

Coursework 1 - Banking Regulation

The Basel Committee on Banking Supervision (BCBS) has published its new rules, which will come into effect starting this year, that will improve upon Basel III. These rules have been dubbed Basel IV colloquially by bankers and have been discussed extensively in the last couple of years.

This coursework is focused on a critical analysis of the Basel IV proposal and on measuring your ability to estimate capital requirements for a set of operations.

Use the Basel III agreement implementation document in Canada, the BCBS consulting documents, citable sources from journals and companies, official publications (see <http://bit.ly/2ksdoNM>), and your knowledge from the course to answer each of the following questions. The answers should be in your own words in a way non-experts can understand, **but everything should be properly cited and discussed**. Focus on explaining what you did to arrive to your results. Marks will be deducted for just quoting verbatim from any citable source, for not discussing how you arrive at a certain quantity, or for discussing concepts with no adequate citable source. You must prove you are able to create an argument supported by literature, contrasting multiple literary views when necessary.

1. (60%) The file "LoanStock.csv" shows the total loan and bond stock of a small bank in Ontario. The bank focuses mostly on mortgages, and bonds, with an incipient unsecured retail lending business (loans). The bank has been categorized by the OSFI so that it must keep a capital adequacy requirement of 11.5% of its Risk-Weighted Assets. With this information, and assuming the bank does not have any further operations:
 - a. (15%) Price the bonds at today's date, so they reflect the current market price for the purposes of capital requirement calculations. For the market rates (yields), use Canada's bond rate given by <https://www.bankofcanada.ca/rates/interest-rates/canadian-bonds/>.
 - b. (30%) Calculate the total provisions and capital requirement each operation brings. Report the total provision per business line (retail, mortgage and bonds) and the total capital requirement per business line. For LGD in corporate, assume the standard Basel weights (i.e. use foundational approach). The rating table for the bank is as follows:

• $PD < 0.001$	AAA
• $0.001 < PD < 0.01$	AA
• $0.01 < PD < 0.12$	A
• $0.12 < PD < 0.36$	BBB
• $0.36 < PD < 0.52$	BB
• $0.52 < PD < 0.75$	B
• $0.75 < PD < 0.85$	CCC
• $PD > 0.85$	D

Note that the LGD for unsecured loans is considered to be 100% and that the mortgage LGD does NOT consider the value of the collateral, which must be discounted from the owed amount. The EAD for mortgages and loans can be calculated as the standing amount minus the collateral (for mortgages). The **Basel III** floors for PD and LGD apply.

- c. (15%) Using the standard approach's weights for each of these assets¹, report the total Risk-weighted assets of the bank. What is the regulatory capital the bank must satisfy? Compare with one of the big 5 banks regulatory capital and comment on the size of our bank. Use one of the Pillar 3 reports for Q3, citing which one you used.
2. (40%) The BCBS has proposed, controversially, a set of changes the Basel III agreement, to be implemented until 2029. This is discussed in their new proposal from December 2017 (summary at https://www.bis.org/bcbs/publ/d424_hlsummary.pdf, page 5 onwards, full document at <https://www.bis.org/bcbs/publ/d424.pdf>, Canadian OFSI proposal at <http://www.osfi-bsif.gc.ca/eng/fi-if/in-ai/Pages/biii.aspx>) . Comment on the following:
 - a. (10%) What are the changes proposed by the committee? How are the proposed approaches different from the ones in the current Basel III agreements?
 - b. (15%) Contrasting citable sources, discuss the potential impact of each parameter change on banks. Which Canadian banks and financial institutions will be most affected? Why?
 - c. (15%) Considering your previous answers, critically evaluate the proposal by the BCBS and the need for banking regulation. Do you agree with the changes? Support your answer with references to external sources but write the analysis and conclusions in your own words.

Conditions of the coursework

Software: You must use Python to run the numerical calculations over your portfolio. A copy of your jupyter notebook must be attached to the coursework as an appendix in readable format, and a link to the notebook must also be included. Instructions how to export to PDF can be found here: <https://stackoverflow.com/questions/52588552/google-co-laboratory-notebook-pdf-download>

Word Limit: 1500 words +/-10% either side of the word count is deemed to be acceptable. Any text that exceeds an additional 10% will not attract any marks. The relevant word count *includes* items such as cover page, executive summary, title page, table of contents, tables, figures, in-text citations and section headings, if used. The relevant word count *excludes* your list of references and any appendices at the end of your coursework submission.

You should always include the word count (from Microsoft Word, not Turnitin), at the end of your coursework submission, before your list of references.

Title/Cover Page: You must include a title/ cover page that includes: your Student ID, Course Code, Assignment Title, Word Count. This assignment will be marked anonymously, please ensure that your name does not appear on any part of your assignment.

¹ You can find the standard weights given by OSFI here http://www.osfi-bsif.gc.ca/Eng/fi-if/rg-ro/gdn-ort/gl-ld/Pages/CAR19_chpt3.aspx.

Submission Deadline: October 17th, 23:59.

Turnitin Submission: The assignment MUST be submitted electronically via OWL. All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).