

EXAMINERS' REPORT

June 2025

Subject F107|B100 — Banking Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principal Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners and should not be taken as model solutions.

General comments on the aims of this subject and how it is marked

The aim of the Banking Principles subject is to instil in successful candidates the key principles of banking and to introduce students to the different types of activities undertaken by banks, including their associated risks, and the quantification of these risks.

A mix of question styles is used, covering knowledge of the material set out in the core reading, application of this in calculations and case studies and higher order skills such as synthesis and collation of recommendations.

Candidates are awarded marks for all reasonable answers including different but still reasonable numerical solutions. Marks are awarded for working in the case of numerical answers. Successful candidates concentrate on answering the questions asked rather than repeating their knowledge without application.

Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.

Comments on candidate performance in this diet of the examination

This was the seventh sitting of the Banking Principles subject.

The paper covered a range of syllabus objectives and included questions that required candidates to apply knowledge to the circumstances described. Candidates who were able to apply their knowledge to specific scenarios in the questions were successful, with better prepared candidates able to generate a number of valid points.

The majority of the candidates performed well in the relevant bookwork related questions.

Many candidates did not provide sufficient breadth and depth in their responses and failed to generate a sufficient number of points for the marks on offer.

Candidates seem to have run into time constraints and many did not attempt the last question with sufficient rigour.

QUESTION 1

- i. Briefly outline the three Pillars under the Basel regulatory framework.

[3]

Pillar 1: Minimum Capital Requirements:

- Defines the minimum amount of capital banks must hold to cover credit, market, and operational risks.
- It recommends standardised and risk-based approaches to calculate these risks.

Pillar 2: Supervisory Review Process:

- Enables regulators to assess a bank's internal risk management processes and capital adequacy beyond Pillar 1.
- It allows for supervisory intervention if a bank's risk profile warrants it.

Pillar 3: Market Discipline:

- Focuses on transparency and disclosure, requiring banks to publish information about their risk exposures, risk management practices, and capital adequacy.
- This allows market participants to assess a bank's financial health.

[Total 3]

Goku Bank is a retail bank with a branch network which also relies on digital platforms and online services. Due to increasing changes in technology and market scrutiny, the regulator is evaluating its disclosure requirements. The regulator is considering creating a broader requirement relating to cyber risk reporting and disclosure.

- ii. Outline the potential reasons behind the regulator's decision.

[2]

- Cyber risk disclosures could contribute by providing insights into a bank's resilience to cyber threats.
- This would enable stakeholders to evaluate the bank's cybersecurity measures, potential vulnerabilities, and the impact of cyber incidents.
- This could ensure that banks take measures to adequately measure and manage cyber risks.
- This could incentivise banks to invest in robust cybersecurity practices, reducing systemic risk.
- This could bring in more confidence into the banking industry as cyber threats is a big concern.

[Total 2]

- iii. Outline the types of cyber risk information that the regulator should consider requiring banks to disclose and outline the insights that this information would provide.

[3]

- Explaining how the institution identifies potential cyber threats and assesses their associated risks, including methodologies used for vulnerability scanning.
- Disclosure of the frequency and impact of cyberattacks, including data breaches, denial-of-service attacks, and ransomware incidents.
- This provides insights into the bank's vulnerability and incident response capabilities.

- Disclosure of spending on cybersecurity technology and systems.
- Details on training of staff around cyber risks.
- Details on any customer training or awareness on cyber risks.
- This demonstrates the bank's commitment to protecting its systems and data.
- Disclosure of the number of customer records compromised, the type of data affected, and the costs associated with data breaches.
- This reveals the potential impact of cyber incidents on customers and the bank's financial stability.
- Any cyber risk appetite statements, and performance against those statements.
- Details of cyber risk mitigation strategies such as data backups and insurance.
- If any additional capital is held against cyber risk, noting that this may be included under Operational Risk.

[Total 3]

To minimise cyber risks, a colleague suggested that a customer's profile would be locked if a login was attempted on a new computer or device. The only way to unlock the profile would be to visit a bank branch.

- iv. Describe the advantages and disadvantages of the suggestion to lock the online profile of a customer.

[5]

Advantages

- This could drastically reduce the risk of account takeover from compromised credentials or malware.
- This measure will alert the customer to the fact that someone has attempted to access their account.
- It effectively prevents remote access by unauthorised individuals using stolen login information.
- This will be a good measure to stop the impact from any data breaches.
- It makes it more difficult and time-consuming to compromise accounts.
- In-branch verification allows for robust identification procedures, ensuring the account holder's identity.
- This provides a high level of confidence that the person unlocking the account is the rightful owner.

Disadvantages

- Requiring an in-branch visit is very inconvenient, especially for customers in remote areas or without sufficient transport.
- It can lead to customer frustration and dissatisfaction, for example with taking time off work.
- This could significantly increase foot traffic at bank branches, leading to longer wait times and increased operational costs.
- This would place a greater burden on branch staff.
- It discourages the use of digital banking channels, as customers may perceive them as less secured compared to branches.

- This can hinder the bank's efforts to promote digital transformation.
- Customers may choose to switch to banks with more convenient security measures.
- Especially for customers who travel frequently.
- Legitimate users that have purchased a new device, or are travelling, will be impacted.
- In emergency situations this measure could prevent customers from accessing their funds quickly.
- A customer might have logged in themselves using a new device belonging to them so might cause added frustration.

[Total 5]

[Total 13]

This question was answered very well.

Part (i) performance was very good on this bookwork question.

Part (ii) was answered well however; the range of answers was not as expected showing that broad idea generation was a challenge.

Part (iii) was answered very well. Candidates managed to generate enough ideas in this question with a number of candidates scoring full marks.

QUESTION 2

Monarch Energy Solutions (MES) is an alternative energy provider that owns and operates solar farms and sells the power generated through these farms to corporates under power purchase agreements (PPAs). MES is initiating a project to build additional solar farms to meet increased demand. Fibonacci Bank (FB), an investment bank, has been approached by MES for support in obtaining funding for the project.

i. Describe the services that FB could provide to MES within the context of the planned project.

[4]

- FB could assist MES by helping to raise both equity and debt capital.
- This involves preparing relevant documents, arranging meetings with potential investors, and underwriting any new shares or bonds issued by MES. It can facilitate the equity raise, bridge funding for a syndication or debt capital market access
- FB could aid in the distribution of these financial instruments to investors, ensuring wide reach and potentially higher levels of funding at optimal terms. FB would review the current state of market readiness to issue / raise.
- FB could offer specialised finance, including project finance solutions tailored to the large-scale nature of MES's solar farm initiatives.
- FB's expertise in project finance would help structure the funding efficiently, managing risks and aligning the repayment schedules with the project's revenue streams.
- FB could provide strategic advisory services to MES. Access to aspects such as legal, tax, regulatory etc.
- FB could help to enhance the financial viability of MES's projects by evaluating potential synergies, identifying cost savings, and estimating income benefits. It also brings the expertise having advised similar clients.
- This type of advice would not only help in securing initial funding but also in optimizing the financial structure of MES's operations for long-term success.

[Total 4]

MES has decided to fund the solar farm development project through a project finance loan made to a Special Purpose Vehicle (SPV).

ii. Explain the use of an SPV in project finance.

[3]

- A company undertaking a large, long-term project might fund it by borrowing against its own balance sheet. However, it is often cheaper and safer for the company to limit the recourse of lenders by borrowing against the project itself.
- In this case, the loan repayments will be met by the cashflows generated by the project.
- To ensure limited recourse against the company, a project finance loan will normally be made to a special purpose vehicle (SPV).
- This is a limited liability company whose sole purpose is to undertake the project.

- It generally sub-contracts the work to be done.
- Contractors may offer guarantees over timeframes and performance that the lender can claim against if the SPV defaults on the loan.

[Total 3]

iii. **Outline factors that FB should consider in assessing expected repayment and, in the event of default, prospects for recovery for the proposed project finance arrangement.**

[7]

- With this type of lending agreement, both the source of repayment of a loan and prospects for recovery in the event of default are based on the cashflow from a project rather than on the ongoing, open-ended operations of the borrower.
- The source of repayment in the case of the solar farm development project would be the proceeds obtained from selling the power generated to corporates through PPAs.
- FB should evaluate the project's cash flow projections, ensuring that they are realistic and sufficient to cover debt service.
- This includes assessing assumptions about the expected solar energy that will be generated as well as assumptions about the demand for solar power in the region.
- The collateral value of the project's assets should be appraised as these assets serve as a secondary source of repayment in the event of default.
- In this case, the collateral would be the solar farm infrastructure. FB should confirm that it is of high quality and that its value is likely to be preserved over time. This will also depend on the depth of the market to buy and utilise the infrastructure.
- And the market for second hand infrastructure will also determine value attached to this. The recovery risk will be impacted by the strength of the offtake agreements.
- FB should also assess the creditworthiness and experience of the project's sponsors and contractors.
- Their track record in completing similar renewable energy projects on time and within budget can provide valuable insights into the likelihood of their success. If they are the reason for the default then swift and seamless replacement will be required.
- The contracts with contractors should be reviewed, including review of guarantees provided over timescales and performance.
- Any power purchase agreements (PPAs) that underpin the project's revenue should also be assessed for legal robustness and enforceability upon transfer.
- FB should also analyse the legal and regulatory environment, including any permits or licenses required for the project in the event of recovery.
- Potential changes in regulations, government incentives for renewable energy, or delays in obtaining necessary approvals can pose significant risks.

[Total 7]

This question was generally answered well.

Part (i) was answered well. Candidates demonstrated a strong understanding of certain aspects of banking services, particularly advisory functions and funding mechanisms. Additionally, some candidates did not sufficiently tailor their answers to the specific context of the planned project, leading to inefficiencies in their responses.

Part (ii) performance was average. Candidates demonstrated a general understanding of the concept of Special Purpose Vehicles (SPVs), particularly their broader applications and benefits. However, many responses lacked specificity regarding the role of an SPV within project finance and failed to align with the provided context. A significant number of candidates did not define an SPV appropriately, omitting key information from the bookwork that would have yielded easy marks.

Part (iii) performance was poor. Some candidates struggled to provide sufficiently detailed and well-defined factors, with some responses being overly vague/general. Many candidates concentrated on factors influencing loan terms rather than addressing the core aspects of expected repayment and possible recourse in the event of default. Additionally, some misinterpreted the question, responding as though they were advising on strategies to enhance repayment and recovery prospects.

QUESTION 3

THD Bank is a financial institution offering a range of services across the country of Actuaria, including retail banking and business banking products that include lending, transactional, insurance, and investment products. They have recently identified climate change as a significant and growing risk factor impacting their operations.

You are a consultant hired by THD Bank to assess the potential impacts of climate change on their operations and recommend strategies for mitigating these risks.

- i. Define the term operational risk and provide an example of an operational risk external event in the context of a bank.

[1]

- Operational risk is the risk of potential losses that arise from failures in systems and processes; people; and external events.
- An example is a flood in a branch which makes it not feasible for it to operate.

[Total 1]

- ii. Describe potential operational risks that THD Bank might face due to climate risks. For each risk, discuss how it could impact the bank's ability to continue operations.

[3]

Power Outages

- Extreme weather events can cause widespread power outages, impacting branch operations, ATM functionality.
- Customers may be unable to access their accounts, or receive customer support: leading to reputational damage and financial losses.

Supply Chain Disruptions

- Physical risk events can disrupt supply chains, affecting the availability of essential equipment, supplies, and services, such as IT hardware, telecommunications, and building maintenance.
- Delays in repairs, equipment replacements, and service delivery can prolong operational disruptions and hinder recovery efforts.

Staff availability

- Extreme weather events can force employees to evacuate or relocate, leading to staff shortages and disruptions in essential functions.
- Reduced staffing levels can impact customer service, transaction processing, and risk management activities, potentially leading to errors and delays.

Processes / Damage to physical assets

- Flooding of a call centre or IT data centre which may compromise IT security activities.
- This could create vulnerabilities which could allow cybercriminals to hack into systems.

Credit for many examples, including transition risks.

[Total 3]

iii. Suggest controls that can be implemented to reduce the impact of physical climate risk on the operational risks of a bank.

[5]

- Investment in robust infrastructure to withstand extreme weather conditions.
- Examples include flood barriers for data and branch locations.
- Implementation of comprehensive disaster recovery plans to help maintain operations during outages.
- This could include backup power supplies and alternative communication channels.
- Enhancing remote work capabilities to ensure employee safety while maintaining productivity during severe weather events.
- Diversification of supply chains to reduce dependency on single vendors vulnerable to climate risks.
- Regular assessment of the climate resilience of key suppliers.
- Continuous monitoring and updating of risks and associated controls.
- Climate risk training for staff to promote proactive identification and management of climate risk.
- Obtain insurance against physical climate risk events.

[Total 5]

A colleague has suggested that the bank start progressing toward a fully digital operation. The proposal includes removing branches and the ATM footprint in high flood risk areas around the coast.

iv. Discuss the advantages and disadvantages of the proposal to remove this physical footprint.

[5]

Advantages

- It could eliminate the risk of loss of banks assets (e.g. ATMs, Branches).
- May prevent disruptions in banking services if branches or ATM buildings are flooded.
- It could protect bank staff from flood risk events, for example, going in to a flooded area for work.
- Potentially reduces insurance premiums for property and business interruption, as the bank's exposure to flood risk decreases.
- Reduces the costs of recovery or rehabilitation of branches.
- A focus on digital banking in those areas increases the banks resilience to natural disasters.
- Reduces the banks liability to customers that may be injured while at a branch or ATM during a flood event.

Disadvantages

- It creates inconvenience for customers who rely on physical branches and ATMs, particularly those in remote or underserved communities (or less tech savvy clients such as older customers).
- May affect elderly or digitally illiterate customers and may go against treating customers fairly.
- Customers may switch to competing banks that maintain a physical presence in flood risk areas.
- May damage customer relationships and erode trust, especially if customers feel abandoned or underserved.
- The removal of the bank branch from a community could have a negative effect on the local economy.
- Overall progress toward digital banking may be slowed down and this might go against the strategy of the bank.
- For complex business products a fully digital solution also much more difficult to adopt and hence could result in loss of business to competition.

[Total 5]

- v. Explain why a bank would measure and aim to reduce their own emissions (i.e. emissions that result directly from their ongoing operations), by making reference to the different components of transition risk.

[5]

Market risk

- As the market shifts towards greener practices, banks that lag behind may face reduced demand for their services.
- By reducing their own emissions, banks can align themselves with market trends and consumer preferences, ensuring continued relevance and competitiveness.

Technology risk

- Banks will need to invest in new technologies to reduce their emissions. While this requires upfront investment, it can lead to long-term savings and efficiencies.
- Adopting cutting-edge technology can also enhance a bank's competitive edge and operational resilience.

Regulatory risk (Policy risk)

- Where new policies require banks to curb emissions, this could increase operational costs.
- By proactively reducing emissions, banks can comply with regulations and avoid potential fines or sanctions.

Reputational risk

- Many banks include views on their own emissions in climate disclosures, and have made public commitments related to reduction of own emissions.
- Failure to address emissions could result in reputational damage, leading to financial losses as stakeholders, including customers and investors, might distance themselves from the bank.

This question was answered well.

Part (i) was answered very well as this was based on bookwork.

Part (ii) was answered well. Some candidates covered risks that are not operational risks in their responses, in which case marks were not allocated.

Part (iii) performance was average. As with the previous question, some candidates listed mitigation measures for financial rather than operational risks, and credit was not given in these cases.

Part (iv) was generally answered well. Those who performed well were able to generate multiple points. Some candidates misread the scenario as the bank was planning to go fully digital.

Part (v) performance was average, with a number of candidates not attempting the question. Better candidates were those that provided definitions of the components of transition risk, and outlined reasons why the bank would seek to measure and reduce emissions in the context each component.

QUESTION 4

Basel IV is a term used by bankers and regulators to refer to the final Basel III reforms, published in December 2017. Under Basel IV, revisions have been made to both the standardised approach and the internal ratings based (IRB) approach for credit risk.

- i. Outline the differences between the Standardised Approach (SA) and the Internal Ratings-Based (IRB) Approach in credit risk assessment, detailing the implications on capital requirements and risk sensitivity.

[5]

- The Standardised Approach relies on external credit ratings assigned by credit rating agencies to determine risk weights for assets.
- The Internal Ratings-Based Approach allows banks to develop their own internal models to estimate credit risk parameters such as Probability of Default, Loss Given Default, and Exposure at Default.
- Under SA, banks apply a fixed risk weight based on regulatory tables, while IRB permits risk weights to be calculated dynamically based on internal assessments
- The SA is simpler to implement and requires fewer regulatory approvals (and less costly to implement), making it suitable for smaller banks.
- The IRB Approach is more risk-sensitive, as it allows banks to differentiate credit risk based on borrower-specific factors rather than applying broad risk weightings.
- To use IRB, a bank must receive regulatory approval and meet strict governance and model validation requirements.
- Basel IV introduced input floors for IRB to limit excessive variability in risk-weighted assets across banks, thereby enhancing comparability.
- SA risk weights can result in higher capital charges for certain asset classes compared to IRB, which adjusts capital requirements based on the bank's internal risk assessment
- IRB has two variants: Foundation IRB, where banks estimate only PD and use regulatory values for LGD and EAD, and Advanced IRB, where banks estimate all three parameters.
- The use of SA can lead to less capital efficiency, as it does not consider borrower-specific risk characteristics that may reduce overall risk.
- The IRB approach requires significant data collection and validation, making it more costly and resource-intensive compared to SA.
- SA may result in greater capital requirements volatility, as risk weights can change when external credit ratings are revised.
- IRB allows banks to apply granular risk assessments, such as industry-specific risk differentiation and historical default data.
- Under Basel IV, certain asset classes are no longer eligible for A-IRB, limiting the use of advanced modelling in high-default-uncertainty portfolios.

- The implementation of SA is faster and requires less model oversight, whereas IRB banks must conduct regular stress testing and backtesting to validate risk models.
- SA provides uniformity across banks, which improves comparability, while IRB may introduce inconsistencies due to differences in modelling assumptions.
- Banks using IRB often achieve lower capital requirements compared to SA, as their models better reflect the actual risk exposure.
- The IRB Approach allows for proactive risk management, as banks can adjust credit risk assessments based on internal observations rather than relying on external agencies.
- Regulators have introduced capital floors to prevent IRB banks from underestimating capital requirements, ensuring they do not fall below a percentage of SA-calculated RWAs.

[Total 5]

Balfour bank, which is a multi-national wholesale bank, currently applies the advanced internal ratings based (AIRB) approach across all its credit portfolios. The regulator within Balfour Bank's primary market has asked banks to perform an assessment of the expected impact of Basel IV on credit risk weighted assets, in preparation for final implementation of the revisions.

- ii. Discuss the benefits and challenges a bank may face when transitioning from SA to IRB, including regulatory approval requirements and capital savings potential.

[6]

Benefits of Transitioning to IRB

- The IRB Approach allows banks to develop internal credit risk models, potentially leading to capital savings by reflecting the actual risk exposure more accurately.
- Banks using IRB can achieve more efficient capital allocation, as they are not constrained by broad regulatory risk weights.
- The IRB Approach enhances risk sensitivity, enabling banks to differentiate risk more precisely using Probability of Default (PD), Loss Given Default (LGD), and Exposure at Default (EAD).
- Transitioning to IRB requires banks to establish robust credit risk management frameworks, improving risk governance and control mechanisms and data collection efforts.
- Banks using IRB can incorporate borrower-specific risk characteristics, which is particularly beneficial for corporate and retail lending portfolios.
- Basel regulations ensure that only well-managed and capitalised banks can adopt IRB, promoting better credit risk management practices.
- IRB implementation can improve competitive positioning, as banks with lower capital requirements can offer better pricing on loans, potentially gaining market share.
- Reputationally be seen by the market as having robust risk practices given reg approval.
- Over time, IRB adoption can lead to more accurate risk-based pricing, as banks refine credit risk assessments using internal historical performance data.

- Banks that successfully transition to IRB can benefit from greater stability during economic downturns, as capital requirements align more closely with actual risk.
- The shift to IRB can encourage investment in better data collection and analytics, which enhances overall decision-making and forecasting capabilities.

Challenges of Transitioning to IRB

- Basel regulations require strict regulatory approval, and banks must demonstrate strong risk management governance before transitioning to IRB.
- Approval requires banks to show compliance with supervisory requirements, including governance, model validation, and historical data analysis.
- The implementation process involves significant operational costs, including investment in data infrastructure, risk modelling expertise, and compliance resources.
- Banks must maintain a minimum of three years of historical internal ratings data before they are eligible for IRB approval.
- The regulatory burden increases under IRB, as banks must conduct annual stress testing, backtesting, and model validation to maintain approval.
- The IRB Approach introduces model risk, as reliance on internal estimates means errors in modelling could lead to capital misallocation.
- Basel IV introduced input floors for IRB, limiting the extent to which banks can reduce capital requirements through internal models.
- The use test requires that banks integrate their internal credit risk models into daily risk management rather than using them solely for regulatory capital calculations.
- Regulatory governance requirements include board-level approval of risk models and independent oversight of credit risk control units.
- Smaller banks may struggle with IRB implementation due to resource constraints, making the transition more feasible for large, well-capitalised institutions.

[Total 6]

A bank has recently transitioned from the Standardised Approach to the Internal Ratings-Based Approach. The bank had chosen to use point in time (PIT) parameters for their probability of default (PD) and loss given default (LGD) credit risk models.

- iii. Evaluate how the dynamic nature of this approach may impact a bank's capital stability during different phases of the economic cycle. Suggest measures the bank could implement to mitigate potential capital volatility.

[6]

- This approach dynamically adjusts capital requirements based on internally estimated risk parameters, including Probability of Default and Loss Given Default.

- During economic expansions, PD and LGD estimates tend to be lower, leading to reduced risk-weighted assets and lower capital requirements.
- Conversely, in a downturn, PD and LGD rise as borrower creditworthiness deteriorates, causing a sudden increase in RWA and required capital.
- This procyclical effect can lead to capital volatility, where capital requirements rise sharply when banks are least able to raise new capital.
- Procyclicality in IRB can result in liquidity constraints, as banks may struggle to raise additional capital or may have to restrict lending during recessions.
- Sharp increases in capital requirements can also trigger regulatory intervention, forcing banks to raise capital quickly or reduce risk exposure.
- To mitigate capital volatility, banks can implement countercyclical capital buffers, ensuring capital is built up in good times to absorb shocks in downturns.
- Stress testing should be conducted regularly to simulate adverse economic scenarios and plan for potential capital shortfalls.
- Forward-looking risk models that incorporate macroeconomic trends can help anticipate changes in capital needs before they become critical.
- Banks can adopt through-the-cycle risk estimation models, which smooth out short-term fluctuations in PD and LGD to reduce capital swings.
- Although including certain variables such as ‘arrears’ does not eliminate volatility completely.
- Adjusting credit policies (e.g., stricter underwriting standards in good times) can reduce exposure to high-risk borrowers before a downturn occurs.
- Diversification of loan portfolios can help stabilise capital requirements by reducing concentration risk in highly cyclical sectors
- IRB banks should establish capital contingency plans, such as pre-approved capital-raising mechanisms or access to emergency funding sources.
- Regulatory frameworks, such as Basel IV's capital floors, prevent banks from reducing capital requirements too aggressively during favourable economic conditions.
- Supervisory oversight plays a key role in ensuring banks maintain adequate capital buffers without excessive reliance on model-driven reductions.
- There should be a balance between capital efficiency and stability, as overly conservative risk estimates can lead to excess capital holdings, while aggressive models may leave banks vulnerable to shocks.

[Total 6]

[Total 17]

This question was answered very well.

Part (i) was answered very well. Candidates were comfortable with explaining the differences between standardised and advanced approaches.

Part (ii) performance was above average. Many candidates were able to comment on the benefits and challenges. Some candidates did not write enough points for the marks available.

Part (iii) performance was average. Many candidates picked up the concerns around volatility with using point in time measures. Most candidates recommended using through the cycle measures. Strong candidates mentioned other measures to reduce volatility.

QUESTION 5

Journey Financial Services (JFS) is a lending house that provides a variety of term loan products to individuals and small businesses. JFS is looking to expand the size of its lending portfolios and would need to raise additional funding to do so.

- i. Describe the various sources of non-capital funds that banks can use to fund lending operations.

[5]

Deposit taking

- For most lending banks, the major source of funding is deposits made by customers.
- Retail deposits can be relatively low-cost for the bank because many depositors do not seem particularly sensitive to the rate of interest earned on deposits and do not typically switch to other banks to get better rates.
- Also, retail deposits may persist for a number of years, even if they are instant access deposits.
- Savings / deposits may go down during market stress situations as customers need to access excess cash to cover expenses.
- Institution-specific stresses (e.g. due to reputational damage) may lead to customers withdrawing savings / deposits due to concerns over the bank in question.

Wholesale market funding

- Wholesale funding may be used to complement retail funding, particularly in periods when retail funding is limited, because of low interest rates or for some other reason.
- Wholesale funding may be used by shadow banks, which do not have a banking license and cannot take deposits.
- Wholesale funding sources include, but are not limited to, state funds, foreign deposits, and borrowing from institutional investors.
- Additional sources of wholesale funding could include reverse repos and other forms of secured funding, funds obtained through the bond market and securitisation.
- An important disadvantage of wholesale funding is that the owners of the funds are generally sensitive to changes in the risk profile of the banks. Wholesale funding is, therefore, vulnerable to being withdrawn in periods when banks face recessions or other stress scenarios.
- Wholesale deposits tend to be less “sticky” than retail deposits. They also tend to be more expensive, requiring higher interest rates on their deposits compared to retail deposits.

Central bank funding

- Banks may get funding, at least on a temporary basis, through their money market operations with their central bank.

[Total 5]

JFS is reviewing its current funding mix and considering options available for raising additional funding to support further lending. The following information has been extracted from JFS's balance sheet:

Balance Sheet (L\$ million)	
Assets	
Cash and cash equivalents	2 170
Investment securities	2 440
Loans and advances	15 590
Property and equipment	35
Other assets	305
Total assets	20 540
Liabilities	
Wholesale funding	16 670
Corporate bonds	880
Other liabilities	1 230
Total liabilities	18 780
Total equity	1 760
Total equity and liabilities	20 540

ii. Comment on JFS's current mix of funding and options available for raising additional funding.

[6]

Comments on current mix of funding

- JFS is currently funding operations through a combination of wholesale funding and corporate bonds issued, with wholesale funding making up the bulk of the funding mix.
- JFS does not have any funding in the form of customer deposits, indicating that they are a 'shadow bank' and do not have a banking license.
- A challenge for shadow banks like JFS is that, if their wholesale funding is limited in periods of stress, they may be forced to sell assets at depressed prices. They could raise funding on their investment and securities portfolio
- JFS is highly leveraged, with a debt-to-equity ratio of 10.7 (total liability / total equity)
- Mark available for calculation of any additional relevant metrics

Options for raising additional funding

- JFS can raise additional funds by issuing corporate bonds to institutional investors. Or raising loans.
- These bonds can be tailored to different maturities and interest rates, depending on market conditions and investor appetite.
- JFS could sell securities directly to a small group of institutional investors through private placements. Or reverse repos with investment banks.
- This method can be quicker and less costly compared to public offerings, and can be tailored to meet the specific needs of both JFS and the investors.

- JFS could securitise a portion of its existing loan portfolio. By converting illiquid assets into liquid securities, JFS can raise capital while transferring some of the credit risk to investors.
- Venture capital firms and private equity investors can provide capital in exchange for equity in JFS.
- This can be a viable option for funding expansion, but it may require JFS to cede some control and share profits with these investors.
- JFS could consider applying for a banking license in order to be able to accept customer deposits to support expansion of lending activities over the longer term.

[Total 6]

JFS is considering applying for a banking license to enable the use of customer deposits to fund further lending activities.

iii. Outline the advantages and disadvantages of this suggestion.

[7]

Advantages

- The ability to attract customer deposits would provide JFS with access to stable funding.
- Customer deposits provide a stable source of funding compared to other forms of capital, reducing dependency on external investors.
- Deposits typically come with lower interest rates than other forms of borrowing, which would reduce the overall cost of funding
- Reduced cost of funding could allow JFS to price its products more competitively, or to increase the margins on its products.
- Accepting deposits can diversify JFS's funding sources, making it less vulnerable to market fluctuations.
- Holding a banking license can enhance the credibility and trustworthiness of JFS in the financial market.
- Offering banking products can increase customer loyalty and enable cross-selling opportunities.
- A banking license can help JFS penetrate new markets and expand its customer base.
- As a bank, JFS would be able to access central bank funding.

Disadvantages

- Obtaining and maintaining a banking license requires compliance with stringent regulatory requirements, which can be costly and time-consuming.
- Banks are subject to higher levels of regulatory oversight and scrutiny, which could limit operational flexibility.
- JFS would need to meet specific capital requirements to secure a banking license, potentially tying up significant resources.

- Running a bank involves additional operational costs, including the establishment of systems to manage deposits and withdrawals.
- Taking customer deposits introduces new risks, including liquidity risks, which JFS would need to manage effectively, by having resources looking after this.
- Any failures or issues in the banking operations could harm JFS's reputation and customer trust.
- Entering the banking sector can expose JFS to intense competition from established banks, which may have more resources and experience and drive up the cost of this potential cheaper funding source.

[Total 7]

[Total 18]

This question was answered poorly.

Part (i) performance was poor. A number of candidates overly concentrated on single funding sources, sometimes to the exclusion of broader options. The most common missed opportunity was the failure to identify and hence fully utilise the key directive to "describe", many candidates opted for list-style responses, which constrained their ability to earn additional marks.

Part (ii) was answered poorly, with candidates frequently misinterpreted the core requirement of the question, focusing on how loans can be financed (e.g., using available cash) rather than how further financing could be raised. A notable missed opportunity was the lack of application of provided data for calculations, particularly gearing ratios, which could have secured straightforward marks. Additionally, time management proved to be a challenge, with candidates struggling to generate a sufficient number of relevant points within the constraints of the allotted time.

Part (iii) performance was average. Many struggled to generate a sufficient number of distinct points. The most effective candidates circumvented this issue by employing a comparative approach, systematically assessing individual features of the proposal and weighing their associated advantages and disadvantages. For example, stronger candidates recognised that increased regulation could introduce operational burdens, such as higher staffing requirements and compliance costs and other expenses, yet noted that this would simultaneously enhance the entity's reputation and build trust.

QUESTION 6

Johto Bank is a development bank operating in the country of Actuarial. They offer services to public sector entities including: schools, parks and municipalities. The bank is currently reviewing their current scorecard and credit risk assessment.

i. Outline the reasons credit ratings are important to public sector entities.

[2]

- A strong rating allows entities to borrow money at lower interest rates, making public sector projects or service delivery costs cheaper.
- A stronger credit rating would allow access to more financing than compared to a weaker rating. This could enable more initiatives to be completed.
- Market confidence: ratings influence investor decisions, which could attract more investment in public sector issued bonds.
- Ratings provide an external assessment of a public entity's financial health, promoting transparency and accountability.

[Total 2]

You are an actuarial consultant working at Johto Bank. The bank is currently reviewing an application for a loan to a local municipality.

For lending to municipalities, Johto Bank utilises a mix of a quantitative and qualitative scorecards for the credit risk assessment. The credit risk rating assessments follow the following process:

1. Consolidate the financial ratios and calculate a score for each ratio using a lookup table.
2. Weight the scores according to the scorecard to get a final quantitative score.
3. Collect information for the qualitative scorecard and generate a qualitative score.
4. Combine the quantitative score and the qualitative score to generate a credit risk score.
5. Transform the credit risk score into a PD (probability of default) using a function.

ii. Outline factors that could be considered in the qualitative scorecard.

[2]

- Management: The experience, stability, and effectiveness of the municipal leadership.
- Management: Evaluating the effectiveness of the municipal council and its committees, including items such as: terms of reference, membership, and major decisions (e.g., budget sign-off).
- Management: The extent of external audit findings by the 'Auditor General/Comptroller General' office and how these are addressed.
- Vision: Whether a clear strategic vision and effective implementation plan is in place.
- Budgeting: Examining the quality of budgeting, financial planning, and internal controls.
- Financial reporting: Assessing the transparency and accountability of financial reporting, including audit reports.

- Financial reporting: The ability of the municipality to collect revenue.
- Ethics: The presence of and adherence to ethical guidelines and conflict of interest policies.
- Economic cycle: Evaluating the municipality's vulnerability and planning to economic shocks.
- Infrastructure: The state of roads, bridges, water, and sewer systems.
- Disaster management: The municipality preparedness to deal with disasters such as floods.
- Regulations: Adherence to relevant laws and regulations.
- Relations: Interaction and feedback to government.

[Total]

The breakdown of the quantitative scorecard is shown below:

Financial Ratio	Definition	Financial Ratio score	Weight
Current ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Determined using a lookup table	50%
Leverage	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Determined using a lookup table	30%
Return on Assets	$\frac{\text{Surplus}}{\text{Total Assets}}$	Determined using a lookup table	20%

iii. Comment on the choice of financial ratios included in the scorecard.

[3]

- The current ratio (current assets / current liabilities) measures a company's ability to cover short-term obligations (those due within one year) with its short-term assets.
- It indicates whether a company has enough liquid assets to meet its immediate financial obligation
- A declining current ratio may indicate that a company is struggling to manage its working capital or is facing increasing financial pressure.
- The leverage ratio shows the extent to which a company's operations are financed by debt.
- A high leverage ratio indicates that a company is heavily indebted, which increases its credit risk.
- A high leverage ratio suggests that a company may have difficulty servicing its debt if its earnings decline
- ROA measures how effectively a company generates profits utilising its assets.
- A higher ROA indicates that a company is more efficient in using its assets to generate earnings.
- Companies that efficiently use their assets are more likely to generate sufficient revenues to meet their debt obligations.

[Total 3]

A ‘government grant’ could be defined as: an allocation of funds from national government to a municipality to assist municipalities to provide basic services, address infrastructure issues, or other specific purposes.

A public sector credit analyst has suggested the following ratio to enhance the quantitative scorecard:

- Grants to revenue:

$$\frac{\text{Grants}}{\text{Total revenue}}$$

iv. Outline possible reasons for including the additional ratio.

[2]

- There have been some policy changes or trends around government grants.
- The proportion of government grants to revenue of a municipality gives a good differentiator on credit riskiness.
- The current scorecard ratios don’t capture enough information with respect to the underlying credit riskiness of a customer.
- It is recommended as best practice, for example, from an audit or international guidance on credit risk.

[Total 2]

v. Discuss additional financial ratios or criteria that could be used in the quantitative scorecard.

[4]

- Debt service coverage ratio (DSCR): operating income / total debt service cost
- The DSCR assesses whether a company generates enough income to cover its current debt payments including interest and principal.
- A high DSCR indicates a strong ability to service debt which usually suggests lower credit risk.
- Cash to current liabilities: cash and cash equivalents / current liabilities
- Ratio on the company's most liquid assets (e.g., cash) and its immediate obligations. This makes it a more conservative measure of liquidity, as it doesn't rely on the conversion of other assets into cash.
- This is important for assessing a company's ability to withstand sudden financial shocks or unexpected expenses.
- Debtors collection period: total account receivables / income * 365
- The ratio discloses how well a company's credit and collection policies are working.
- A shorter collection period indicates that the company is effectively managing its credit and collecting payments promptly.
- A shorter period frees up cash, improving liquidity and the company's ability to meet its obligations.

Credit was given to any applicable ratios or relevant criteria.

[Total 4]

The credit manager has asked you to investigate the change in the scorecard and the overall credit risk assessment.

The information on the rating and updated scorecard are shown below:

Financial Ratio	Calculation	Weight
Current ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	30%
Leverage	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	30%
Return on Assets	$\frac{\text{Surplus}}{\text{Total Assets}}$	20%
Grants to Revenue	$\frac{\text{Grants}}{\text{Total revenue}}$	20%

The credit risk rating PD (probability of default) estimate is calculated using the following:

$$PD_i = \frac{1}{e^{a \times \text{credit risk score}_i + b}}$$

where:

PD_i is the estimated PD for customer i ;

a, b are calibrated constants;

$\text{credit risk score}_i$ is calculated using the following components:

$$\text{credit risk score}_i = w \times (\text{Quant}S_i) + (1 - w) \times (\text{Qual}S_i)$$

w is the weight factor $\in [0,1]$;

$\text{Quant}S_i$ is the weighted average financial ratio score from the quantitative scorecard for customer i , $\text{Quant}S_i \in [0,100]$;

$\text{Qual}S_i$ is the score output from the qualitative scorecard for customer i , $\text{Qual}S_i \in [0,100]$.

Parameters	a: 0.1 b: 0.7 w: 0.5
Selected Customer information (L\$)	
Total Revenue	150 000
Total Expenses	100 000
Total Surplus	40 000
Current Assets	240 000
Current Liabilities	180 000
Total Assets	1 000 000
Total Liabilities	240 000
Total Grants	40 000
Qualitative score ($\text{Qual}S$)	52

Financial Ratio Score Lookup Table

Criteria	Score	Criteria	Score
Current Ratio ≤ 1	20	Leverage ≤ 0.1	100
$1 < \text{Current Ratio} \leq 1.5$	40	$0.1 < \text{Leverage} \leq 0.125$	80
$1.5 < \text{Current Ratio} \leq 2$	60	$0.125 < \text{Leverage} \leq 0.16$	60
$2 < \text{Current Ratio} \leq 2.5$	80	$0.16 < \text{Leverage} \leq 0.25$	40
Current Ratio > 2.5	100	Leverage > 0.25	20
Criteria	Score	Criteria	Score
Return on Assets ≤ 0.01	20	Grants to Revenue ≤ 0.1	100
$0.01 < \text{Return on Assets} \leq 0.02$	40	$0.1 < \text{Grants to Revenue} \leq 0.2$	80
$0.02 < \text{Return on Assets} \leq 0.1$	60	$0.2 < \text{Grants to Revenue} \leq 0.5$	60
$0.1 < \text{Return on Assets} \leq 0.2$	80	$0.5 < \text{Grants to Revenue} \leq 0.75$	40
Return on Assets > 0.2	100	Grants to Revenue > 0.75	20

- vi. Discuss the changes to this customer's credit risk rating assessment caused by using the new scorecard. Include commentary on the reasonableness of the new ratio, and support your answer with calculations.

[7]

Old scorecard

Ratio	Calculation	Lookup score	Weighted Score
Current	1.33	40	20
Leverage	0.24	40	12
RoA	0.04	60	12
Quantitative score			44
Qualitative score			52
Credit Risk score			48
PD			0.4087%

New scorecard

Ratio	Calculation	Lookup score	Weighted Score
Current	1.33	40	12
Leverage	0.24	40	12
RoA	0.04	60	12
Grants	0.27	60	12
Quantitative score			48
Qualitative score			52
Credit Risk score			50
PD			0.3346%

- The new scorecard decreased the weight of the current ratio to 30% and inclusion of a grants ratio with a weight of 20%.
- The addition of the new ratio increased the credit risk score from 48 to 50. This resulted in a change in PD from 0.4087% to 0.3346%, which suggests an improvement in overall credit risk.

Grant to revenue ratio

- As the grant to income ratio increases, the overall credit risk decreases.
- More government grants could mean less risk for the bank as the grants will supplement the revenues and they are able to repay the loans.
- However, a greater ratio of grants to revenue could be an overreliance on support from national government and may be a potential sign of higher credit risk over time.

[Total 7]

[Total 20]

This question was answered very poorly, with many candidates seem to have run into time pressure. Many candidates failed to appreciate the scenario at hand and provided generic responses. This once again highlights the importance of reading and understanding the question before writing down responses.

Part (i) was answered poorly. Candidates struggled with this question with few scoring full marks and number not scoring at all even after attempting the question. Weaker candidates seemed to struggle to articulate the use of a credit rating.

Part (ii) was generally answered well, although a number of candidates suggested quantitative metrics rather than qualitative metrics. Some candidates just listed components without thinking through the scenario at hand.

Part (iii) was generally answered well. Stronger candidates linked the ratios to assessing credit risk. Weaker candidates only discussed definitions without linking the ratios to the riskiness of a client.

Part (iv) was answered poorly. The range of responses was very narrow. Few candidates considered factors such as regulation or international best practice as reasons for including this ratio. Many answers revolved around the revenue mix. Some candidates solely focused on explaining the ratio rather than the reasons for its inclusion. Weaker candidates did not read the definition provided and thereby provided illogical conclusions.

Part (v) was answered very poorly. Candidates did not describe relevant ratios or criteria and its inclusion in such a scorecard. Some candidates described irrelevant ratios (e.g., LCR) and qualitative ratios. Many candidates listed ratios with no discussion on why these may be relevant.

Part (vi) was answered very poorly. A number of candidates were not able to apply themselves to the context at hand. A number of candidates did not attempt the question, likely due time constraints.

[Paper Total 100]

END OF EXAMINERS' REPORT