



## FINM3404 TAKE HOME FINAL EXAM

Exam information	
Course code and name	FINM3404 Banking and Lending Decisions
Semester	Summer, 2020
Exam type	Take home
Exam date and time	The assessment will be available from <b>06 February 2021 at 10.00 AM (AEST)</b> . The assessment is due at <b>09 February 2021 at 10.00 AM (AEST)</b> .
Exam window	You have a 72-hour window in which you must complete your exam. You can access and submit your exam at any time within the 72-hour window.
Weighting	This assessment is weighted at 50% of your total mark for this course.
Permitted materials	This is an open book exam – all materials permitted.
Required/recommended materials	calculator; bilingual dictionary.
Instructions	<ul style="list-style-type: none"><li>▪ Answer all questions</li><li>▪ Start a new question from a new page. Use a clear heading with the question number</li><li>▪ Show the detailed steps of your calculations</li><li>▪ Write your answers using Microsoft Word</li><li>▪ Upload the responses to the questions in a single 'pdf' file using <b>the following two</b> links. Please note that you need to submit the same PDF file <b>in the following two links</b>:<ul style="list-style-type: none"><li>A. "Final Exam Submission Link" on Blackboard for <b>marking</b></li><li>B. "Final Exam Turnitin Submission Link" for <b>similarity check</b></li></ul></li></ul>
Exam extension/deferral	Please begin your exam as soon as possible within the available window. However, if you become unwell or experience exceptional circumstances while completing this exam then submit an <b>extension request before the due date/time</b> : <a href="https://my.uq.edu.au/information-and-services/manage-my-program/exams-and-assessment/applying-extension">https://my.uq.edu.au/information-and-services/manage-my-program/exams-and-assessment/applying-extension</a>
Who to contact	Should you have any issues about the assessment task, you should contact the course coordinator at <a href="mailto:h.chowdhury@business.uq.edu.au">h.chowdhury@business.uq.edu.au</a> .  If you experience any <b>technical difficulties</b> during the assessment task, contact the <a href="#">Library AskUs</a> service for advice. You should also ask for an email documenting the advice provided so you can provide this to the course coordinator immediately at <a href="mailto:h.chowdhury@business.uq.edu.au">h.chowdhury@business.uq.edu.au</a> .
Important exam condition information	The normal academic integrity rules apply to this assessment task.



- You **cannot cut-and-paste material** other than your own work as answers.
- You **are not permitted to consult any other person** – whether directly, online, or through any other means – about any aspect of this assessment during the period that this assessment is available.

If it is found that you have given or sought outside assistance with this assessment then that will be deemed to be cheating and will result in disciplinary action.

By undertaking this online assessment you will be deemed to have acknowledged [UQ's academic integrity pledge](#) to have made the following declaration:

*"I certify that my submitted answers are entirely my own work and that I have neither given nor received any unauthorised assistance on this assessment item".*



## FINM3404 FINAL EXAM

Summer Semester, 2020

Total Marks: 50

### Question 1

A. Assume that you are the HR manager in an investment bank. You have an orientation session with interns. One of the interns ask you how the investment banking operations are organised. Please respond to this intern by explaining three organisational departments of an investment bank. Another intern asks, "I heard that the 'middle office' is a less glamorous part of an investment bank but serves some of the most important functions." Discuss this statement. **[4 marks]**

B. Tulip Bank uses the Moody's Analytics Portfolio Manager model to evaluate the risk–return characteristics of the loans in its portfolio. Tulip has two loans with the following characteristics:

Loan given to Marvel Corporation (with an amount of \$6 million) earns 1 percent per year in fees, and the loan is priced at a 3 percent spread over the cost of funds for the bank. For collateral considerations, the loss to the bank if the borrower defaults will be 25 percent of the loan's face value. The expected probability of default is 2 percent.

Loan given to Capcom Corporation (with an amount of \$5 million) earns 1 percent per year in fees, and the loan is priced at a 4 percent spread over the cost of funds for the bank. For collateral considerations, the loss to the bank if the borrower defaults will be 20 percent of the loan's face value. The expected probability of default is 3 percent.

The default risk correlation between Marvel and Capcom is 0.12.

#### Requirements:

- i. Calculate the percentage return on the loan portfolio **[2 marks]**
- ii. Calculate the percentage risk of the loan portfolio **[2 marks]**
- iii. Discuss why Moody's Analytics Portfolio Manager model might be a good choice over using MPT based regular loan portfolio diversification model for ADIs and insurance companies. **[2 marks]**



## Question 2

- A. The duration of an 11-year, \$1000 Treasury Bond paying a 10 per cent semi-annual coupon and selling at par has been estimated at 6.763 years.
- i. What is the modified duration of the bond? What is the dollar duration of the bond? **[1 mark]**
  - ii. What will be the estimated price change on the bond if interest rates increase 15 basis points? If rates decrease 25 basis points? **[2 marks]**
  - iii. What would the actual price of the bond be under each rate change situation in part (b) using the traditional present value bond pricing techniques? What is the amount of error (difference between estimated and actual price) in each case? **[3 marks]**
- B. 'Even years after the commencement of deregulation in the financial markets, the international capital markets still remain a relatively important source of funds for commercial banks.' Give your opinion on this statement with a detailed discussion. **[4 marks]**



**Question 3**

A. TMK Bank has the following balance sheet (in millions of dollars) with the risk weights in parentheses.

Assets		Liabilities and equity	
Cash (0%)	\$40	Deposits	\$350
Interbank deposits with AA rated banks (20%)	55	Subordinated debt (5 years)	20
Standard residential mortgages (50%)	100	Non-cumulative preference shares	15
Business loans to BB rated borrowers (100%)	210	Common equity	20
Total assets	\$405	Total liabilities and equity	\$405

In addition, TMK Bank has \$40 million in performance-related standby letters of credit (SLCs) with credit conversion factor of 50%. Consider capital conservation buffer and assume that APRA suggests 1% countercyclical capital buffer due to COVID related effects.

- i. What is the total minimum capital required under Basel III? **[1 mark]**
- ii. Calculate Tier 1 CAR, Common Equity Tier 1 CAR, and Total CAR and compare them with Basel III requirements. **[4 marks]**
- iii. Does TMK Bank have enough capital to meet the regulatory capital requirements? Explain. **[2 marks]**

B. Suppose you are the investment research analyst at MTU Investment Limited. Bowen Limited is your client and wants to issue new securities to the public market. When underwriting new security offerings for Bowen Limited, why would you prefer that the securities be underpriced? Explain. **[3 marks]**



#### **Question 4**

- A.** An institutional investor, Gilbert Limited, is planning to purchase a straight Eurobond in order to include it in the investment portfolio. Gilbert receives following information:
- Current Eurobonds in the Euromarkets are trading at a yield of 10.50% annually
  - An existing Eurobond with a face value of USD 2 million pays annual fixed 8.50% coupons
  - The bond Gilbert is considering will mature on 31 December 2022.
- i. If Gilbert purchases the bond on 15 June 2019 and the last coupon on the bond was paid on 31 December 2018, what should be the price that Gilbert should pay for this bond? **[4 marks]**
- ii. Why is the price at 15 June 2019 different from the price Gilbert should have been paid if it purchased the bond at 01 January 2019? **[1 mark]**
- B.** Bank regulators impose minimum capital adequacy standards on commercial banks. APRA has stressed the importance of CET1 capital. Explain what this is and why APRA places such emphasis upon it. **[3 marks]**
- C.** The new credit risk officer Mr Douglas argues that banks engage in loan sales only to manage credit risk. Reply to Mr Douglas by explaining two other possible strategic reasons/benefits for the sale of loans by banks. **[2 marks]**



### Question 5

- A. DDR Bank Limited originates a pool of 450 mortgages, each with 30-year maturity and averaging \$350,000 with an annual mortgage coupon rate of 8.5 percent. Assume that the risk adjusted market annual rate of return is also 8.5 percent compounded monthly. The mortgage-backed security insurance fee is 80 basis points and DDR Bank's servicing fee is 20 basis points.

Requirements:

- i. What are the expected monthly cash flows to securitized bondholders? **[1 mark]**
  - ii. What is the present value of the pass-through security bonds? **[1 mark]**
  - iii. What are DDR Bank's expected monthly cash flows? **[1 mark]**
  - iv. Write a short report to the Chief Risk Officer on how DDR Bank can use securitisation to manage its risk exposures. Be sure to consider interest rate, currency, liquidity and credit risks. **[4 marks]**
- B. Suppose you are the CFO of ABC Timber Limited, which is a medium sized company. Discuss three reasons why a small and medium-sized company might like to borrow from a commercial bank rather than approach an investment bank to sell securities in financial markets. **[3 marks]**