Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

Fakultät für Betriebswirtschaft
Lehrstuhl für Bankbetriebslehre und Behavioral Finance
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Mock Exam
Risk Management and Bank Regulation (MSc)

Winter Term 2013/2014

This mock exam corresponds to the final exams in Risk Management and Bank Regulation in the winter term 2013/14. The questions cover different topics of the lectures, and the required readings.

You may spend up to 60 minutes to answer the following three (3) main questions. Since you may receive up to 60 points, you should spend about 1 minute per point.

Please note:

- **You are not allowed to carry cellphones, smartphones or other mobile devices with you during the exam; any device that you carry with you (no matter whether switched on or off) will be seen as an attempt of deception.**
- You may use a pocket calculator that has no option to put text in the memory.
- You may answer all questions either in German or in English. Within each of the three (3) main questions, you must not switch between the two languages.
- Write on the answer sheet only. Put your name and your student ID number on every sheet you use. **Answers on this question sheet will not be assessed.** Please submit both the question and the answer sheets at the end.
- **Calculate within four digits after the decimal point. This also holds for intermediate results.**

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1 VaR, EL, Duration 20 points

a) Please explain three factors that must be fixed to calculate the Value at Risk (VaR). (6 points)

b) Does the VaR also cover expected losses (EL))? Please provide a short explanation. (3 points)

c) Please explain why the hedge fund LTCM became insolvent in 1998 even though it had about three times as much risk capital as indicated by the VaR. Which assumption was violated and why did this happen? (6 points)

d) Calculate the current price and duration of a German Bund with a 3% coupon and a time to maturity of three years under the assumption of a flat yield curve at 4% p.a.. (5 points)

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2 Bank Regulatory Capital 20 points

a) Describe the changes with respect to bank regulatory capital (quality, quantity) between Basel II and Basel III. (6 points)

b) How does the Basel II regulation generate pro-cyclical capital requirements? (4 points)

c) How is the term-structure risk regulated in the Basel framework with respect to the trading book and with respect to the asset book? Examples may be used to illustrate your answer. (6 points)

d) Describe and explain the effect of higher capital requirements on the ROE expected by investors. (4 points)

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3 Bank Accounting & Leverage Ratio 20 points

FT 20140114, p. 11: "Investment banks hail victories in Basel battle"

"(...) The key adjustments announced on Sunday will allow banks to net off exposures to some repurchase – or repo – transactions when they are calculating their leverage ratio. Certain off-balance sheet items will be treated more favourably, and regulators have eliminated some double-counting. Campaigners for stiffer capital standards warned that banks still faced a battle over the level at which the leverage ratio was ultimately set by national regulators, with the Basel Committee proposing 3 per cent as a bare minimum. US rules on leverage are being finalised by regulators including the Federal Reserve and the Federal Deposit Insurance Corporation. In July a proposed rule said the biggest institutions would have to hold a leverage ratio of 5 per cent equity to assets and 6 per cent for their bank subsidiaries. The difference in toughness compared with the 3 per cent Basel standard had been reduced because the US rules were more lenient in the way assets were calculated. Now that the Basel rules have softened their approach to calculating assets, there is potentially a bigger gap in severity, with US banks such as JPMorgan Chase expected to meet a tougher standard than European banks."

a) Describe the different approaches for calculating the leverage ratio and the risk-weighted asset ratio. (4 points)

b) Why do different accounting standards lead to different leverage ratios? Please use an example to support your reasoning. (6 points)

c) Regulatory arbitrage was possible within the Basel I regulatory framework and it will also be possible to "arbitrage" the leverage ratio. Briefly describe the two scenarios using an example each. (6 points)

d) Imagine that a bank's CDS spread drops from 200 bps to 100bps. What happens to both the balance sheet and the P&L statement when using Fair Value Accounting? Please explain your answer. (4 points)