Actuarial Society of South African

22 October 2018 (am)

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

Of all the questions in this paper, successful candidates performed the best in this question. However, many candidates struggled with this question even though ICAAP is a core part of the syllabus. Candidates gained the least marks on part ii of this question. Many candidates were unaware of the SARB guidance on ICAAP. Good candidates performed well on part iii, which was also the best answered question in the paper.

Bank C is medium sized South African Bank. Bank C has been operating across Southern Africa (RSA, Botswana, and Namibia) and has both Retail and Corporate lending portfolios. Bank C is required to perform an ICAAP.

i. Outline the components of Pillar II, the Supervisory Review Process, of Basel II.

[6]

- Pillar II (Supervisory Review and Evaluation Process) requires banks to implement a process for assessing their capital adequacy in relation to their risk profiles over a planning period of at least 3 years as well as a strategy for maintaining their capital levels in the event of risk contingencies. This is the ICAAP.

- The ICAAP which comprises all of a bank's procedures and measures is designed to ensure that there exists:
  - The appropriate identification and measurement of all balance sheet risks
  - An appropriate level of internal capital in relation to the bank's risk profile
  - The application and further development of suitable risk management systems

- Pillar II also requires the prudential authority to review all banks for their capital adequacy and to impose any necessary supervisory measures following such review.

- The supervisory review process or SRP (sometimes SREP) which covers the processes and measures defined in the principles listed above, including the review and evaluation of the ICAAP process, an independent assessment of the bank's risk profile, and where necessary instructing the bank to undertake further prudential measures.
  - These measures include individual capital requirements, referred to as pillar 2b requirements.
  - And specific risk items such as changes in governance, systems and controls pertaining to specific risk types

  - As well as leverage limits which are more likely to come into play for low risk / highly collateralised portfolios as South African banks tend to be constrained by capital rather than leverage.

- The management actions contained in the ICAAP are actioned when certain indicators are reached, for example levels of capital adequacy. These actions are recovery actions to rectify the capital and or leverage concerns identified.

- The ICAAP also forms the background to the recovery plan. This plan will be invoked in the event of significant stress events.

ii. Describe the key factors in implementing and presenting an ICAAP

[12]

- In essence, the ICAAP process and its published output as presented to the national regulator should be a value-added exercise that reflects the interests of all stakeholders in the long-term viability of the bank as a going concern.
- The SARB has issued guidance on what should be included in the ICAAP document.
- In addition, the SARB would also have issued guidance specific to the bank based on previous on-site visits.
- A good ICAAP consists of a document which presents the firm’s strategy with all material risk exposures, on a forward-looking basis, and demonstrates that these exposures are covered by adequate capital levels, risk management systems and management actions to rectify stresses in order to ensure the successful implementation of the strategy

The following factors are crucial in the actual implementation and successful presentation of an ICAAP:

- The Use Test

  - A good ICAAP is one that is fully integrated in the planning and risk management framework of the organisation and not prepared separately from the business as usual process as a compliance exercise. That is to say it is used in day to day activity and therefore meets the “use test”, for example, as part of the budgeting process.

  - In particular the ICAAP will fully integrate the strategy, business planning, risk appetite, stress testing and remediation actions on both a regulatory as well as economic basis.

  - In order to achieve this the bank will require appropriate software in order to assimilate plans quickly, accurately and be able to test those plans on a top down basis timeously. In particular, the bank must be able to conduct ad hoc stress testing in time for the output to be readily available to the Board and

SARB. The infrastructure should also allow for a bottom-up risk assessment of the same scenarios. This requires significant investment from banks and non-compliance can be met with dividend stoppers imposed by the regulator.

- Early detection of gaps in fulfilment

    - A bank should make efforts to detect gaps in the fulfilment of requirements as early as possible so that it can take the appropriate measures in a timely and economical manner. Closing these gaps quickly will improve the bank's internal risk management and thus enhances its ability to ensure its risk-bearing capacity.

- Selection of methods

    - The bank should determine the methods and procedures which best suit its needs, as these determine the validity of the ICAAP as well as the required implementation resources. In the course of selecting methods, the bank should not only consider its current risk profile, but also anticipate planned developments in individual risk types.

    - If, for example, a decision has already been made that trading will be expanded in the medium-term, then it makes sense to introduce more advanced procedures from the outset when designing the ICAAP.

- Master plan and project management

    - The bank should develop a master implementation plan which covers planning, budgeting and a prioritisation of all ICAAP implementation tasks. There should be one overall, dedicated project manager (most probably someone within Risk or Treasury).

    - This master plan forms the basis for requesting internal and external capacities and may well involve planning resources over a period of several years. For example, implementation might already be well underway for the most important risk types while measures for other risk types are still being planned.

    - Once it reaches a certain scale, the master plan should be transformed into a detailed project plan, which serves to reduce complexity and create transparency with regard to the current implementation status. It is also important to set binding deadlines and responsibilities on the basis of this plan. A project manager should then monitor and control the performance of individual tasks.

    - Project management should seek to prevent any conflicts of interest between the business-lines involved in implementation and to maintain an aggregate and holistic view of the project.

- Communication

    - The need for, and benefits of, the ICAAP have to be clearly communicated to all staff. The fundamental concept of the ICAAP is not something for senior executives only to appreciate, but for all business lines.

    - An example is a newly designed limit allocation system or a change to the organisation chart more likely to be supported by staff if they are informed about the need for these measures in a transparent and understandable manner.

    - Insufficient communication in implementation projects often results in low levels of identification or even rejection and demotivation. By applying an appropriate communication policy and setting a good example, senior executives should generate the employee acceptance necessary for successful implementation of the ICAAP.

- Know-how and resources

    - One major objective of the ICAAP is to foster the development of an appropriate internal risk management culture. For this reason, expertise in this area is a key success factor in the implementation of the ICAAP.

    - It is important for the bank to have the necessary resources (employees, systems) at its disposal in the ICAAP implementation process. Resource requirements will depend on the bank's size and risk profile as well as the difference between the current status and the defined requirements.

- Data quality and IT systems

    - Data quality (completeness, availability) is especially important because it determines the reliability and accuracy of calculated results (for example, risk indicators and coverage capital).

    - The process of data quality assurance begins with accurate data capture and goes as far as ensuring data availability in the ICAAP. Especially for risk management, it is necessary and worthwhile to ensure timely automated evaluations due to the large data quantities involved and the sometimes complex calculation algorithms used. In its ICAAP, the bank can rely on existing risk management systems (risk measurement, limit monitoring) if they meet the defined requirements.

    - Historically, maintaining and updating the IT structures of many banks requires copious resources. It is a required investment, however, because the lack of uniform data pools can create considerable difficulties in assessing the true extent of balance sheet risk.

Risk indicators associated with the four main banks (including Bank C) operating in South Africa are shown below:

Risk Indicator	**Risk Subtype**	**Bank A**	**Bank B**	**Bank C**	**Bank D**
General Risk Indicators (size)		Small	Small	Medium	Large
Specific Risks					
	Credit Risk				
	Equity Risk				
	Concentration Risk				
	Foreign currency loans				
	Industries				
	Size classes				
	Country risk				
Market Risks					
Interest Rate Risk in the Banking Book					
Operational Risks					
Liquidity Risks					
Other Risks					

	High Significance
	Medium Significance
	Low Significance

i. Compare and contrast the banks, and comment on the most suitable approach for measuring its risks and capital requirements.

[10]

- For Bank A:
  - the risk types mentioned above would have little significance under the proportionality principle.
  - The bank shows a low level of complexity and low risk levels.
  - Besides, Bank A does not have material, if any trading positions.
  - For the purpose of measuring its risks and calculating its internal capital needs, Bank A could calculate its capital requirements using the Standardised Approach, or the Basic Indicator Approach in the case of operational risk.

- For Bank B:

- In terms of its risk indicators (size), Bank B is comparable to Bank A, but Bank B’s transactions show a markedly higher risk level.

- In addition, concentration risks exist with regard to size classes (for example, several relatively large loans to medium-sized businesses), borrowers in the same industry and foreign currency loans.

- In this bank, methods which go beyond the Standardised Approach should be employed and / or adequate qualitative measures (monitoring / reporting) should be set.

- Furthermore, Bank B should pay attention to concentration risks, for example, by adhering to suitable individual borrower limits based on creditworthiness, adhering to portfolio limits or by implementing minimum standards for foreign currency loans.

- In this example, using more advanced systems may be appropriate in other areas, such as interest rate risk in the banking book

- For Bank C and D:

  - Bank C shows high credit exposures to sovereigns. This results in a certain degree of concentration risk.

  - Given its larger size, Bank C is exposed to relatively high interest rate risks.

  - In fact, Bank D has large exposures to almost all risk types.

  - The bank’s size and structure can be described (for example, as a VaR model) for interest rate risk at Banks C and D. Bank D should also use a more sophisticated model for market risk.

  - Due to the higher risk level and the existing complexity about credit risk, the bank may use other risk sensitive techniques based on the IRB approach or a credit portfolio model.

  - Both banks will benefit from implementing the most sophisticated operational risk model, the advanced measurement approach, for risk management purposes.

- The individual institutions in this example have to define the scale and type of risk management system which is appropriate to their activities, with due regards to the regulator’s requirements.

- The choice of suitable risk measurement procedures to determine risks and internal capital needs plays a key role in this context.

- Moreover, the proportionality concept also has effects on process and organisational design: banks which demonstrate a high level of complexity or a large risk appetite have to fulfil more comprehensive requirements.

[Total 28]

QUESTION 2

Successful candidates provided comprehensive answers to this question and differentiated themselves in part iii.

You are the Credit Head for the Home loans product of ABC bank. You are reviewing the current credit policies and credit offering of your division and noticed the following information regarding the portfolio:

Maximum Loan to Value (LTV) as per risk appetite: 90%.

Current LTV applied in application scoring: Across all credit scoring ranges a maximum LTV of 85% is applied.

New Loan Applications - Last 12 Months

LTV Band	Number Of Applications
85% and less	240 000
85% to 90%	90 000
90% to 95%	60 000
95% to 100%	72 000
100% to 108%	90 000
108% and above	48 000
Total	600 000

You are exploring actions to increase approval rates and product sales and as such want to make some adjustments to the LTV requirements (without increasing the overall risk to the portfolio significantly).

i. Discuss potential actions that you could implement and the considerations you would take before implementation

[13]

The numbers show that at inception at least 60% of all applications are declined outright as a direct result of the current LTV requirements. This is ignoring all other policy rules, affordability requirements and risk scoring rules that might be applied in addition.

Increasing the LTV allowed at inception could increase the LGD and result in a higher bad debt charge. This would happen if upon default (and ultimate forced sale of the property), the sale value of the property is less than the outstanding mortgage balance (at the date of the forced sale). In some instances, this shortfall could be recovered from the customer (in addition to the property sale), but it is normally highly unlikely that there would be an opportunity to recover a large percentage of this amount. The impact would be further increased during macro-economic downturn.

Increasing the LTV could also result in higher capital requirements and lower returns. The implementation will need to consider the potential scenarios for capital requirements and implement changes in a staggered approach.

There are a few options available to the credit head in terms of adjustments that can be made to the LTV alone:

- LTV could be tiered by credit risk
  - Lower PD clients could be afforded a higher LTV and higher risk clients a lower LTV. The net result may even be a reduction in the overall bad debt charge
- LTV could be tiered by relative level of affordability of the applicant
  - Clients with better affordability are less likely to default as they can afford bigger changes in their personal financial circumstances. They are also more likely to prepay the loan (which results in the EAD reducing quicker).
  - The bank will have more data / information pertaining to existing customers than new customers and would be able to apply more detailed risk differentiation on existing customers.
- By area (so specific regions / provinces / suburbs)
  - Some properties have higher rates of property inflation / growth per annum and as such for those areas the gap between the realisable property value at default and the outstanding loan balance will reduce over time
  - Some areas also have lower volatility on their property values making them less vulnerable to downturn conditions
- By property type (free standing property, complex)
- By property size
  - Larger properties have smaller target markets (and hence less opportunities for the sale of a property, especially when the sale becomes an urgent or forced sale)

A full analysis of past default data and LGD information should be performed to understand if there are specific sub segments where for example the property is typically sold for at least the outstanding balance of the mortgage, if not more (if more – especially if the default occurs close to the inception of the loan – it might be possible in increase the LTV in specific sub populations without the overall bad debt charge increasing at all).

- This may occur for instance in high property inflation areas, particularly good / convenient areas, within complexes upon completion of the build of the complex.
- It might also be the case for very low PD segments or clients with good affordability

A full analytical review of applications and reasons for declines should also be performed. It is possible that many of the adjustments mentioned above may have little to no impact on ultimate approval rates if other decline reasons are working in tandem with the LTV rules currently.

Currently the risk appetite threshold for the business is at 90% and the current LTV cut off for business being written now is only 85%. Thus, if the business case makes sense the LTV could be increased up to 90% without necessarily adjusting any credit risk appetite documentation and thresholds.

No mention is made of additional LTV rules or appetite thresholds that are in place. For instance, if there are limits in place in terms of the percentage of sales that can have an LTV of more than say 80%. There may be other limits in place that would also need to be checked and potentially modified.

Any recommendations requiring no alterations to risk appetite would probably be far quicker and simpler to implement as there will be far fewer committees requiring sign off of the recommended changes. Sign off may be limited to the Business Unit Heads (or EXCO), with notification only to wider credit forums.

If any of the recommendations do require the Credit Risk appetite to be adjusted, this would need to be presented to all the relevant sign off committees and structures within the bank (likely to be up to a fairly senior level, maybe even up to main EXCO and Credit Risk Committees if the proposed alteration is significant).

Another option is to look to reduce the repayment period of the loan (provided the client can afford the higher instalments). This would result in the loan amortising quicker, and would hence reduce the “gap” between the outstanding loan balance and the property value at a quicker rate. This would potentially reduce the LGD or loss after a default that may occur (even if the original LTV is a little higher).

Another option is to make use of other collateral the customer may have available to include as part of the collateral on the property (for example shares). The customer will be able to access the credit now but may not actually be forced to liquidate assets where early redemption may be costly.

- This additional collateral could allow the increase on the LTV but will result in the ultimate LGD being unaffected.

- The additional collateral could be held in place for just the first 2 or 3 years of the mortgage, thereafter this collateral could be released (as the EAD would have reduced after that period).

As part of the application process no mention is made of how applications for a loan amount that is above the banks risk appetite or scoring threshold is handled. If the loan application is declined outright, the bank could instead look to offer a loan up to the maximum LTV available even of the customer applies for a larger mortgage. This gives the client the opportunity to either source the required deposit elsewhere or look for some other form of funding to cover the shortfall. This could be done in place of giving an outright decline.

ii. Discuss other possible rules or restrictions that could be in place as part of your application process that may cause the approval rates overall to be particularly low. Include suggestions to improve the ultimate approval rate.

[6]

There are several metrics that in addition to the LTV may result in the approval rate of home loans applications to be particularly low:

- The application scorecard itself (that assigns a PD rating) is undoubtedly a driver in identifying levels of risk of an applicant. The PD cut-off selected will be a driver for reducing defaults but at the same time may currently be too strict.
    - The application scorecard may also be out of date, as indicated by scorecard monitoring reports, and a review of the scorecard could increase the ranking ability of the scorecard (allowing more approvals while maintaining the current default rates)
- There may be policy filters or rules in place that automatically decline specific types of applications (or severely limit the mortgage offering made to the applicant):
    - There may be limitations on the total loan amount that can be applied for (for example limiting mortgages to R3m and below).
    - There are likely to be specific previous misdemeanours that would result in automatic exclusion / decline during the loan application process.
    - Perhaps joint bond or so called "self employed" customers (or customers earning variable pay) may also be automatically excluded or treated in a more cautious manner.
    - Perhaps customers that do not have a cheque account with the bank and do not have their salary paid into that account may also be declined.
- There may be affordability limitations in place that will in addition limit the ability of applicants to qualify for a mortgage.
    - Some of these may be regulatory requirements (for example responsible lending) which cannot be adjusted
    - There may, however, be some limitations (instalment to income, expense assumptions, use of single incomes) which could be adjusted to allow more applicants to qualify

Some of the limitations or restrictions in place may be as a result of risk appetite limits, or may be rules that were built in order to achieve the current bad debt outcomes. They may also be in place as a result of the bank's current strategy. Any proposed changes to the above will have to go through the rigorous sign-off / governance process (depending on the relative size of the adjustments being proposed).

As part of the analytical review of past losses and the current mix of applications, some past data may be available to assess which elements of these rules could be adjusted allowing more approvals but without significantly increasing risk to the bank. Multiple sub segment adjustments could be made which may assist in this endeavour

The sources of the leads or applications generated may also be of a specific type / nature / quality which may result in anti-selection or poor-quality applications coming through. It would be worth reviewing these current sources to identify how these could be augmented or changed to improve the quality of the applications received.

The credit head of the unsecured loans division has suggested that an unsecured loan is offered to the mortgage applicants to cover part or all of the required initial deposit. This offering would be up to a maximum amount of R250,000. He suggests the loan be treated either as a separate loan or as a deposit loan offered with the Home loan product so that it is treated as a single product offering to the customer. However, any credit losses on the combined loan will always be recognised and incurred by the unsecured loan product first.

iii. Outline the challenges and considerations with implementing the suggestion.

[18]

If the two debts are going to be treated as a "single debt" with a single flat instalment payable over the lifetime of the mortgage:

- In effect the unsecured loan will be repaid over 240 months (alongside the mortgage). Given the likely higher interest rate of the unsecured loan this is not ideal for the customer as it is a costlier option overall.

- This product structure also implies that a higher LTV is in effect applied than is specified by the existing risk appetite.

- However, from an affordability perspective the monthly instalment payable over 240 months will be lower than the combined instalment due if the unsecured debt is treated as a separate loan and is repaid over say 60 months (and is paid alongside the 240 month standard mortgage). In the first 60 months the financial strain on the customer will be significantly higher.

- There may be some convenience for both the bank and the customer in that there is only one instalment payable. However, the customer does not have the choice to effectively pay the mortgage and not pay the unsecured loan since the product is tied together as one.

- In the eyes of the customer this combined mortgage will look like a standard mortgage with a higher effective interest rate being charged. It is probably far simpler to understand that there is one debt repayable at a slightly higher interest rate.

- At the point of application effectively the customer would be faced with two choices (for example):

- Take a mortgage of 80% LTV, pay 20% deposit, loan repayable over 240 months at, for example, prime;
- Or take a mortgage of 100% LTV, pay 0% deposit, loan repayable over 240 months at prime + 3% (for example)
- The larger the deposit that the client can afford to contribute the lower the inherent risk and therefore the effective interest rate could be (effectively the smaller the so called unsecured portion of the debt that will be in place).

The unsecured loan could be treated as a separate loan (with a separate debit order and instalment):

- The bank will need to decide over what term the unsecured loan will be offered. Would it be based on the normal scoring and product rules or will there be special dispensations allowed since it is tied to the mortgage.

- If the offering is made to the customer as two separate debts it creates more transparency in terms of how the bank has effectively priced for the additional risk (by effectively combining two products).

Scoring and Affordability Calculations:

- Ideally a customer scorecard should be developed. If not available when the debts are linked together as a single product then in all likelihood the mortgage scoring model will be used to determine the default risk (and the unsecured portion will be allowed for in the higher effective interest rate payable alone).

  - There will be some risk appetite thresholds that will be breached (as the debt will look like a mortgage with a higher LTV, instalment, etc). How this is reported and tracked at the relevant committees as well as credit bureau will have to be carefully considered.

  - There may be an additional appetite threshold put in place to restrict the total value or number of such combined mortgages that can be written (to ensure the bank controls the risk of exposure to these debts). In effect this combined debt is a work around to bypass other appetite limits in place and the bank needs to ensure that a new additional check and balance is in place.

- Some complexity will come in where the products are scored independently and are run as two separate products:
  - Will there be any concessions made in the unsecured loan scoring if the client qualifies for the mortgage but is declined for the loan (for some reason)

  - Will a larger unsecured loan be offered than normal appetite rules would allow in order to get the customer to the required deposit (up to R250k as a maximum)

  - This may require some changes to be made to the risk appetite of the unsecured loans product prior to the launch of this initiative

- If the loans are treated as separate debts then the application process will also have to integrate affordability calculations for all products as the customer needs to be able to afford both instalments together with other commitments. This will be especially important over the initial period of the debt repayments. The bank needs to ensure that the client can afford both debts and that the addition of the unsecured loan instalment does not significantly increase the risk of the client defaulting due to over indebtedness.

Reporting requirements:

- If the products are run as two separate loans then there are no differences here to the normal course of business. The client has two loans they are repaying and each is reported as per normal.

- If, however, the loan is treated as one loan for the client (but for all intents and purposes is run as two loans in the system architecture) then the business needs to decide how best to separate these two loan products for the purposes of treating it like two products. Some options are as follows:
    - Allow the unsecured loan to amortise first, over a shorter period of time (presumably 60 months) while the balance of the instalment is distributed to the repayment of the mortgage (or the unsecured portion could amortise over 240 months but this will just make tracking even messier).
    - How these will be reported in both the financials and even for internal risk monitoring and reporting will potentially be extremely tricky to get 100% correct. Especially when it comes to capital, provisioning and risk appetite reporting.
    - Upon going into arrears presumably both products will be shown as being equally in arrears.

Provisioning calculations:

- Will need the ability to track the outstanding balance of both parts of the product separately so that provisions can be calculated on both. Presumably a single definition of arrears and default will be applied – so once a client starts going into arrears both products will reflect as being in arrears (where the loan is treated as one debt).

    - Depending on cross default clauses, the LGD on the mortgage and unsecured debt calculations may have to differ relative to the standard LGD assumptions used. The "mortgage" portion of the outstanding balance may be provided for like any standard mortgage, but the so called unsecured portion might have a lower LGD than normal since some recoveries may be made from the sale of the property which may ultimately lead to some of the unsecured debt being recovered upon.

- If the loans are run separately and treated as two separate products then this process will be the same as per normal. It is possible that slightly higher LGD's and probabilities of defaulting may have to be used in the model assumptions if indicated by affordability tests.

System development:

- The bank currently has two systems in place that will already operationally run and fully manage the two products as separate entities. Offering the two products simultaneously will require some development at the point of application scoring (along with documentation etc) however thereafter is little additional work required.

- Should the bank choose to run this as one product for the customer (but mange it as two in the back end) then in all likelihood significant development will be required in order to achieve this.

    - Firstly, to allow what is essentially 1 loan to be collected upon, statements to be generated, online reporting thereof for the client.

    - While simultaneously allowing the two separate products to be run off and managed in the background (for financial reporting, profitability, provisioning purposes).

TCF:

- If the loans are treated as two separate loans the only real consideration from a TCF perspective is ensuring the client is not “forced” or tied into taking the unsecured loan in order to secure the mortgage.

    - Even though it may be more convenient, the client needs to have the choice to get the deposit elsewhere (be it as an unsecured loan or by some other means).

    - At the point of sale the bank will have to be very careful to not be seen to be pushing the unsecured portion of the debt onto the customer.

    - However, if the customer is required to have for instance an R100k deposit, and the client does not have the cash, the client is in many respects “forced” to take the unsecured loan if the client wishes to get the mortgage too.

    - The bank may have to leave it to the customer to initiate the application for the second unsecured loan (so to not be seen to be actively pushing the product).

    - It would be worth discussing this with legal experts to get their view on how this situation may be interpreted (especially by the Ombudsman) to make sure that there is no forced selling.

- If the loans are treated as one in the eyes of the client, in all likelihood the client does not even know what the bank is doing financially in the background. The client is probably just paying a higher instalment at a higher effective interest rate. If the client is comfortable to pay the effective higher rate then for all intents and purposes this is just a standard mortgage with the standard T’s and C’s.

    - There are no additional TCF considerations here as the customer is able to apply for this debt elsewhere if the client feels the rate is too high. The client is not forced to take this combined loan with the bank

Collections:

- If the products are treated as separate entities for both the client and the business, then in all likelihood normal collection procedures will take place as and when the client falls into arrears on one or both products.
    - However, should the client start to fall behind on one product the second product is at risk of following suit and some debt recovery discussions could start for both products.
    - If the client falls into arrears on both products the bank needs to decide if one or both products take equal priority in the recovery discussions.
        - In all likelihood the mortgage would take priority (although it is the secured part of the offering it is the emotive portion of the debt obligation as there is a property attached to it).
- Upon going into default for both products (where the loans are being treated as one debt) the bank needs to decide how to distribute any recoveries between the unsecured and secured portions of the combined loan.
    - Firstly, the bank needs to consider the legal contracts, National Credit Act requirements and enforcement routes available before embarking on a recovery option that is not lawful.
    - Then the bank should calculate what portion of the outstanding balance is attributable to the unsecured loan and what portion to the mortgage.
    - Upon forced sale of the property, the mortgage portion of the loan would be settled first (from a financial point of view) and then any additional equity received would then be attributable to the unsecured portion of the debt. Any remaining equity thereafter would be passed onto the customer.

[Total 37]

QUESTION 3

This question was poorly answered. Part i is bookwork and was well answered. The remainder of the question was not well answered, and part iii saw the weakest answers of all the questions in this paper. Candidates were not able to apply their knowledge in part iii and did not understand the regulatory requirements to consider in a traditional securitisation structure in the South African context.

You are an Actuary in the debt capital markets team of a large South African Bank, Bank XYZ.

i. Define what traditional and synthetic securitisations are.

[5]

Securitisations of bank assets are specifically exempted by the SARB under the securitisation regulations from conducting the business of a bank. Any securitization definition will therefore be subject to SARB approval.

A *traditional securitisation* is a structure where the cash flow from an underlying pool of exposures is used to service at least two different stratified risk positions or tranches reflecting different degrees of credit risk.

Payments to the investors depend upon the performance of the specified underlying exposures, as opposed to being derived from an obligation of the entity originating those exposures.

The stratified/tranched structures that characterise securitisations differ from ordinary senior/subordinated debt instruments in that junior securitisation tranches can absorb losses without interrupting contractual payments to more senior tranches, whereas subordination in a senior/subordinated debt structure is a matter of priority of rights to the proceeds of liquidation.

A *synthetic securitisation* is a structure with at least two different stratified risk positions or tranches that reflect different degrees of credit risk where credit risk of an underlying pool of exposures is transferred, in whole or in part,

- through the use of funded (e.g. credit-linked notes)
- or unfunded (e.g. credit default swaps) credit derivatives or
- guarantees that serve to hedge the credit risk of the portfolio.

Accordingly, the investors' potential risk is dependent upon the performance of the underlying pool.

Securitisation exposures can include but are not restricted to the following:
asset-backed securities, mortgage-backed securities, credit enhancements, liquidity facilities, interest rate or currency swaps, credit derivatives and tranched cover.

Bank XYZ was one of the first banks in South African to originate securitisations and has been a frequent originator of securitised assets. However, during the financial crisis of 2007/2008 volumes reduced significantly. Currently Bank XYZ provides some liquidity facilities to securitisation special purpose vehicles but does not currently originate any securitisations.

ii. Explain reasons why Bank XYZ may not currently originate securitisations. [10]

The business case for securitisation became less viable, or ceased entirely, after the financial crisis as a result of liquidity, economic and regulatory changes.

Liquidity changes

Special purpose vehicles set up as securitisations struggled to source funding.

Internationally, retail mortgage backed securities were regarded by some market commentators as one of the root causes of the financial crisis. Some of these securities were backed by sub-prime mortgages which caused losses to the funding tranches when the mortgages started to default. The ensuing uncertainty regarding the quality of the underlying assets led to increased funding cost or the inability to refinance maturing debt.

Banks who held significant securitisation exposures also struggled to source funding as banks stopped lending to each other. The liquidity pressure led to significant bank failures as well.

This occurred to a lesser extent in South Africa as well. The special purpose vehicles banks had set up were unable to obtain funding at the same levels as prior to the crisis. As a result, some banks purchased their SPVs paper to avoid the reputational risk of SPV failure and to obtain funding at better rates.

This resulted in a grossing up of the balance sheet which negated any potential benefit of securitisation, be it liquidity at preferential rates or capital efficiencies.

The bank still has liquidity facilities as these were offered on a reciprocal basis between banks. As other banks continued with their programmes, bank XYZ would have kept its existing exposures.

Other Economic items

Prior to the financial crisis banks adopted an "originate and distribute" approach prior to the financial crisis. Very little if any exposure remained on balance sheet. Market uncertainty required banks to take a larger stake / "skin in the game" in originations thereby limiting the viability of the model.

The risk management of the underlying assets was called into question. Banks had to redefine their risk management processes and reporting structures. The additional operational cost impacted the business case.

Regulatory items

Regulators responded to market in several ways:

- The capital requirements became more onerous
- Banks with internal models were subject to more stringent review and scrutiny
- Re-securitisations were separated from original securitisations and required higher capital requirements
- Approval for securitisations became more cumbersome and reporting requirements increased
- In some jurisdictions banks with any exposure were required to take a vertical slice of all exposures of at least 5%

Rating agencies came under severe criticism for the ratings provided. As a result, an independent rating agency regulator, was established. The Financial Services Board assumed these responsibilities in South Africa. As the capital assessment of securitisation exposures depend on the rating agencies, the conservative assessments that followed the financial crisis forced much larger equity tranches for securitised exposures, thereby reducing their viability.

Even though bank XYZ does not originate securitisations currently, it is nevertheless most likely setting up at least one securisation to meet the contingent liquidity facility (CLF) requirements of the SARB. The CLF has been set up to allow banks to meet the liquidity coverage ratio requirements.

The head of Bank XYZ Homeloans has completed a business case with your team to establish the viability of a traditional home loan securitisation. The business case was approved through the appropriate governance structures.

iii. Explain what considerations you covered in the business case. You should centre your discussion on the regulatory considerations.

[10]

[Total 25]

The business of a bank

Taking of deposits is generally viewed as the business of a bank and requires regulation and oversight by the SARB in terms of the Banks Act of 1990.

The securitisation structure would require exemption from this oversight through the exemption notice - Designation of an activity not falling within the meaning of "The Business of a Bank" (Securitisation Schemes).

Exemption Notice and SARB regulations.

Bank XYZ would need to ensure that it complies with the requirements of the exemption notice as well as the SARB regulations:

No marks: These are paragraphs 4 and 6 to 17 of the exemption notice as well as the relevant sections of regulation 23 and 28.

The SPV must have appointed auditors. The auditors must attest that the regulatory requirements have been met.

Outright sale/ True sale: The assets on the balance sheet of Bank XYZ must to sold to a Special Purpose Vehicle and all risks and benefits (rights and obligations) should transfer thereby leading to a derecognition of the assets on the balance sheet of Bank XYZ.

In the case of home loan business this means that the deeds to the properties should also be ceded to the SPV.

This may require the bank to cede new business only rather than incurring additional costs for assets already on the books.

The bank will have to obtain an opinion from an independent legal counsel to confirm the true sale. The bank no longer has any control over the assets (managing the assets does not constitute control) nor any rights even in the resolution of the bank.

Funding: The SPV will issue different classes of commercial paper from junior / equity to the most senior to fund the acquisition of the home loans.

The returns on the paper will be determined by the returns achieved on the underlying assets, subject to credit enhancement facilities provided, only. A default on more junior tranches will not necessarily impact payments on the more senior tranches.

Similarly, the holders of the notes and any other potential creditors of the SPV shall have no recourse to the originating bank or any of its associates.

For off-balance sheet items relating to flexible home loan accounts, the SPV will acquire those as well and therefore require additional funding to meet the off-balance sheet commitments as well.

Regulatory or product changes

The SPV will also be subject to any regulatory or product term changes. Such contingencies would have been tested before proceeding with the securitisation.

Repurchase of assets

Any repurchase of assets by the bank from the SPV must be at market related levels. This is a special concern for defaulted assets through which the bank could either transfer too much or too little risk from the SPV.

Too much risk transfer would be considered a credit enhancement and would break the objective of securitisation to spread risk away from banks to the debt capital markets.

As a result, all subsequent asset sales into the vehicle and out need to be established with the SARB before the securitisation is launched.

The bank shall not hold more than 10% of the underlying assets or 20% of the equity tranche without approval by the SARB. It needs to be established up front who the investors in the residual tranches will be.

Servicing: As the SPV will rely on the servicing provided by the bank an arm's length servicing arrangement needs to be established between the SPV and the bank. It must be possible for the servicing to continue even in the resolution of the bank.

Capital requirements will be no higher than the capital requirements of the original portfolio being securitised. However, the equity tranches will require a very high rating to gain any capital relief as investment in the junior tranches often require deduction or a risk weight of 1250%.

Disclosure requirements are detailed. During the review of the business case the bank needs to ensure all disclosure requirements can be met on an ongoing basis. These include details of the securitised portfolio, interest income, interest expense paid to the senior notes, credit loss experience and audited results. Details of credit enhancement, liquidity facility, size of the issuance and pricing will also be required.

Allowance should also be made for the potential future unwinding of the structure including potential clean-out calls.

QUESTION 4

This question considered current issues facing banks and was poorly answered. Basel IV is a continuation of Basel III, a core part of the syllabus. Successful candidates were able to differentiate themselves in this question.

You are responsible for capital management of the South African branch of a large international bank. The local Chief Financial Officer has read an article on Basel IV and has approached you for more information.

i. Discuss Basel IV and its potential implications for your organisation to the CFO.

[Total 10]

[Note: *as a branch it is likely that the bulk of the business written by the bank in South Africa will be corporate and bank business as well as private wealth business. Examples provided should explore changes to these business lines. The answer highlights the capital impacts of Basel IV though there are many more implications as the CFO approached the head of capital management.*]

Basel IV is a continuation of Basel III and not separate from the changes that were introduced following the financial crisis. It addresses items that did not receive attention during the first implementation of Basel III.

The initial focus of Basel III was to strengthen the banking system following the financial crisis though. These changes impacted the parent company and the branch alike:

- A stronger focus on Core Equity Tier 1, i.e. going concern loss absorbing capacity and improving the quality of Tier 1 and Tier 2 capital instruments
- A greater focus on capital resilience through times of stress including a capital conservation buffer that can be utilised in times of stress
- Recalibration of capital assessments that the financial crisis showed to be wrong
- Introduction of a leverage framework for businesses with low RWA intensity to limit the level of leverage in the banking system
- Introduction of the Liquidity Cover Ratio and the Net Stable Funding ratio

The standardised credit risk approach will be recalibrated under Basel IV to be more risk sensitive for certain asset classes, for example:

- A more granular approach, the Standardised Credit Risk Assessment or SCRA has been developed for exposures to unrated exposures banks and corporates.
- The standardised approach will still be able to utilize external rating.

The advanced internal rating-based approach will no longer be available for exposures to banks and large corporates. The Basel Committee for Banking Supervision has deemed the model estimates on these low default exposures to be unreliable. The Foundation IRB approach will, however, still be available.

Under the Foundation approach the estimate the LGD point estimate will reduce from 45% to 40% and the scaling factor of 1.06 will be removed.

Banks that rely on their current advanced approaches for the estimation of IFRS 9 provisions will need to ensure that the relevant models are maintained for those purposes. Banks will therefore have models for the new standardised approaches, economic capital and a combination for IFRS 9.

For asset classes where parameter assessments are still made, minimum point estimates are provided, and capital assessments are bounded by these levels.

The standardised floors used to set an overall minimum level of capital are also revised though these changes are not expected to impact the portfolio.

The credit value adjustment risk, relating the changes in exposure in the event of obligor risk deterioration is also refined to allow for more consistent calculation.

The methods used for the assessment of market risk has also been revised under the Fundamental review of the trading book to focus on tail risk and liquidity horizon:

- A tail risk measure, shareholder shortfall, has been introduced compared to the previous internal model approach based on VaR. Such a measure leads to higher capital requirements.
- Further rules were introduced to classify banking book vs trading book exposure. Certain internal trades to hedge banking book risks may no longer be eligible and require business units to hedge externally. Such an approach also leads to higher capital requirements.

The operational risk framework will be recalibrated. The advanced measurement approach will no longer be used. The proposed new method is based on organisation size and historic loss experience over a period of 10 years. Expectations are that this too will increase capital requirements.

Changes to sovereign risk assessment are also expected. This impacts the organisations competitors as they will no longer be able to rate sovereign exposure at 0%. However, consultation is still ongoing.

Several market commentators have noted that the impact of Basel IV will be excessive capital requirements. Quantitative impact studies are ongoing as the BCBS do not envisage significant changes to current capital levels in the system. The organisation’s position certainly appears to be negative.