term.

Significant management time will be required to understand the new regulations.

... this is likely to detract attention from other business matters in the short-term, leading to a slow-down of development in other areas of business.

The new regulations may lead to lower capital requirements for some banks.

These banks may choose to hold less capital overall.

As a result, more capital will be made available for other projects such as product development, marketing and new ventures, ultimately leading to an expectation of business growth and higher profits.

Conversely, banks that experience an increase in capital requirements, will have less capital available to fund other activities

…and in the extreme may be forced to scale down their business or exit the market.

Since the new rules are risk-based, this may increase the focus on risk management within banks and ultimately improve risk management practices in the industry.

This however, depends on:

- the extent to which banks view the new regulation as merely a compliance exercise rather than use the new information gained for making risk-sensitive decisions
- The sophistication of the new regime, and the extent to which it is sufficiently robust to accurately capture the individual risk profile of each bank

<u>The practicalities of implementing the new regulations</u>

A risk-based regime will likely be significantly more complex than the Standardised approach.

Banks will therefore need sufficient time to understand the new regulations and make the necessary changes to internal systems and process to produce the required output.

The regulator will need to adopt a gradual approach, allowing banks the time to understand the new regulations and implement them correctly.

Risk-based regulations are likely to be more principles-based as opposed to the more prescribed Basel I approach.

…This gives banks greater flexibility on the methods for calculating capital, which is likely to result in a variety of methods.

…The regulator will therefore need additional skilled resources to ensure it is able to properly assess each bank's calculations.

The regulator will incur significant time and costs in implementing the new regulations. These costs will include:

- Going through the legal process to introduce the new regulations
- Training of staff
- Costs of monitoring compliance
- Costs of any changes to systems and processes

The regulator may see an increase in disputes with banks, particularly those for whom the new regime is more penal.

Any other relevant point i.e. a wide variety of issue where the implications are not clear such as product design, risk appetite etc.

Candidates performed well in this question. Most candidates demonstrated a good grasp of the potential reasons for not adopting the new regulations during the voluntary period, and were able to discuss both the pros and cons of this decision.

Following the consultation, the regulator decides to make no immediate enforced changes to the regulations but proposes to allow banks to comply with the new risk-based framework on a voluntary basis for an initial period of 5 years, following which there will be a review of the proposal.

iv. The CEO of a large bank decides not to move to the new regulations during the voluntary period.

a) List 4 reasons why the CEO would make such a decision.

b) Discuss the impact of the decision on the banks performance.

Reasons why the CEO would make the decision:

- There may be a first mover disadvantage as banks and regulators interpret the rules and therefore it may be better to learn from the experiences of other banks.
- He may not expect the capital requirement to change significantly under the new regime.
- He may expect an increase in the capital requirement under the new regime and want to postpone its effect as far as possible.
- He may believe that there is little possibility of the rules being enforced in future.
- There may be other aspects of the business that require capital in the short-term.
- His decision could be based on pressure from various stakeholders such as shareholders.

The impact on the bank will depend largely on:

- Whether the new-regime is eventually enforced after the voluntary period.
- What competing banks in the industry decide to do

If competitors decide to move to the new regulations during the voluntary period, they may see a decrease in their capital requirements and benefit from the resulting ability to decrease their charges / rates.

…This could lead to a loss of customers to competitors for this bank.

However, the bank could also take advantage of the short-term distraction resulting from competitors learning and implementing the new rules, to focus on improving other areas of their business such as increasing marketing efforts to improve business volumes.

If the new rules are eventually enforced, competitors that moved to the new regime would have had additional time to become familiar with the new rules, which would put this bank behind should the rules eventually be implemented.

However, if the new rules are not implemented, the bank would not have spent unnecessary time and money trying to understand implement the rules.

The bank may come under more scrutiny by external parties such as credit rating agencies or the media, particularly if competitors decide to move to the new regime in the voluntary period.

Credit rating agencies may not view the decision favourably given that the new regulations are likely to be more sophisticated and reflect a greater understanding of risk. This could lead to downgrading of the bank's credit rating.

Banks that move to the new regulations early, could have a chance to influence best practice in the industry for calculating capital under the new regime and also influence reporting standards to the regulator. This bank would miss this opportunity if competitors moved early.

Given that it is a large bank the regulator may put pressure on the company to move to the new approach early since it is likely to be an influential industry player.

Shareholders will be affected to the extent that the CEO's decision affects market perceptions of the bank's performance.

The CEO may have considered the new standardised floors considered under "Basel IV"

QUESTION 3

This question was well answered and most candidates exhibited a good understanding of the issues that would impact a bank. Some candidates failed to highlight the significant detriment the proposal could have on the banking system and the economy. Better candidates were able to break the discussion down into components by considering which parts of a bank's portfolio is likely to be affected, and potential mitigating actions at a micro and macro level.

You are the head of credit for the mortgage division of DIY, a Bank in a emerging market economy. The government has conducted consultations and research for a few months on land expropriation without compensation. After much deliberation, the constitution is amended allowing expropriation without compensation. Specific details regarding the implementation thereof are not available at this stage and will be addressed through subsequent regulatory standards.

Explain the potential risks that this legal change can bring to the mortgage portfolios of the bank and describe the actions to mitigate these risks?

Expropriation of land without compensation means that current land owners may not realise any of the full retail value of their properties should the property in question be chosen to be expropriated. If there is a mortgage tied to the property, no mention is made of how this will be handled by the government. From the point of view of the bank there are a few scenarios that could eventuate:

1. The mortgage be settled partially or in full by the government

- There is reduced or no risk to the bank in this instance from an LGD perspective
- If the mortgage is only partially settled, is the banks within its legal rights to collect the remaining balance from the customer (this will have significant reputational consequences so this course of action, if available and required, would have to be vigorously tested)
- Early settlement will also lead too a significant reduction in revenue for the bank.

2. The property owner may receive no pay out for the land at all or they may receive something (over and above the outstanding mortgage due)

a. How much is paid out may depend on many variables: remaining mortgage size, property total value, development completed on the land itself

3. The original mortgage, or whatever balance is remaining, may be transferrable to the new property owner
a. This may initially protect the bank from an LGD and immediate loss at the point of expropriation

b. There is however no guarantee that the new property owner will have either the ability or the willingness to repay any remaining debts on the property (so additional losses above those originally expected may still result down the line in any case)

Different property types are likely to have differing levels of risk associated with them being expropriated (leading to the risks above):

- Based on land appropriate in other emerging market economics, Agricultural land is likely to be the land that is at highest risk of being expropriated, as such the agricultural mortgage portfolio is the one at most risk
  - Specific types and sizes of agricultural land will be more at risk than others, thus the impact will differ on specific parts of the portfolio

- Retail property should be largely safe from the change however if there are no specific rules around which land can / cannot be expropriated there is still a risk that some of the retail portfolio may be at risk too
  - This would be especially true of small holdings or plots or vacant land
  - However, nothing completely removes the risk from other retail property types

- Corporate or other business property should be largely untouched but as with retail property there are no guarantees

The LGD risk or risk of a write off is clearly evident, however in addition to this other risks do also emerge:

- Default rates on property in general, but especially those at the highest risk of being expropriated, could increase quite significantly. Especially if no compensation is expected to be given to the home owner for the equity held in the property

  - there is potentially little to no incentive to repay the debt anymore
  - customers that would previously have sold out of the debt in order to settle their debts may struggle to sell the property (at an amount high enough to settle the remaining mortgage balance) – resulting in the client ultimately defaulting

- The EAD could increase significantly as any customers with access bonds of sorts may be better served drawing down the full exposure (in essence to get something out of the property prior to expropriation)

- LGD’s may increase as a result of property prices becoming depressed (especially for specific properties earmarked for potential expropriation) and as a result upon foreclosure the bank will get a much lower value for the property at auction (hence the loss given write-off will be higher {maybe significantly so} than in the past)

It would be worth investigating how this new set of regulations have typically been implemented in other jurisdictions. While the local situation and implementation may ultimately differ significantly, it will give the bank some useful insights into potential outcomes and risks. It will also give the bank some potential insights into customer behaviour and responses to expropriation risks elsewhere and the impact on banks in those jurisdictions.

It may also give insights into the risk of "land grabs" and how this is handled from both a legal and banks point of view in other countries (as a guide to what could eventuate locally).

The viability of the banking system and the economy can become jeopardised. This is therefore an extremely serious matter that needs the highest priority in terms of risk mitigation.

Possible actions / risk mitigants:

Banks need to engage with the government as soon as possible and throughout in a constructive manner as certain scenarios could have dire consequences for the country's economy.

The bank needs to identify the types of properties that are likely to be expropriated. This may be based on land claims lodged or government guidance in terms of their ultimate strategy to be implemented.

The bank will also want to know likely timelines of any processes and the expected or likely compensation they will receive for any outstanding debt (and the legalities or possibilities of transferring the debt to the new property owner). Given this information the bank can look to do the following:

- Back book (mortgages on balance sheet):
    - For property types which are at risk of higher bad debts based on the information received:
        - Remove any access facilities or at least reduce them (to reduce increased losses and the EAD)
        - Start increasing provisions by making use of model overlays for this portion of the portfolio (for increases in both PD and LGD)
        - There may be capital implications too (especially in terms of the downturn LGD) which may result in requirements to increase capital held for this portion of the portfolio
        - Any properties that are already lined up for auction, potentially fast track these auctions (or hold off on them – depending on expectations of the impacts on resale values)
- New Business
    - All these recommendations would be in relation to any property types (by size / type / region) that are at risk of expropriation (or at risk of deteriorated performance:

- Potentially put in place policy filters or auto-decline rules to make sure that little or no new business of this type is written going forward
- Or increase deposit requirements significantly for these properties going forward (reduce LTV – to the extent that the risk is largely fully mitigated)
- Set up risk appetite limits (or reduce those in place) for new business to be written in these segments
- Look to increase the pricing on certain riskier segments where the risk can be realistically priced for

QUESTION 4

Candidates generally scored well on this question, however failed to generate a sufficient depth and breadth of response during later parts of the question. In particular, most candidates failed to draw the correct link between an increase in complaints and the technology.

You are the CEO of Say-Little Bank that is based in South Africa. Your bank is currently structured similarly to other banks in the country. Say-Little has branches, contact centres, ATM's, online banking and a mobile banking application. You have just been to a global conference where banks exhibited the use of Natural Language processing and robotic advisors to replace many of the manual operations performed by staff.

Natural language processing converts speech into text, while robotic advisors use text or other methods of receiving instructions and then perform system driven tasks (especially repetitive tasks). Over a long term this technology has resulted in operational efficiencies and savings.

Candidates could have scored better on this part of the question by considering a broader range of areas to investigate. Better candidates discussed system integration and people elements beyond the purely financial considerations.

i. Describe the elements you would investigate to assess the feasibility of implementing such technology within your own bank.

Candidates scored well on this part of the question.

ii. Explain the potential benefits and risks of such an implementation.

i) Financials:

The potential financial benefits of implementing such technology needs to assessed in detail and properly understood:

- There will be both the initial set up costs as well as ongoing management of the software and its integration. There will be licencing fees as well as support fees from the external developer / provider of the technology.

- This must be compared with the financial savings that will be made because of the operational efficiencies that will be realised. This may be lower staffing requirements and possibly a smaller branch footprint.

While the set-up costs will all be incurred upfront, the benefits of the new platforms will only be realised over a period. This will be because of the time it takes to not only properly develop and test the new software, and to integrate it into the banks operational processes, but also the time it will take to fully roll the software out.

Simultaneously staff numbers and branches will have to be slowly reduced and this will take time to execute.

Identifying the most appropriate vendor:

Several vendors will likely be approached to ascertain which can supply the most appropriate mix of the following:

1. Software that integrates easily with the banks current systems (or other reasonably priced systems).
2. The software must have reasonable levels of flexibility to allow it to be tailored to the banks needs
3. The software must be able to give the bank all the functionality required (possibly including reporting capabilities)
4. Has the best pre- and post-implementation support as well as the ability to upskill bank staff to maintain the system ultimately
5. The ability to provide for all the banks requirements at a reasonable price and (if important) over a suitable timeframe
6. The vendor has a proven track record of successful implementations

System Integration:

- System and IT specialists within the business will need to investigate how the technology can be integrated into the current banking systems. This may require the purchase of additional integration software, new software or software updates or significant software development (for example on the telephony system).

    - These will lead to additional costs (and will add to implementation time) if there are requirements here.

Staff / People:

- The current staff compliment will potentially have to be reduced (over a period of time) – however it will be a requirement and consideration as the technology starts to take over from the manual interventions (union negotiations for example will be a stumbling block here)

- There is potential to redeploy staff to other areas following suitable training so impact can be muted, for example staff could focus on complex sales only where new tech will focus on simple type products.

- Internal staff will ideally need to be trained to make use of the technology and to maintain the technology (which will allow some of them to retain their jobs). In addition staff will need to be cross skilled on areas of work that the technology cannot take over.

Operational Implementation:

- A roll out plan will need to be developed and the operational areas will need to determine where best to implement the technology and where human intervention will still make more sense.

    - For example: fraud occurring on a customer account – it may be best for one of the staff to assist the customer (customer experience at a time of need)
    - For new product sales certain levels of advice and information may be best left to humans where a deeper thought process and a soft touch may be required

- There will be certain tasks that can be easily taken over by the technology (repetitive tasks) and others that will not (ones requiring a lot of touch points).

- The roll out strategy will also be impacted based on the time it will take to integrate the software and to tailor it to the bank's needs.

    - The bank may wish to roll it out for only certain customer segments, products, tasks initially (in order to test the client responses to such technology), as well as to iron out any remaining development bugs.
    - Initially the technology may just be used to direct the client into the correct area within the contact centre / branches allowing a more effective interaction between the client and bank staff
    - Upon final full implementation, the bank may still choose to keep the option open for clients to interact with customers directly (in some or all instances). This will depend on the banks strategy around technology and the costs thereof.

ii) Additional Benefits:

- The technology should reduce operational costs and hence improve overall profits (over the longer term)

- Depending on how well the technology works client service could be significantly improved (at no extra cost)

- The technology will deliver useful data with respect to client interactions and should allow the bank to have a better understanding of both client needs and service shortcomings and possibly monetize some of the data to create new data products customers could be interested in

Potential Challenges:

- The technology has been developed globally, a First World country, where technology is probably more openly embraced and is more openly available than in South Africa.

- Customers may not appreciate interacting with a robot in times when they perhaps have exhausted all other opportunities to assist themselves and now finally wish to literally talk to someone.

- The technology is likely to have been developed to easily interpret English (perhaps Chinese and one or two other European languages), but will not be built for any local languages and dialects. So only a limited proportion of local interactions will be easily replaceable (especially by speech technology). Development for other languages could be both costly and time consuming.

Your bank has decided to go ahead and implement the technology, both in online chat as well as in your Contact Centre environments. However, two years after the full implementation you have noted that calls into your Contact Centres have been going up, along with complaints. Both were originally reducing after the initial implementation.

Most candidates failed to discuss the potential causes for the increase in phone calls and the increase in complaints.

iii. Describe your investigation into this unexpected outcome and the possible causes.

The increase in calls and complaints could be for many reasons, many of which may not even be related to the new technology in use. However this new technology should supply very useful data which could be analysed to understand the reasons for both increased call volumes as well as customer complaints (these two events may not even be correlated).

A full analysis on all the reasons for calls coming into the bank as well as the types of complaints that have been received should be completed (over an extended period of historical data). The information captured by the speech software will be rich allowing an analyst to be able to identify the specific points of failure and gaps in the banks service offering that is leading to the increases in both the complaints as well as the calls received.

Both sets of information should be analysed and tracked over time, with trends over time being compared. It is possible this is a once off blip or there may be a slowly increasing trend over time. Likewise the movement can be compared to both internal and external events to explore correlations.

Potential reasons for increased calls could be any of the following:

The client base may have been growing over the last year, or there may be more products offered which would potentially require additional support for clients

This is unlikely to significantly increase complaints but may explain a rise in call volumes especially if the technology in use has not kept up with product enhancements

There could have been problems with the software (the speech converter may be misinterpreting phrases or perhaps some of the bot functionality is not operating correctly).

This could be due to the software itself not being properly maintained or the ultimate implementation thereof not being regularly relooked (as business needs change)

Certain pre-programmed elements of the software may have been neglected for example a pricing module which is now leading to more calls as well as complaints

There could have been a change in the demographics of the client base which over time have rendered the technology less appropriate or useful in assisting clients (less clients using technology, language changes)

There may simply be other bank system failures or external bank failures that have led to call volumes coming through (querying the outcomes of such breakdowns). If these are starting to occur regularly this too may then lead to complaints increasing too.