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A tool for measuring and managing credit risk in portfolios of foreign reserves

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Abstract

Improving the assessment of credit risk has become a priority for many central banks after the global financial crisis. Central banks need to decide how much effort to put into developing credit risk assessment tools, taking into account their resources and limitations. This paper proposes a tool that is both pragmatic and conceptually sound, which allows to improve the assessment of credit risk for foreign reserves managers and complements the information produced by the rating agencies. The tool we propose uses three different credit risk models in order to identify the issuers that have a high, moderate, or low probability of having a ratings downgrade below the minimum accepted rating, within the issuers that meet the minimum rating requirements. The signals from the tool are built from market and fundamental information of each issuer. Additionally there is a proposal for a framework to turn the outputs from the model into investment decisions.

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Keywords: Credit risk; Foreign reserves; Market implied ratings; Probability of default; Financial ratios; Central banks.

1. Introduction

The global financial crisis and the decreased confidence in credit rating agencies have motivated central banks around the world to develop internal tools to measure and manage credit risk. Nonetheless the process of building internal capabilities to analyze credit risk is challenging because of the required human and technological resources.

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A strong process for analyzing credit risk is not enough because it is also necessary to set up a proper institutional structure to make investment decisions based on the results of credit analysis.

Unlike other institutional investors, central banks also have particular needs and constraints that should be taken into account. Private sector asset managers have well-defined investment processes to invest in credit but their purpose is to identify long and short strategies for corporate bond portfolios, without considering factors that are relevant for central banks such as the reputational risk that arises from an event of default. Reputational risk makes central banks a particularly risk-averse group of investors. Furthermore some of the market indicators that are widely used for credit analysis are not available for all eligible issuers, such as government and government-related debt that central banks tend to concentrate their portfolios on. Finally most central banks do not have the same number, training, and experience of credit analysts than a rating agency does.

With the focus to improve credit analysis in central banks, the current paper proposes a straightforward and pragmatic assessment tool to complement the information produced by the rating agencies,–, as well as –an implementation framework in order to use the results of the tool for investment decisions. Instead of proposing the ultimate solution for measuring and managing credit risk, the goal of this paper is also to bring points of discussion to this relevant but challenging topic. Regardless of the approach chosen, the objective of any methodology to improve the assessment of credit risk should be attaining a better understanding of the issuers in the portfolio, acknowledging that no methodology can be completely accurate to anticipate credit events.

This paper has five sections. The first section discusses the main considerations for central banks when developing a framework for measuring and managing credit risk. The second section explains in detail the basic characteristics of the proposed credit risk assessment tool. The third section recommends a framework to turn the signals from the models into actionable investment decisions. The fourth section outlines the limitations of this or any other tools to analyze credit risk. The fifth section concludes.

2. Building a framework to manage credit risk in central banks

Most central banks have had some credit risk in their portfolios, even before the financial crisis, in the form of bank deposits or corporate bonds with the purpose of enhancing return within well-defined risk parameters. The financial crisis and its aftermath created awareness among the central bank community regarding two different situations. First, the reputation of the credit rating agencies suffered as a result of the inaccuracies they had before the financial crisis, particularly in the space of structured securities. Second, government debt issued by developed countries was no longer risk-free. As a result, central banks have had to develop some internal infrastructure to make a better assessment of the credit risk in their portfolios.

It is challenging to define how to structure a process to analyze credit risk in central banks because the resources available in each institution need to be taken into account. Ideally, from a central bank point of view, each entity should develop an independent process that classifies all possible issuers from best to worst and it may be able to make a better classification than any rating agency because there are no potential conflicts of interest. That ideal process would be equivalent to building up the infrastructure of a rating agency from scratch. Considering that Standard and Poor's has approximately 23,000 employees[c], even building a team with a hundredth of that number can be an insurmountable challenge for most institutions. Given that most central banks do not have the resources to go through such an expensive process, some compromises need to be made.

Although credit ratings sometimes fail to anticipate credit events, for the framework presented in this paper, we decided not to dismiss credit ratings entirely, rating agencies: (i) have more resources than an average central bank to analyze credit risk; (ii) have more leverage to obtain detailed information from an issuer than any individual analyst in an institution because they represent a larger group of investors and are often hired by the entities whose debt they rate and (iii) credit ratings are useful to define an eligible investment space because transition matrices can provide an indication on past performance of rating agencies and allow each investor to define a minimum rating that is consistent with his or her tolerance to credit risk. Consequently, a central bank that dismisses all of the information

[c] http://www.standardandpoors.com/about-sp/key-statistics/en/us