CORPORATE RATING MODEL FOR COMMERCIAL BANKS IN VIETNAM

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ABSTRACT

The implementation of Basel helps to standardize, improve and healthy the banking sector through the application of global standards. Basel is built on the basic principle of ensuring banks maintain sufficient capital to offset losses that may arise from the risks that the bank holds. As required by Basel II, in order to comply with the internal rating-based approach (IRB), the commercial banks in Vietnam must have a robust internal rating system, which is suitable for different segmentations and well-quantified risk estimation, so that it could form a solid foundation to derive probability of default of customers. In order to achieve this goal, the model is required to prove good discriminatory power and to be reviewed on an annual basis at least. In this study, we propose a scoring model for corporate customers of the commercial banks.

Key words: Commercial Banks, Basel II, Commercial Banks in Vietnam, internal rating system, probability of default of corporate customers

INTRODUCTION

Basel standard is the first fundamental transformation step for credit institutions to have basic awareness to change the operating method, making business decisions from risk based- approach, the method is being popularized around the world after the 2007 financial crisis. Basel II - standardized method and considered the first step towards risk assessment method.

The State Bank of Vietnam has launched a Basel II deployment roadmap in the commercial banking system in two specific stages:

- Phase 1: Piloting Basel II in 10 commercial banks including Vietcombank, VietinBank, BIDV, MB, Sacombank, Techcombank, ACB, VPBank, VIB and Maritime Bank. The pilot program starts in February 2016; the goal is that by the end of 2018 these banks must basically meet the requirements of Basel II.
- Phase 2: By 2020 basically, commercial banks have a level of equity in accordance with Basel II standards, of which at least 12-15 commercial banks successfully apply Basel II *(According to the National Assembly Resolution on the Plan of restructuring the economy in the period of 2016-2020 on November 8, 2016)*.

The State Bank of Vietnam has approved some Commercial Banks to apply the Basel II standards from January 01, 2019, one year ahead of deadline. SBV has decided that Vietnam's banks will begin to officially apply Basel II standards from 2020.

Under the Basel II guidelines, Commercial Banks in Vietnam are allowed to use their own estimated risk parameters for the purpose of calculating regulatory capital. This is known as the internal ratings-based (IRB) approach to capital requirements for credit risk. Only banks meeting certain minimum conditions, disclosure requirements and approval from their national supervisor are allowed to use this approach in estimating capital for various exposures. Pilot rating phase shall be applied for large corporate customers, who ask for new credit/renew credit issuance request.

In this study, we propose a scoring model as a complementary approach, which can be used to select suitable borrowers, under the Basel II guideline. The Commercial Banks in Vietnam can examine how credit scoring models for firms have been developed and explore aspects of accounting-management.

METHODOLOGY OF CORPORATE RATING MODEL FOR COMMERCIAL BANKS IN VIETNAM

Data description

The research was performed on the sample included 100 companies observed in 2016 from Vietnamese bank (Financial statement data). In model the default probability was predicted for a two-year horizon 2017 & 2018. Qualitative variables are added for data collection (Corporate Governance Report, etc…).
Comparison of rating between the result of model and the delinquency of companies (reality check from a database managed by The State Bank of Vietnam).

Quantitative variables

The difficulty is that the major credit agencies obviously have an interest in making their methodologies a secret. However, there has only been little effort in developing "free" credit rating algorithms. One exception is the so-called "Z-Score" by Edward Altman, originally developed in 1968 (Altman Edward, Financial Ratios, 1968).

The Z-Score is a linear combination of financial ratios, calculated as a number. Usually its result is categorized into "distress risk", "gray area" and "safe area". The original Z-Score formula is:

$$Z = 0.012 * X1 + 0.014 * X2 + 0.033 * X3 + 0.006 * X4 + 0.999 * X5$$

Where:

- X1 = Working Capital / Total Assets
- X2 = Retained Earnings / Total Assets
- X3 = EBIT / Total Assets
- X4 = Market Value of Equity / Book Value of Total Liabilities
- X5 = Sales/ Total Assets

In Vietnam, we try use Z'' (Z-Score Plus). The Z-Score Plus is suitable for companies in the United States as well as non-US companies, including those in emerging economies, such as China (McGraw Hill, 2013)

$$\mathbf{Z'' = 6.56\ X1 + 3.26\ X2 + 6.72\ X3 + 1.05\ X4}$$

The calculated Z then tells you about the financial standing of the company in question:

- If Z'' > 2.6, the company is considered "**Safe**"
- If 1.2 < Z'' < 2.6, the company is considered in the "**Gray area**"
- If Z'' < 1.1, the company would be in the "**Distress area**" and is likely to be almost bankrupt

There have been variations and improvements on the Z-Score, for different industries and such, and some effort has been made to compare Z-Score results to published ratings.

Qualitative variables

A set of qualitative variables was analyzed by this study to strengthen the model Z" (Z-Score Plus) & to use in combination with Quantitative variables (Natalia Nehrebeccka, 2015), which will help to improve comprehensive assessment of Vietnamese corporate customer. Qualitative variables are chosen based on experience of expert opinion in the Commercial Banks in Vietnam. Detail information of qualitative variables are presented on this table:

Table 1: Qualitative variables

N0	VARIABLES	DESCRIPTION	SCORE
X1	BOARD OF DIRECTOR	Experience of BOD in the operating industry of corporate	**Safe- Gray area**
X2	BUSINESS ACTIVITY (LYN Thomas, Jonathan Crook, David Edelman, 2002)	Number of operating year in main business industry	**Safe - Gray area**
X3	INTERNAL CONTROL REGULATION (Bo Kyeong Lee, So Young Sohn, 2017)	3.1 There exist full internal control regulations with 3.0 no absence of audit reports in the recent IACS (Internal Accounting Control System). 3.2 Some internal control regulations are not 1.5 provided, but there is no absence of audit reports 3.3 in the recent IACS. Other—the previous statuses of the internal control regulations are missing.	**Safe** **Gray area** **Distress area**

(Source: synthesized by the authors)

FINDINGS

Verify the applicability of the model when evaluating corporate customers Z'' (Z-Score Plus) works well for Vietnamese corporate customer (with revenue annual < VND 1000 bln & > VND 100 bln). For the Vietnamese big corporate customer (with revenue annual > VND 1000 bln), model Z’’ (Z-Score Plus) require adjustment with qualitative variables.

Table 2: Revenue annual of Companies

(USD/VND X-Rate = 23.000.000; 100 VND bln = 4.348.000 USD)

50 Companies (Corporate Customers) (100 VND bln < Revenue < VND 1000 bln)	**50 Companies (Big Corporate Customers) (Big Corporate Revenue>= VND 1000 bln)**
Z’’ (Z-Score Plus) for reference	Z’’ (Z-Score Plus) adjusted (qualitative variables) for reference

Difference in rating results between the model & the delinquency:

Table 3: Difference of Result of the model/ Result of reality

50 Companies (Corporate Customers) (100 VND bln < Revenue < VND 1000 bln)	50 Companies (Big Corporate Customers) (Big Corporate Revenue>= VND 1000 bln)
Model Z’’ (Z-Score Plus): No difference	**Model Z’’ (Z-Score Plus):** 3 case of delinquency in reality (Rating is Safe), so equivalent to 6 % worst rating with **Model Z’’**.
Model Z’’ (Z-Score Plus) adjusted: No difference	**Model Z’’ (Z-Score Plus) adjusted:** No difference - Good rating

CONCLUSION AND RECOMMENDATIONS

For adapt Basel II, Commercial Banks in Vietnam must build model of rating their customer (Retail & Corporate). In accordance with the guidelines of Basel II, the decision to implement the scoring model should be determined by the results of the validation process: the discriminatory power and calibration quality.

This study suggests a corporate rating models combined, with qualitative & quantitative variables for decision making:

- Model Z’’ (only use qualitative variables) for Corporate Customers (with VND 100 bln <revenue < VND 1000 bln).
- Model Z’’ adjusted (qualitative & quantitative variables) for Big Corporate Customers (with revenue > VND 1000 bln).

At its core, a credit rating is nothing more and nothing less than a risk indicator, telling an investor how likely or unlikely an entity's bankruptcy is. The investor, be it an equity investor or a lender, will use this information to decide which return he wants to receive.

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