

**Credit risk control for loan products in commercial banks.
Case: Bank for Investment and Development of Vietnam.**

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Degree programme International Business	
Report/thesis title Credit risk control for loan products in commercial banks- A case bank	Number of pages and appendix pages 44 + 5
<p>In the world of banking, competition between commercial banks is increasing more and more. Lenders are trying to satisfy customers in various credit services, which include lending services. To keep themselves in the play, banks focus on improving credit growth. However, higher credit growth will not truly bring higher profits if banks fail to manage credit risk. This thesis studies credit risk control for business loan products and aims to identify different approaches to control the risk effectively.</p> <p>The thesis includes theories that relate to credit risk management. For the empirical part, a mixed research method of qualitative and desktop research is used to study the credit risk issue of a case bank, Bank for Investment and Development of Vietnam (BIDV). Qualitative research are carried out by interviews via email with the target bank's officers and its supervisors. In addition to primary data from the interviews, the research includes secondary data from reliable sources such as the case bank's annual reports, local government regulations, and international banking standards.</p> <p>The outcomes of the thesis point out some problems that limit the credit risk management of the case bank as well as recommendations for the State Bank of Vietnam and BIDV. With regard to BIDV, firstly, its assets classification process follows old local credit regulations which need to be amended. Secondly, the credit organization is facing difficulties in checking credit profile due to the lack of a transparent information system. Thirdly, loan covenants are used to supervise and monitor borrowers, however, they have not been utilized. Out of these issues, the State Bank of Vietnam is recommended to revise and adjust the assets classification regulation and consider to grant more rights to the state-owned bad bank, Vietnamese Assets Management Company, to support credit risk management in the commercial banking sector. In terms of BIDV, investments in building a transparent information technology system are fundamental. Besides that, the lender should offer more training programs for employees and establish official internal instructions for using loan covenants.</p>	
Keywords Credit risk, credit rating, non-performing loan, provision	

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1 Introduction

Credit risk has been studied a lot across the development of banking as a popular topic in the industry. Nevertheless, as long as banks practice their core functions, which are credit activities, this issue never goes old. The thesis shares the interest in this big topic and aims to research the impacts of credit risk on bank performance as well as methods that credit institutions can apply to control the risk.

The first chapter will present the general outlook of the thesis. We begin with the necessity of the research topic, then followed by introduction of research question and investigative questions. After the main objectives have been determined, the thesis's scope, international aspects and benefits to stakeholders will also be provided to the readers. Finally, there will be some key concepts related to the field of study.

1.1 Background

Banks offer many services but most of them are related to credit, for example, business loans, checking accounts, payment services, cash management. One of the financial services that contribute greatly to bank revenues is lending. Loans that banks lend out acts as financial solutions for their clients, and in return, the clients have the responsibility to pay principals and interests. In terms of creditworthy customers, who are capable of repaying their debts, banks will be profitable. However, this is not always the case since there are risks that customers cannot afford to full fill their loan obligations. These risks can shift performing loans to non-performing loans (NPLs), or worse, impairment losses. Bad debts, another term of NPLs, cause negative impacts on bank performance, profits and reputation. Even though banks are exposed to many types of risks, credit risk is considered to have the most influence on financial performance by far. Due to these reasons, risk controlling in credit activities is a critical issue in the banking industry which requires bank managers and experts to come up with solutions that can minimize credit risk and bad debts.

The thesis takes into account theories relating to credit risk management and a case study of a commercial bank, Bank for Investment and Development of Vietnam (BIDV). As one of the economic entities in the commercial banking sector, the case bank also has great concern in the topic and wants to understand the level of credit risk accompanied with its borrowers, and what it can do to protect its capital. Later on in this paper, the thesis will look deeper into the case bank's organization to identify different approaches that the financial institution is currently using to control credit risk in advance and during the lending period. In the end, from the findings of the research, the thesis aims to provide valuable recommendations to improve the case bank's ability to control credit risk.

The topic falls in one of the writer’s fields of interest, which is the banking industry. By conducting this research, the writer looks forward to gaining more knowledge about the industry and the case bank’s operation. This understanding about the area of study after solving the research question will bring practical benefits to the author in his future career.

1.2 Research Question

The thesis aims to provide a comprehensive view of methods that banks can apply to improve their credit risk management. In order to achieve this outcome, we will focus on answering the research question (RQ): **How to implement credit risk control effectively in commercial banks?**

The main question is disaggregated into four investigative questions (IQ):

Investigative question 1: What methods can banks apply to minimize credit risk before issuing a loan?

Investigative question 2: How can banks control credit risk during the life cycle of loans?

Investigative question 3: What are the possible methods to mitigate credit risk of Non-performing loans and bad debts?

Investigative question 4: Recommendations.

The overlay matrix table below is provided for better understanding of how the investigative questions are addressed by theories and the case study. For each question, we can see the relevant theoretical framework chapters, research methods, and result chapters.

Table 1. Overlay matrix

Investigative question	Theoretical framework chapters	Research Methods	Results chapter
IQ 1. What methods can banks apply to minimize credit risk before issuing a loan?	2.4.1 2.4.2 2.4.3	Desktop research, qualitative research	2.4 4
IQ 2. How can banks control credit risk during the life cycle of loans?	2.5.1 2.5.2	Desktop research, qualitative research	2.5 4
IQ 3. What are the possible methods to mitigate credit risk of Non-performing loans and bad debts?	2.5.3 2.6	Desktop research, qualitative research	2.5 2.6 4
IQ 4. Recommendations			4

1.3 Demarcation

Banks typically offer five main services: payment services, deposit services, lending services, investment services and E-banking (Casu, Girardone & Molyneux, 2006, 25). We probably all have an idea of how these services work through our daily experiences. For example, deposit services mean customers save their money into bank accounts or lending services allow customers to borrow money from lending institutions. In this research, we will focus on credit risk matters in lending activities of banks only and exclude other types of services.

According to Buzzell and Spasovski (2004, 110), when banks approve new loans, these loans can be categorized into four different types: consumer loans, real estate loans, government-sponsored loans and business loans. Consumer loans are accumulated by individuals with the intention to pay for personal needs. For instance, a person can borrow money from a bank to purchase a new car or pay for his education. The real estate loans concept refers to loans used for acquiring physical properties such as office buildings, shops. On the other hand, government-sponsored loans are defined when borrowers are government entities. The last group of loans, business loans, is the target group of this research. Business loans, or so-called commercial loans, can be either short-term or long-term, which are carried out for the purpose of financing business entities. Some examples of business loans are line of credit, working capital loans and lease financing. Figure 1 describes the scope of the research, which is marked by blue color.

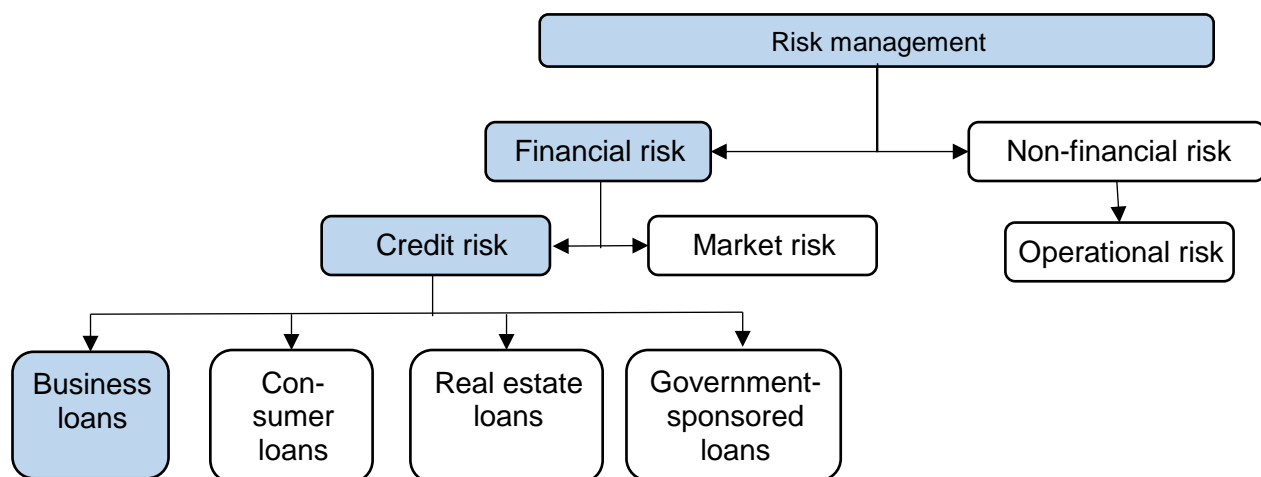


Figure 1. The research scope

1.4 International Aspect

The topic relates to the banking industry in general and the case bank operates internationally, therefore, this research full fill the international aspect requirement. The topic and results are applicable to different banks no matter their physical locations. This is because commercial banks around the world have similar banking activities, which are deposit taking and lending. In addition, the case study does business both domestically and internationally so it follows international regulations and standards of the banking industry, which the thesis will present later in the upcoming chapters.

1.5 Benefits

This thesis provides information for people who interest in the banking industry as well as in the credit risk topic. It also indicates different approaches used to tackle credit risk issue. The case bank is from Vietnam, a developing country, thus, businessmen from foreign countries can gain information of how a typical credit risk management system works in Vietnam through the thesis.

For the case bank, the research's outcome supports the credit institution in improving its internal credit risk control. The comparison between the case bank's currently in used methods and the knowledge base can generate additional models that the bank can apply. From the research's results, the author will give recommendations to develop the case bank's credit risk management further.

Regarding the author's field of specialization and career, the writer expects to gain an insight of how banks protect themselves from high-risk loans. In addition, during the research, the author can practice and improve his skills in various areas such as communication, data analysis, decision making, which will support him in his future profession.

1.6 Key Concepts

Credit risk is the risk that counterparties in loan transactions and derivatives transactions will default. This has traditionally been the greatest risk that lending institutions face and is usually the one for which the most regulatory capital is required. (Hull 2010, 35.)

Credit rating is a system designed to provide information about credit quality (Hull 2010, 289).

A non-performing loan is a loan on which the interest payments are overdue (Oxford University Press 1997, 243).

Provision is “an amount set aside out of profits in the accounts of an organization for a known liability (even though the specific amount might not be known) or for the diminution in value of an asset” (Oxford University Press 1997, 283).

Asset Management Company is a public, private, or joint entity that manages nonperforming assets removed from the financial system with the goal of maximizing the recovery value of these assets (Cerruti & Neyens 2016. ix).

2 Credit risk management in commercial banks

In this session, we will look at the theoretical framework that covers credit risk control in commercial banks. This chapter will first define the distinction between types of bank risk, then continue with theories of credit risk and impairment loss. After that, we will elaborate further to how banks can control credit risks and minimize possible impairment losses. The knowledge base for the topic is organized with five main sessions as demonstrated in figure 2. Each session contains certain theories relating to credit risk management, which will be briefly summarized in the last sub-chapter, 2.7, before we continue with the research method and empirical part in the following chapters.

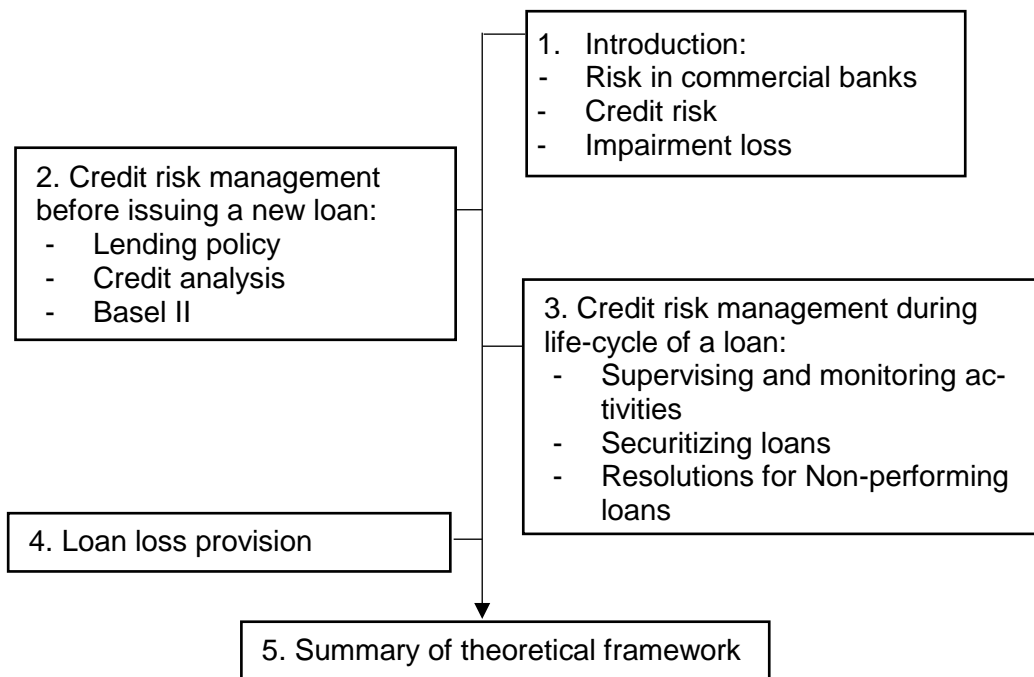


Figure 2. Structure of the theoretical framework

2.1 Commercial bank and risk in commercial banks

2.1.1 Commercial bank

In our society, credit level is not distributed evenly since there are people and organizations who have more money than they currently need while there are ones who have less. As a result, it leads to the existence of the money market and within the market, banks play an important role as financial intermediates between lenders and borrowers. They gather money that is littering in the economy and redistribute it in order to provide credit to business organizations and individuals that are in needs of financial supports. There are various types of banks: commercial banks, investment banks, central banks, online banks, saving banks, etc. However, the most common type that we interact with in our daily lives is commercial banking.

According to Somashekar (2009, 4), a commercial bank can be viewed as a special business which has its products are not physical goods but credit and currencies. Customers of a commercial bank are usually from commercial classes. The main functions of the bank are taking deposits, lending, creating of credit, clearing of cheques, financing international trade and settling funds.

Commercial banking can be categorized into wholesale and retail banking even though nowadays, most of medium to large sized lending institutions operate in both areas. If a commercial bank had credit activities with big clients, for example, large-sized corporations, other credit institutions, pension funds, it would be considered as a wholesale bank. On the other hand, customers of retail banks are relatively smaller. They are usually individuals, small and medium-sized companies, therefore, loans and deposits in retail banks are not as large in scale as in wholesale banks. (Hull 2010, 19.)

2.1.2 Risks in commercial banks

The banking business has to encounter certain risks in its operation. In International Convergence of Capital Measurement and Capital Standards- a Revised Framework (2004), a framework that supports the supervision of banks' performance and capital adequacy, published by the Basel Committee on Banking Supervision's, these risks are classified into three areas: credit risk, operational risk and market risk.

Credit risk refers to unexpected events which lead to losses in assets' value, deductions of profit in compared with expected profit, or generation of additional expenses in order to complete a specific transaction. Credit risk occurs when counterparties are unable to repay loan's principals and interests in time, which is written in contracts. If losses were consequences of inefficient or error internal operating system, they would be called operational risk. On the other hand, market risk is created from external factors that reduce bank's assets value and create losses (Hull 2010, 35).

In the following sessions, we will continue to discuss further about credit risk and bad debt, which is an obvious sign of credit risk.

2.2 Credit risk

In banking activities, lending generates most of the profit, however, it also contains great potential risks. It can be said that lending and deposit-taking credit are also lending and

taking risks. The basic characteristic of a bank is to pursue benefits with acceptable and measurable risks. As it is mentioned previously, credit risk happens when customers could not repay their loans. Timothy W. Koch (2010,109) also said that “ Whenever a bank acquires an earning asset, it assumes the risk that the borrower will default, that is, not repay the principal and interests on a timely basis.”.

Credit risk is not limited only in loan products but it also exists in other credit products, for instance, letter of credit and guarantees – a contract in which a bank agrees to act on behalf of a client if that client fails to execute what he committed in business contracts, investment services or asset finance- the bank lend out real assets like land, properties, and equipment. (Murphy 2008, 203- 204.)

2.3 Impairment loss in commercial banks

To acquire a general knowledge of impairment loss, we will look at impaired/default loan definitions of international credit organizations and institutions.

According to International accounting standard 39 (1999, 24), bad debts or impairment losses should be recorded in financial statements if there are decreases in the value of assets, compared to previous records, and those losses can affect the projected income of financial assets. This standard also identifies “a breach of contract, such as a default of delinquency in interest or principal payments” as one of the indications that transform loans into impairment losses.

Basel Committee on Banking Supervision (1999, 3) describes an impaired debt is a loan which its issuing bank will not be able to collect in the due time that stated in the lending contract. The amount of credit that is uncollectible should be recognized as an impairment of the loan in financial reports of that period.

The definitions are not the same but they all agree that impairment losses can be understood as loans that have hardly any chance to be collected. Financial organizations are not only different in how they explain the terminology but also in the classification of it. In a working paper of World Bank Group, written by D’Hulster, Salomao-Gracia and Letelier (2014), a survey on loan classification was conducted over 26 countries. It concluded that about three-quarters of the countries apply a debt classification system which has five buckets: standard, watch, substandard, doubtful and loss. The asset classes are differentiated based on the number of days that pass due date. Substandard status spreads from

30 to 91 days, doubtful is 90 to 270 days and loss is from 180 to 365 days past due. Practically, depending on each country's regulation, the range of time for these buckets can be different. Even in one country, banks with different strategies might find other ranges more suitable in their internal classification system. The working paper also implied that regular criteria to identify a non-performing loan is the point when the loan reaches 90 days past due of principal and interests.

2.4 Credit risk management before issuing a loan.

In this chapter, we will concentrate on answering the IQ 1: What methods can banks apply to minimize credit risk before issuing a loan?

In a speech at the Centre for Financial Study, Tommaso Padoa-Schioppa (2000), a member of Executive Board of the European Central Bank, shared his thought: "The banking industry has become significantly more competitive than in the past, and competition is likely to increase further." As a result, this competition enhances the access to finance for customers because lending institutions will try to overcome other competitors by creating more attractive services and products. This is good for customers since they can enjoy products which benefit them more. On the contrary, it is not always a good thing for banks, according to Chorafas (1999, 349), competition can affect strategies for loans and force banks to lend credit to low creditworthy customers more than they used to. In the past, lenders could turn down the applications of customers who do not meet the lending criteria, which were quite strict so that banks could increase credit quality of borrowers. However, in order to survive in today tough competition, credit institutions might have to accept a decline in the number of AAA or AA rated customers. As a result, more borrowers are now distributed from medium to low quality with regard to creditworthiness.

Hence, more customers with low creditworthiness raise concerns about credit risk levels that banks are exposed to. Therefore, it is critical for banks to set up a good lending policy and efficient credit analysis to minimize credit risk before granting new loans.

2.4.1 Lending policy

Typically, every bank has its own lending policy, which determines bank visions and strategies linked to credit activities. For a commercial bank, this policy acts as a guideline for employees and loan personnel in their daily jobs by setting a common mindset, a common goal among workers whenever they make decisions, handle transactions, negotiate and interact with customers. Though, components in a lending policy may vary from bank to bank, a lending policy needs to contain at least five elements: introduction, objectives,

strategies, credit standards, lending authorities and approvals (Hempel & Simonson, 1999, 398).

In another study to define basic components of a lending policy, Buzzell and Spasovski (2004, 120) point out that a lending policy should cover the following sessions:

- Lending organization
- Lending objectives
- Standards and criteria for loan
- Credit risk rating
- Loan authority
- Lending procedures

A good lending policy is a strong tool to manage credit risk because it forms a system to evaluate and analyze credit profiles of new and existing borrowers. Since loan personnel is affected by lending policy in granting or refusing loan applications, the board of directors should put effort into developing and reviewing this policy annually and make necessary adjustments.

2.4.2 Credit analysis

Credit analysis, as it is expressed in the term, is necessary analyses of credit files that bank officers conduct in an attempt to evaluate the ability to pay back the loan of existing or new debtors. Compton (1985, in Koch & MacDonald, 2010, 559) listed down three questions that credit analysts need to answer:

- What are the risks presenting in the borrower's business?
- What has the borrower done so far in order to control those risks? Have the borrowers succeeded or failed? And why?
- What can the bank do, within its organization, to limit potential losses when providing credit?

In response to the three questions, credit analysts evaluate credit risk levels through both subjective and objective analysis. For subjective evaluation, banks can utilize **the five Cs** of good credit, described by Apostolik, Donohue & Went (2009, 123), as key features when assessing borrowers.

- *Character* indicates the debtor's willingness to repay, the reputation of the debtor in his industry and in relationships with other lending institutions. Bank officers will look at the customer's historic transactions to detect any events that are relating to credit lending. For example, if a firm has always repaid its interests on time in the past, it is more likely that, for a new loan, the firm will continue to retain its reputation and full fill its loan's obligations.

- *Capital* refers to the capital structure of the borrower. Credit analysts study the level of leverage of the target firm by evaluating the weight of debt and equity that are used as sources of finance.
- *Conditions* refer to external factors that might affect the borrower's financial situation and his ability to repay. These external factors come from the economic environment and related industry. For instance, tobacco business reacts strongly to changes in the market. When the economy grows, people have more income and demand for tobacco, however, in hard time when people need to save their money, the demand for this product can be very low.
- *Capacity*: When analyzing this, banks focus on cash flow reports of customers. Banks always want to lend out money to firms that have predictable, stable cash flow and alternative sources of credit to pay back loans.
- *Collateral* refers to assets of the borrower which are used to securitize loans. In case the client failed to make payment, the lending bank can sell these assets to compensate for part or all of the loss.

Credit analysis process contains both objective and subjective evaluation. While objective evaluation means the analysis based on numerical data in financial reports of customers, subjective is about non-numerical, invisible data such as industry trends, the ability of managers, CEO, level of popularity of a firm, position of a firm on the market, etc. Objective evaluation has input variables are actual numbers and financial ratios, therefore, it is reliable and contains no bias. However, subjective factors are much more difficult to measure accurately because the evaluation can be affected by analysts' personal perspectives and feelings. (Hempel & Simonson, 1999, 429).

BUSINESS RISKS		FINANCIAL RISKS		STRUCTURAL RISKS	
Macroeconomics Analysis	Microeconomics Analysis	Management Analysis	Financial Analysis	Type of Borrower	Type of Borrowing
<i>Examples</i>	<i>Examples</i>	<i>Examples</i>	<i>Examples</i>	<i>Examples</i>	<i>Examples</i>
<ul style="list-style-type: none"> • Gross Domestic Product (GDP) • Inflation • Demographic Trends • Business Cycle • Political Stability • Regulatory Environment • Legal Environment 	<ul style="list-style-type: none"> • Industry Trends • Regulatory Trends 	<ul style="list-style-type: none"> • Proactive or Reactive Strategy • Motivation • Experience • Integrity • Corporate Governance 	<ul style="list-style-type: none"> • Operating and Financial Position • Financial Disclosure 	<ul style="list-style-type: none"> • Holding Company • Primary Operating Subsidiaries • Secondary Operating Subsidiaries 	<ul style="list-style-type: none"> • Secured • Unsecured • Long-Term • Short-Term • Subordinated

Figure 3. Credit analysis steps and risks (Apostolik & al., 2009, 129)

Apostolik & al. (2009, 129) describes credit analysis through 6 categories of analyses and 3 areas of risks. The six analyses are macroeconomics, microeconomics, management, financial analyses, type of borrower and type of borrowing. In Apostolik's credit assessment tool, these analyses are conducted under 3 risk areas: business risks, financial risks and structural risks (as shown in figure 3). Some risk areas share the same type of analysis due to the close relation of the analysis to both areas. For instance, both business risks and financial risks require management analysis. We can also see the existence of objective and subjective factors in this theory. In terms of financial risks, bank officers need to carry out financial analysis, which is an objective evaluation. On the other hand, in the field of business risks, it comprises macroeconomics analysis and microeconomics analysis, which are subjective evaluations, and management analysis. In the last area, structural risks, credit analysts are required to identify types of borrower and types of borrowing so that banks can apply appropriate lending policies.

An important purpose of accomplishing the analyses mentioned in figure 3 is to measure customers' credit quality. Typically within banks, these risk assessments are integrated into an internal credit rating framework in order to segment borrowers into appropriate rating classes, based on their probability of default. The reason why banks must classify clients is because treating all borrowers the same, regardless their levels of risks, causes ineffective risk control. Thus, financial institutions always need trustable internal rating systems linked closely to loan policies as the foundation of credit risk management. In practice, banks establish their own credit rating systems, though they can have different criteria and input variables so to meet the specific needs of the target bank, they are somewhat similar. This can be explained by the fact that lending policies are affected by international banking standards or local regulations as well as other players in the banking industry. To illustrate a credit rating scale, we will use models of the most well-known rating agencies, Moody's, Standard & Poor's and Fitch as examples. For Standard & Poor's model, there are 10 different classes which start from AAA, the highest credit quality, then followed by AA, A, BBB, BB and so on until class D, default class. Moody's also has 10 categories equivalent to 10 levels of credit quality but expressed through different symbols than Standard & Poor. The following table gives us a comparison between Moody's, Standard & Poor's and Fitch's credit rating scales. (Karsone, 2010, 5.)

Table 2. Rating scales of selected rating agencies (Karsone, 2010, 5)

Moody's	S&P's/Fitch	Grade	Credit risk
Aaa	AAA	Investment	Highest quality
Aa	AA	Investment	High quality
A	A	Investment	Strong
Baa	BBB	Investment	Medium grade
Ba,B	BB,B	Non-investment/Junk	Speculative
Caa,Ca,C	CCC,CC,C	Non-investment/Junk	Highly speculative
C	D	Non-investment/Junk	In default

2.4.3 Credit risk management and Basel II framework

Basel II framework is an international banking standard, written by the Basel Committee on Banking Supervision's. Basel's standards apply for any active bank which operates internationally. The first Capital Accord, or Basel I, was established in 1988 after a series of declines in financial performance and the ability to control credit risk of large banks between the 1970s and 1980. Until now, Basel II and III were published and applied in many countries with additional developments compared to the first edition.

The main objectives of this framework are to strengthen the international banking system by reinforcing risk management in three main risk areas: credit risk, market risk and operational risk. These areas also structure three pillars of Basel II (Basel Committee on Banking Supervision, 2004; Gup, 2011, 195)

- The first pillar: **Minimum capital requirements**_ the standards of minimum capital that banks need to have in order to overcome credit risk, market risk and operational risk. This regulation requires banks to maintain at least 8% of minimum capital ratio. The following formula is applied to compute this ratio:

$$\frac{\text{Total Capital}}{\text{Credit risk} + \text{Market risk} + \text{Operational risk}} \geq 8\%$$

The framework of Basel II also provides detail instructions on how to calculate total capital and risk-weighted assets.

- The second pillar: **Supervisory review process** gives principles of how banks should evaluate their capitals regarding their risk profiles, review their internal capital assessments and make appropriate changes.
- The third pillar: **Market discipline** discusses the disclosure requirements.

Basel II covers three risk areas, however, within this thesis's scope, we will focus only on credit risk and not go deeply into two other areas. Regarding credit risk, according to Docherty and Viort (2014, 124), Basel II presents two methods to set up an internal credit rating system: Foundation Internal Rating Based (FIRB) and Advanced Internal Rating Based (AIRB). These two rating systems form different ways to determine assets' risk weights and minimum capital requirement. AIRB is allowed only if banks manage to prove that they have sufficient historical data and accountable risk assessing models. When using AIRB, banks are responsible for calculating risk-weighted assets, five risk components (figure 4) and the minimum capital requirement for credit risk, based on their own internal evaluation. Alternatively, banks that adopt FIRB are only required to compute default probability, other inputs are provided by bank supervisors.

Default probability:	The chance of a borrower failing to repay the bank. This is estimated by identifying key features of the exposure – such as the industry for a corporate loan or the loan-to-value ratio for a mortgage – and assigning a grade or rating to the exposure, which then maps into a default probability percentage (hence the term “Internal Ratings Based”)
Exposure at default:	For undrawn or partially drawn facilities, the expected amount of drawdown that will have occurred by the time a default happens
Loss given default:	The financial loss to the bank, net of loss recoveries from security or collateral arrangements (such as the sale of the house in case of a mortgage foreclosure)
Maturity of the exposure:	How long the bank has to maintain its exposure
Type of lending:	For example, residential mortgage, credit card or corporate loan

Figure 4. Five risk components of expected loss calculation in Basel II framework (Docherty & Viort, 2014, 125)

2.5 Reducing credit risk during loan period

Once a new loan is approved, the lending bank usually had implemented a lot of analyses to predict the ability and willingness to repay of the customer. However, the expectation of bank officers can turn out wrong during the loan period. It requires the bank to have clear credit risk control plan along the term of loans. In chapter 2.5, we will address the IQ 2 by studying how banks supervise their customers, then continue by securitizing loans theories and some resolutions for non-performing loans.

2.5.1 Supervising and monitoring customers

Credit risk control does not stop after the preliminary of credit analysis when borrowers apply for new loans but it happens along the life of loans. This means bank needs to con-

duct credit analysis regularly during loan period. Besides that, it is necessary that bank officers supervise and monitor borrower's activities according to loan policies and provisions of the bank. Alawiye-Adams (2008, 2) explains three major activities in credit supervision of a client:

- Performing re-analysis of the customer's credit profile to evaluate the ability to repay and detect changes in credit quality from time to time. Based on the current credit rating of the loan, the lending bank should apply suitable supervising methods. For example, doubtful loans need to be re-assess more regularly than standard loans.
- Examine the use of loan according to loan agreement and loan covenants since borrower can spend the credit for wrong purposes.
- Supervising the operating of the debtor's business to project future cash flow.

In making loan agreements, banks can utilize some covenants in an attempt to monitor and supervise the performance of the customer's business. For instance, a loan agreement indicates that the borrower of the loan must present reports of any changes in the value of his collateral quarterly. Later on, in a credit re-assessment process, a loan review specialist will examine whether this covenant is full fill. The monitoring activities can be affected by bank size. In small banks, monitoring and supervising process might be centralized in one department. However, for larger banks which operate internationally and have many transaction centers, this process could be decentralized to branches or regions. (Apostolik & al. 2009, 122.)

One of the main parts in credit monitoring and supervising activities is loan review process (Gup, 2011, 144). According to Hempel and Simonson (1999, 406), the five factors that make a good loan review are:

- Fundamental financial statement analysis of the debtor and the ability to repay.
- The thoroughness of documentation.
- The performance of the borrower's business in compliance with the written loan policy and regulation.
- The status and value of collaterals.
- The level of profitability of the loan.

In addition, Hempel and Simonson (1999, 406) suggest that banks should develop models that separate loan review officers from loan employees because one should not monitor and supervise his own work. In order to avoid a lack of objectiveness in reviewing process, it is crucial to set up an independent department for loan reviewing and supervision.

2.5.2 Securitizing loans

Securitizing loans can be a simple method, which is using **collateral**_ one of five Cs of good credit mentioned in session 2.4.2. Collateralization is when borrowers pledge their assets as guarantees for banks to issue new loans or to enhance existing credit limit. If debtors cannot afford to repay the loans, banks can seize these assets and resell them. Collaterals could be cash, account receivables, guarantees, properties and equipment. Even though collateral is an important secondary source of repayment, reselling these types of collateral is more difficult to do than say and it could be costly. Moreover, Brigo, Morini and Pallavicini (2013, 21) find that under the time value of money theory, the value of a collateral can change dramatically during the loan period, so it is not always easy to evaluate the fair value of the asset. In case if the value of collaterals decreased, especially in real estate market, selling assets might be very time consuming.

Liquidation of collaterals on the market can be troublesome but nowadays, with the development of electronic trading, banks now can have a faster way to securitize loan, which is **asset-backed security (ABS)**. In figure 4, Rose and Hudgins (2010, 286) describe the securitization process starts when a lending organization chooses a group of assets that are hard to convert to cash and have similar features, such as a group of loans, mortgages, receivables. Then the organization uses these assets as guarantees to liquid securities that can be easily traded on the market, for example, bonds and notes. The originator (the lender) sell relative securities to an issuer, a special-purpose entity (SPE). After that, SPE will resell again these asset-based securities on capital market and convert them to cash.

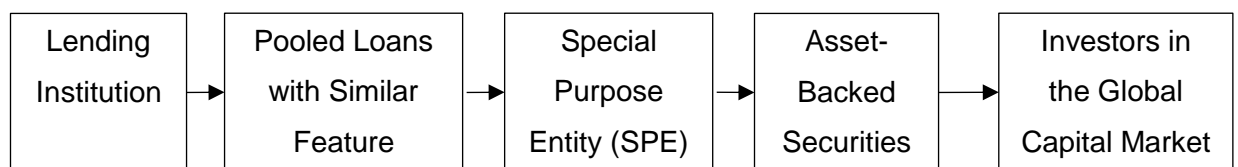


Figure 4. Securitization Process (Rose & Hudgins, 2010, 287)

According to Fabozzi and Kothari (2008, 152), there are three types of securitization. The first type is mortgage-backed securities, the second type is asset-backed securities and the last one is securities backed by operating revenues. Mortgage-backed securities use mortgage loans as collaterals and ABSs consist of collaterals from other types of loans. For securities backed by revenues, it is used mainly in procurement.

The main advantages of ABSs can be summarized as following:

- ABSs reduce credit risk in lending activities because when banks sell these kinds of securities, the credit risk passes from banks to new holders of these securities, which could be special purpose entity or investors who buy the securities.
- ABSs free bank's capital and allow the bank to issue more loans or invest in other business.
- It is a fast way to transfer illiquid assets to cash.

(Economy Watch, 2010)

2.5.3 Resolutions for Non-performing loans

In lending activities, commercial banks always know that it is impossible to collect all loans. It is because even high-rated loans have the risk of unable to maintain their performing status and turn into non-performing loans (NPLs). These loans are viewed by lending institutions as high-risk assets which can cause financial damages. The question here is "What should banks do with loans that are marked non-performing?" Golin and Delhaise (2013, 354) stated that there are four probable results for non-performing loans: write-off, foreclosure, bad bank and restructure troubled loans.

Write-off refers to an action of deducting an amount of non-performing loans from bank assets in the balance sheet. When a bank exercises write-off, an equal amount must be modified on the liability side of the balance sheet. Write-off will normally affect the profit and loss statement and bank profits, however, under different laws and regulations, banks can sometimes credit the write-off amount directly from equity.

When banks carry out a **foreclosure**, they consider not only write-off but also the recovery rate of NPLs, which comes from collaterals used to secure the loans. NPLs with recourse mean banks will require debtors to add more collaterals to their loans since the current value of collaterals is not enough to cover potential losses in case of default. Conversely, NPLs without recourse are loans which have sufficient amount of collaterals.

Bad bank or Asset Management Company is another solution for NPLs. This type of companies buy weak assets or NPLs from lending institutions and then resells them to other investors under the form of bonds. In this case, those NPLs still exist but they are removed from the original balance sheet. Practically, many big Asset Management Companies that are founded and funded by governments act as a temporary solution for bad debts and NPLs in the commercial banking sector.

In addition to the three previous approaches, banks have the option to **restructure troubled loans**. According to Laurin and Majnoni (2003, 20), restructuring process happens when banks modify initial terms in the loan agreements of NPLs so that these loans have more chances to be repaid. With a loan in non-performing status, before recognizing it as bad debt, bank officers will re-analyse the loan and its lending agreement. During the re-assessment, if credit analysts concluded that there are opportunities for this NPL to recover in the future, they might consider replacing terms in the lending agreement with more suitable ones to support the debtor. For example, changing repayment schedule of a loan or reducing the current interest rate. Nevertheless, the recovery of this rescheduled loans may not happen as expected and the bank still bears credit risk. Even though many banks implement restructuring method on NPLs, most of G-10 countries' regulations do not provide any definition of restructured loans and guidance to classify them (appendix 1).

2.6 Loan loss provision in bad debt control

As banks always know that it is impossible to collect all loans due to the existence of counterparty risk, they apply many tools and methods to reduce loan losses. Some of the methods are mentioned in the previous chapters: lending policy, credit analyzing and rating, securitizing loans. However, at some degree, losses will still incur and reduce equity capital of banks. This requires lenders to consider potential loan losses in their financial forecast as business expenses.

According to Golin and Delhaise (2013), loan loss provision is “a noncash charge against operating income made to account for expected or unexpected loan losses.” and can be general provision or specific provision:

- General provision covers all loan losses which are not yet determined but banks consider those loans to have a high risk of default.
- Specific provision term, on the other hand, is used for loans that are already identified as having troubles to pay back.

Based on business experiences, banks estimate potential loan losses that might happen and determine loan loss provisions. Using the provisions, they create credit loss reserves in balance sheets by saving proportions of their incomes from the previous financial periods. Credit loss reserve can impact the value of banks in investors' evaluation because this account can reduce bank profits. Nevertheless, provision for credit losses is still a popular method to mitigate credit risk. The benefits of this approach are not very visible if there are only few unrelated losses. However, if there are many losses occur in a short

time due to systematic risk such as financial crisis or recession, loan loss reserve can minimize the actual impact of the losses by using the money that is saved into this account. The losses will first diminish the loan loss reserve before they affect the bank earnings and thus, the income statement will not record these losses. (Apostolik & al. 2009, 48.)

Table 3. Recommended loan loss provision (Greuning & Bratanovic, 2009, 191)

Classification	Recommended Provision	Qualification
Pass	1-2 percent	General loss reserve
Watch	5-10 percent	Specific provision
Substandard	10-30 percent	Specific provision
Doubtful	50-75 percent	Specific provision
Loss	100 percent	Specific provision

Table 3 presents the recommended loan loss provisions that are suggested to apply in developing countries or countries which have ineffective, under developing legal frameworks for debt collection. For pass (standard) loans, banks can use general provision from 1 to 2 percent, which means only 1 to 2 percent of standard loans' value are needed for provision. In the rest four classes, lenders should apply specific provisions. The range for loan loss provision of substandard assets is from 10 to 30 percent. This figure for doubtful loans is from 50 to 75 percent and 100 percent for loss. While in countries with developed legal frameworks, such as the United States, these percentages are rather low. For instance, just around 10 percent of substandard debts eventually carry impairment risk. Therefore, banks only need to reserve around 10 percent of the debts' value in group 3. In doubtful and loss, these percentages are 50 and 100, respectively. (Greuning & Bratanovic, 2009, 191.)

2.7 Summary of theoretical framework

There is by no means only one or two methods can control credit risk effectively, banks usually combine many methods and models within their credit risk management. Through chapter 2, we now know the concept of commercial banks, credit risks, and impairment loss. This chapter also shows some popular techniques that commercial banks apply to mitigate credit risk. Establishing an effective lending policy and credit rating system, are the two widely used methods. A lending policy represents business strategies and internal regulations related to credit activities of a bank. Meanwhile, a credit rating system supports a lending institution to determine the levels of risk that accompanied with new and existing loans. Results from credit analysis are one of the foundations for credit officer to

apply suitable lending policies. After a loan is approved, effective supervising and monitoring activities will allow the bank to collect up-to-date information about the loan, carry out credit reviewing process and react in time to limit potential losses. In terms of non-performing loans, depending on the status of NPLs, banks can choose to implement one of four methods: write-off, foreclosure, bad bank or restructure troubled loans. In addition, calculating a sufficient amount of loan loss provision can also reduce impacts of NPLs and bad debts on bank profit.

3 Research Methods

3.1 Data collection

Regarding data collection, the research will use secondary data from desktop research and primary data from interviews, qualitative research. The secondary information includes the credit policies, lending process, methods or system that the case bank is using in credit risk management. Data will be analyzed straightly from the case bank's internal documents that related to credit risk management. In addition, the thesis will use findings which are from the case bank's annual reports and local government regulations. The primary data, which is from the interviews with the case bank's employees and supervisor will also be conducted. The reason why the author chooses this mixed method is to obtain opinions and views from both inside and outside of the case bank. The outcome of this research is expected to have opinions from respondents who work for the case bank, banking supervisors who evaluate the case bank's performance and the author's opinions.

3.2 Risks and risk management

Because the case bank is located in Vietnam while the writer is staying in Finland, conducting face-to-face interviews is not an option. Thus, all interviews are made via email. Additionally, culture is also a problem since Vietnamese companies are not as open as companies in European countries so it is unlikely to have many respondents. These lead to a risk of unable to have many interviewees. Nevertheless, the target bank has its own policies and methods stored in documents, therefore, by analyzing this internal information, the thesis has a trustable source to produce reliable results for its research question and sub-questions.

3.3 Research design

Figure 4 shows more details of different sources where the data is collected. As mentioned earlier, data is obtained from both primary and secondary sources. Regarding

primary data, interviews via email will be conducted. In terms of secondary data, in order to collect internal documents which related to lending process, credit policies, etc. of the case bank, the author will contact the case bank and ask for the information through email. Other secondary data such as local the bank's annual reports, news, government regulations and international regulatory framework are from online sources. All sources of information will be listed in the reference and the research will carefully select data from reliable sources.

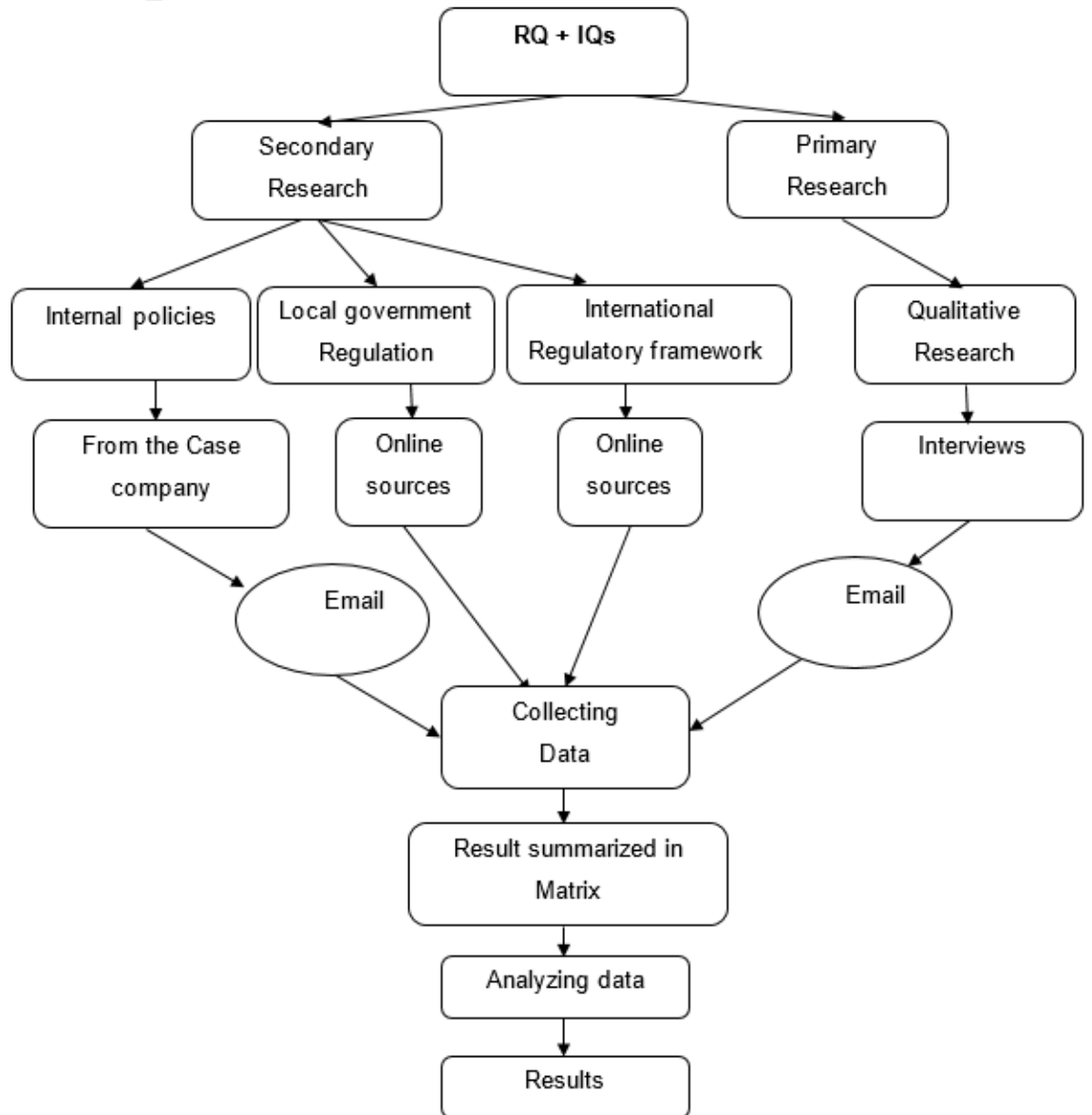


Figure 4. Research design.

4 Analyzing the credit risk management in the case bank, BIDV

4.1 Introduction to the case bank and overview of BIDV's performance in 2015

The case bank is Bank for Investment and Development of Vietnam (BIDV), a state-owned commercial bank. It is founded on 26th April 1957 under the name Bank for Construction of Vietnam. Later on in 2012, the name was changed to Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV). Headquarter of BIDV is located in Hanoi, the capital city of Vietnam. BIDV has more than 16,000 employees, 118 branches, 500 transaction offices and thousands of ATMs in 63 provinces and cities nationwide. It operates internationally and has oversea representatives in Laos, Russia, and Cambodia. The case bank also takes part in joint ventures with international partners in Malaysia, U.S., and Singapore.

BIDV has similar functions like other commercial banks in providing finance services, loan syndication, advisory and different banking products. It also works in insurance, stock and financial investment fields. The bank is rated B1 as long-term credit issuer by the global rating agency Moody's in October 2016.

In 2015, BIDV total deposit grew from VND 501,909 billion to VND 658,701 billion and the average growth rate in 2011 to 2015 period is 20 percent. Total loans to customers also raised to VND 598,434 billion, which is 34.3% more compared to the year 2014 (excluding corporate bonds). The profit before tax of BIDV also enlarged by 18.7% in the year 2015. The bank generated profit from the following main business sectors: credit related activities (lending, guarantee, credit card issuance, etc.), fund mobilization (savings deposit, bond and debenture), trade finance services, payment services, account services and bank card services.

Credit activities have great impacts on BIDV's financial performance. Total assets of the bank were VND 850,670 billion, in which loans to customers accounted for more than 69% and loans for other credit institutions took 2.3%. From these numbers, it can be said that loans to customers of BIDV made up more than half of its assets. On the liability side of the balance sheet, deposits from customers were VND 564,583 billion, which composed 69.8% of total liabilities.

(BIDV, 2015.)

The main loan and guarantee products for corporate customers are: car loans, corporate overdrafts, guarantees, industry-specific loans, loans for fixed asset investment, online export-import tax payment guarantees, project investment loans, supply chain financing and working capital loans.

4.2 Credit risk control in BIDV

4.2.1 Lending policy

BIDV had established a lending policy to concretize and integrate the local regulations which related to credit lending of State Bank of Vietnam (SBV) into its internal regulations. The bank has a set of general lending policies and separate sets of policies for different types of borrowers such as corporate customers, individual customers and financial institutions. The content of the general lending policy is presented below:

- Lending principles
- Lending criteria
- Lending forms (short-term, medium and long-term)
- Lending period
- Interest rate
- Credit limit
- Cases that BIDV does not provide credits
- Lending authority and organization of the bank's lending function
- Lending procedure
- Credit contract standards
- Repayment of principals and interests
- Supervising, monitoring loans
- Transferring and restructuring NPLs
- Assets classification, loan loss provision and uses of the loan loss provision
- Rights and obligations of borrowers and BIDV

(BIDV, 2013.)

In another document, the lending policies for the corporate segment (BIDV, 2011), the bank has stated clearly the policies for corporate customers who have been classified by BIDV's credit rating system and for customers who are not classified. The simplified outline of the document is presented as follow:

- General introduction to groups of customers and the credit rating scale of BIDV
- General policies that applied to rated borrowers:
 - o Marketing policies
 - o Credit policies
 - o Collateral regulations
 - o Pricing and interest rate policies
- Specific policies for each credit rating class
- Guideline for bank officers in branches, directors and higher authorities.

With corporate entities that are rated by the credit rating system, they will then be assigned to one of seven customer groups. Group 1 is for customers who have the best credit quality AAA, group 2 for AA, group 3 for A. Borrowers with medium ratings like BBB

and BB will be assigned to group 4 and 5, respectively. Group 6 consists of customers who have medium-to-low rating symbols like B, CCC, C, and the last group, group 7, is for very high-risk loans, which are rated as C or D. BIDV will apply the general policies with each customer, based on the customer's credit rate. The general policies consist of marketing, credit, collateral and pricing policies. Through collateral and pricing regulations, BIDV explains how it calculates required collateral's value and interest rate for each type of loan. In credit policies, the bank indicates loan criteria separately for above and under BBB-rated customer. In addition, the bank considers not only the credit rating of the customers but also the industry of the borrowing companies. Depending on the industry in which the borrowing firm is operating, BIDV requires the debtor to have the debt to equity ratio in a certain range when applying for a new loan.

Specific policies are given based on the credit rating class of customers and loan purpose. The purpose of a commercial loan can be seen as one of the following:

1. Project investment loans
2. Working capital loans and guarantees, commitments

(BIDV, 2011.)

For the first purpose, BIDV describes the requirements for the borrowing company's minimum equity. For example, an AAA-rated issuer is required to have a minimum equity's owner of 20% out of the total equity in an investment project in order to have a new loan from BIDV. While a BB-rated firm needs to have this figure to be at least 40%. In terms of the second purpose, when a customer applies for credit, BIDV will base on the customer's credit rate to determine appropriate credit limit and the requirements of collateral. The lower the credit class, the higher the requirements for collateral.

There are certain criteria for a company to be rated by the bank's credit rating system and for those companies that are not rated, the bank has particular policies. In general, to minimize the credit risk from unrated firms, BIDV requires these firms to provide a high enough value of collaterals, which can be up to 100% of the related loans' value and also higher minimum owner's equity if the customers want to invest in new businesses. (BIDV, 2011.)

Comparing with the theory of Buzzell and Spasovski (2004, 120) about lending policy, mentioned in sub-chapter 2.4.1, BIDV's lending policy covers all of the components that are recommended by this theory. To conclude, BIDV has created a more detailed version of the theory even though some components are not included in a single set of policies. However, the bank needs to regularly review and update the policy to develop a better

tool to manage credit risk. For a small recommendation, the bank should cover a more detailed instruction of how to supervising each loan class in the lending policy.

4.2.2 Credit rating system

From the answers of the interviewees who are experienced employees of BIDV, the internal credit rating system of BIDV is created and implemented for both corporate and retail segment like many other commercial banks in Vietnam. The credit rating system is in process of complying with Basel II regulations to enhance its strength in credit risk management. The main purposes of the system are:

- Loan classification and loan loss provision: the internal rating system (IRS) will act like a tool for BIDV to classify loans according to international standards. From the result of the IRS, the bank will define appropriate loan loss provision in compliance with the International accounting standard 39 _ IAS 39: Financial instruments: Recognition and Measurement.
- Supporting the management of credit quality in the whole system: This IRS is expected to help BIDV to correctly identify customers' credit quality and their levels of risk according to the bank's product lines and anticipate future profits. The bank also believes by building an effective IRS, it will be able to cut down the management expenses.
- Supporting the management of credit quality in branches: The system will directly impact bank officers' decision to issue new loans. It also helps to measure the levels of risk that each branch is facing.

(BIDV, 2006.)

The credit analysis system is built in compliance with local regulations, established by SBV and has been approved and frequently reviewed by the local government and bank supervisors. Besides of using the local regulations as guidelines, BIDV uses four elements as the foundations when it evaluates potential credit risks of a customer:

- Legal profile and industry of the customer
- Financial ratios and data which relating to the customer's business, assets and ability to repay.
- Internal and external environment factors that can affect the customer's financial performance.
- The level of customer's creditworthiness in previous transactions with BIDV or other financial institutions.

(BIDV, 2006.)

The bank's officers collect all available quantitative and qualitative information about the borrower such as business registration certificate, financial reports, loan purpose, expected borrowing time, payment schedule, historical payments which are from the Credit Information Centre of Vietnam (CIC), etc. Then the credit officers will compare this information to the loan criteria created by BIDV in order to make decisions. However, BIDV is aware that this model also somewhat depends on subjective thinking of credit officers, therefore, it is crucial to have carefully trained and experienced analysts in order to make right decisions. With the thinking of how to reduce the impact of subjectivity in credit rating process, the IRS is designed to reasonably combine financial and non-financial data, provide detailed instruction of how to evaluate and grade each criteria and all non-financial data required confirmation by documents and information from the CIC.

To increase the effectiveness of the IRS, the organizational structure of the system has three re-check sessions for credit rating. Normally, after a customer has been rated, the result will be checked again by internal audit department, an independent audit company and credit management department.

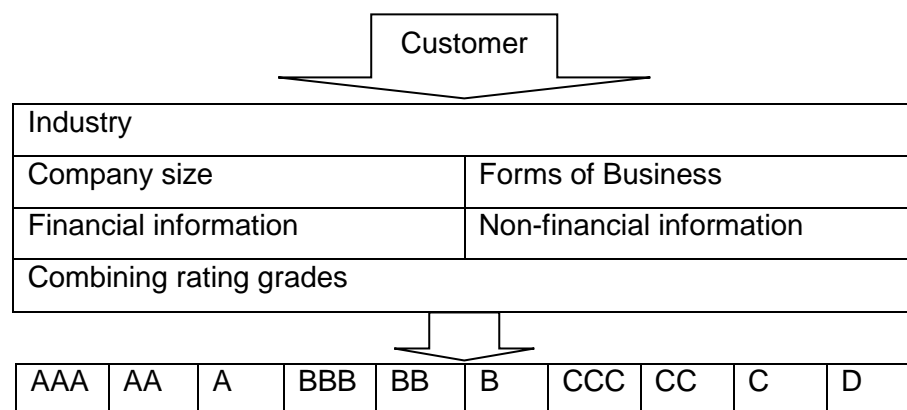


Figure 5. Grading and credit rating model of BIDV (adapted from Handbook of internal rating system for employees, 2006)

According to Ms. Nguyen Thanh Mai (12 Dec 2016), an analyst of BIDV, and the Handbook of Internal Rating System (2006), regarding the corporate customers, the rating process consists of 6 steps (as shown in figure 5). The first step when rating a borrower is identifying the industry in which the borrowing firm mainly operates in. Next, the bank will evaluate operation size based on financial data like owner's equity, the number of employees, gross profit and total assets. Then the corporate borrower will be segmented by the combination of two types of information in step 1 and 2: industry and size of the firm. The process continues with grading the debtor's financial data. These data form four catego-

ries: profitability, performance, solvency and liquidity. The fifth step is grading non-financial information and in the last step, all rating grades will be combined to identify the customer's final rate.

Table 4. Rating grades and equivalent rating symbols of BIDV

Grade	Rating symbol
90 - 100	AAA
83 – 90	AA
77 – 83	A
71 – 77	BBB
65 – 71	BB
59 – 65	B
53 – 59	CCC
44 – 53	CC
35 – 44	C
Less than 35	D

(Adapted from Handbook of internal rating system for employees, 2006)

Rating grades and credit classes reflect potential risks that the bank might have to bear when granting loans. Reviews, therefore, are fundamental in detecting any changes in customers' creditworthiness. BIDV has proactively developed a frequent rating criteria list to re-assess borrowers periodically.

4.2.3 Supervising and monitoring activities

In the interviews conducted, three interviewees provide an overview of BIDV's supervising and monitoring activities. Within the bank, Customer Relations Department is responsible for monitoring obligations of debtors to review, supervise and collect debts. There are some methods that have been implementing by the department:

- Regularly contact with customers to update customers' loan profile
- Follow the payment schedule of borrowers and remind customers before maturity (by calling or emailing)
- Monitor and supervise customers from their portfolio and report any unusual signals
- Exercise periodic reviews, re-assessment for existing customers

(Vu, 13 December 2016.)

In addition, the bank has been taken in use of loan covenants as criteria in monitoring borrowing customers and reviewing process. This method is utilized to reduce financial risk for both BIDV and obligors. However, it has not been standardized and included in the internal policies of the case bank.

Re-assessment and credit rating for existing customers are carried out periodically as mentioned in the previous session. These include both regular reviews, based on the disclosure of interim reports, and irregular reviews, used when there are significant changes in customers' financial performance. For borrowers with total loans' value is larger than VND 5 billion, the bank reviews quarterly and for customers with less-than-VND 5 billion loans, BIDV's branches will implement the reviewing process once a year and report to the Credit Control Department (BIDV, 2013).

In all elements that contribute to the whole credit risk management system of BIDV, monitoring and supervising activities are the least mentioned in the bank's official documents. The actual activities are made by managers and officers at branch levels, mostly based on their personal experiences. Not having a detailed instruction leads the bank to many difficulties in checking customers' credit profiles.

4.2.4 Asset and off-balance sheet commitment classification

In order to utilize loan loss provision, BIDV classifies loans and off-balance sheet commitment (OBSC) into 5 groups by using quantitative, qualitative methods and data provided from the CIC (Table 6). As for loans that assigned to either group 3, 4 or 5, the bank considers them as bad debts, or NPLs (BIDV uses both terms to refer to loans in group 3, 4 and 5).

Table 6. Groups of loans and OBSC in BIDV

Group	Features
Group 1: Current	Loans and commitments that are evaluated by the bank as collectibles in time; have over-due dates less than 10 days
Group 2: Special mention	Loans and commitments are past due date from 10 to 90 days
Group 3: Substandard	Loans and commitments are past due date from 91 to 180 days; or are granted interest-free or reduced interest rate because borrowers cannot afford to pay the initially agreed rate.

	Loans and OBSC that have their maturity extended for the first time (1).
Group 4: Doubtful	Loans and OBSC are past due date from 181 to 360 days. Items which are previously in (1) but have to be restructured the second or third time.
Group 5: Loss	More than 360 days overdue loans and OBSC. Items in group 4 which are restructured.

(Adapted from Classification of Loans and Loan loss provision policies of BIDV)

Through periodically re-assessing the existing customers, bank officers can revise the classification of a loan to better reflect the current level of credit risk that accompanied with the identical loan. BIDV carries out re-classification and assigns a loan to a less risk group than its initial group if the debtor was able to pay back both principal and interests and can proof his ability to full fill loan's obligations in the future. Conversely, a loan can be moved from a lower risk to a higher risk group in case there were negative changes in the borrower's ability to repay; the borrowing party does not provide up-to-date and honest financial information according to BIDV's requirements.

The organizational structure of BIDV distinguishes credit activities, non-credit and operational support activities into three departments: credit risk management, market and operational risk management and credit management from 2009 in order to ensure the separation of credit application and proposal, credit approval and management after credit approval functions (see appendix 2). The Credit Management and Finance Department are responsible for asset classification and loan loss provision. These departments work closely with other departments and divisions such as Credit Risk Management, Customer Relations, Technology, Risk Management divisions in branches, etc. in order to accomplish their tasks.

Table 5. Analysis of loan portfolio by quality

ITEM	Unit: VND Million			
	31/12/2015	%	31/12/2014	%
Current	570,845,421	95.39	417,287,729	93.63
Special mention	17,535,374	2.93	19,347,802	4.34
Substandard	3,975,637	0.66	4,714,212	1.06
Doubtful	887,764	0.15	1,075,813	0.24
Loss	5,190,279	0.87	3,266,808	0.73
	598,434,475	100	445,692,364	100
Loans by grants, trusted funds	-	736		
	598,434,475		445,693,100	

(Adapted from BIDV 2015 Annual report)

By using this model of classification, in 2015, 95.39% of BIDV's loans which are current loans increased 1.76% compared to the figure in the year 2014. There are declines in three groups, special mention, substandard and doubtful. However, the bank sees a slight increase in group 5, loss, when this group accounted for 0.87% of the total loans in 2015.

4.2.5 Loan loss provision policies

With regard to the question: "How does BIDV estimate loan loss provision?", the answers from respondents explain that BIDV intends to implement some new methods to calculate loan loss provision for expected loss (EL) and unexpected loss (UL) based on Basel II framework in the near future. Currently, the bank is using the IRS to classify assets and compute common and specific provision in compliance with the State Bank of Vietnam's regulation on provision at circular No 02/2013/TT-NHNN. The specific provision will be addressed first, then the common provision.

In terms of specific provision, BIDV will go in the order from the loan group with the smallest risk to the highest. The amount of specific provision for each borrower is determined by the following formula:

$$R = \sum_{i=1}^n R_i$$

In which:

- "R" is the amount of specific provision for each debtor
- " $\sum_{i=1}^n R_i$ " is the total amount of specific provision of a customer from loan number 1 to loan number n.
- "R_i" refers to the amount of specific provision for loan number i, calculated by the formula: $R_i = (A_i - C_i) \times r$

In which:

- "A_i" is the principal or value of loan number i
- "C_i" is the after discounted value of collateral of loan number i. The discount rate of a collateral depends on the type of the collateral. For instance, if a borrower pledged his deposit money as collateral for a loan, 100% of the collateral's value would be C_i. If the borrower took a real estate as collateral, C_i will be just 50% of the real estate value.
- "r" is the required specific provision percentage according to asset groups, as shown in table 7.

(BIDV, 2014.)

Table 7. Specific provision for each loan group

Loan group	Specific loan loss provision (% of the loan value)
Group 1: Current	0%
Group 2: Special mention	5%

Group 3: Substandard	20%
Group 4: Doubtful	50%
Group 5: Loss	100%

(Adapted from circular No 02/2013/TT-NHNN)

On the other hand, according to the 2015 annual report (2015, 121), BIDV is required to have a common provision which is equal to 0.75% of the total principals of all loans from group 1 to 4.

BIDV uses an 8-step procedure for asset classification and loan loss provision at branch level (see appendix 3). In the first phase, the Customer Relations Divisions at branches or transaction centers collect and compare information about borrowers to the bank's database and CIC as well as carry out the internal rating process and asset classification. Continuing, the information and results produced by the Customer Relations will be transferred to the Credit Management Division and used to compute provisions. After that, the Risk Management Department will re-check the outcome of the Credit Management Division and submit the asset classification and provision reports to Centres of Head Office. The Head Office then reviews the reports and makes necessary amendment/modification and resends the revised version back to branches so credit officers can start to apply appropriate policies to clients who they serve.

4.2.6 Handling non-performing loans in BIDV

As indicated earlier in sub-chapter 4.2.4, BIDV considers all assets from group 3 to 5 are NPLs, or in another term, bad debts. The bank is applying the following methods to handle these weak assets:

- Restructuring loans, modifying payment schedules
- Lower interest rate or grant interest-free
- Using loan loss provision
- Liquidating available collaterals
- Writing-off
- Using legal actions if needed, for example: suing for non-payment

The initial methods are mentioned in the lending policy as debt collection methods. Besides those approaches, another way that BIDV uses to handle NPLs is selling them to Asset Management Companies (AMCs). Selling bad debts will free the bank's capital, improve its liquidity and allow BIDV to issue more loans. However, the efficiency of this method depends a lot on an external factor, which is the bad debt market. Even though, it is still necessary for the bank to put effort on evaluating accurately the value of the selling assets and completes any required actions and documents to make the assets marketable.

The lender has been selling its weak assets to both internal and external AMCs. The internal AMC is BIDV Asset Management Company, which was established in 2001 by the bank itself. The external AMCs are Vietnamese Asset Management Company (VAMC), a 100 percent state-own limited liability company and Debt and Asset Trading Corporation (DATC), founded by the Finance Ministry.

According to Viet Nam News (2015), from the beginning of 2015 until September, BIDV had sold VND 7 trillion (USD 311 million) of bad debt to VAMC. This was done after the bank realized that its bad debt had increased to 2.7% of the total outstanding loans after adding bad debts from a newly merged bank, the Mekong Housing Bank.

The advantage of VAMC is that it helps to clear bad debts from BIDV's balance sheet, nevertheless, this method still has some disadvantages. One of the drawbacks is that according to Decree 53/2013/ND-CP and the new amendment of Degree 34 of the Vietnamese government, VAMC only withholds bad debts maximum for 5 years, after that, the company will return bad debts back to lending institutions without any binding obligation (Mayer Brown JSM, 2015). In this case, lending institutions will still have to write-off directly or use provision, which eventually affects their profit.

4.2.7 Evaluation from bank supervisors

In an attempt to have a better evaluation of BIDV credit risk management and Vietnamese commercial banks, in general, two interviews with bank supervisors were made. In this sub-chapter, the thesis will interpret the interview's results to figure out how bank supervisors of BIDV evaluate it with regard to ability to control credit risk.

According to the interviewee (Nguyen, 16 December 2016), banking supervision in Vietnam uses 5 criteria to measure credit risk management for commercial banks, which are: the growth of credit, the credit structure especially credit for high-risk sectors, overdue debt, NPLs and provision for credit losses. The respondents were asked to give opinions about BIDV's lending policy. The answers expressed that they believe BIDV's lending policy is still effective and following SBV and international regulation. One of the two interviewees suggests BIDV adjust its current lending policy in compliance with the recently revised lending regulation Decision No.1627 (International Law Office 2002) of SBV so to catch up with the banking movements. In general, the supervisors evaluate BIDV's credit risk management is quite good. The bank had set up the internal audit, the supervisory board, credit risk management divisions and been able to keep the NPL ratio below 3%,

which is SBV's requirement in 2015 (Nguyen, 16 December 2016). However, they also point out that the head office of the bank is still facing many difficulties to check credit document, classify loans at its branches.

For the commercial banking sector, in general, there are some common problems in credit risk control. Banks are exposed to credit risk because they were not able to build an effective system for credit risk measurement and reporting system to Board of Director and Board of Management (Bui, 20 December 2016). In addition, Mr. Nguyen (16 December 201) pointed out that many commercial banks are "limited in controlling the use of loan purpose; corporate bond issue regulations and corporation bond investment of credit institutions are not closed; lacking of high level human resources on credit risk management; evaluation, approval process and control after lending is not strong enough; the credit risk quantitative model is ineffective or the bank did not build the model."

In order to address the problems, the respondents suggest Vietnamese commercial banks have their risk management built according to Basel II framework. Currently, there are only 10 big commercial banks, chosen by SBV, implement this international framework as a pilot project. Other credit institutions are expected to apply Basel II in a near future. Moreover, SBV has drafted new regulations on internal control, internal audit and minimum requirements on risk management to support credit institutions to improve their risk management.

5 Conclusion and recommendation

After having gone through the knowledge base and the findings, this chapter will now return to the four investigate questions that presented in chapter 1. The IQ1, 2 and 3 are answered in sub-chapter 5.1. Next, we will discuss reliability and validity of the collected data and the research's outcome. The outline of chapter 5 will be followed by the answer for IQ4, which concerns recommendations for the case company and the State Bank of Vietnam. Lastly, the writer gives a self-assessment of own learning.

5.1 Key results

IQ1: What methods can banks apply to minimize credit risk before issuing a loan?

A typical credit risk management system covers the entire loan life cycle, which means before, in and after the loan's period. In the early stage, when a corporate customer applies for a commercial loan from a bank, it is indispensable for the bank to collect as much information as possible about the borrowers, for instance, the debtor's financial statements, reports, certificates related to business, news published in media, external reports

and newspapers, etc. These data will then be the input variables for credit analysis, which refers to a process of evaluating customers' ability and willingness to repay. Rating categories in the credit rating system are structured differently between banks, based on their internal credit policies and business strategies. An example for credit rating scale is Moody's model. The rating agency developed a scale which ranges from AAA (the highest quality) to D (the lowest quality). After the bank has assigned its debtor to an appropriate credit class, it will employ suitable lending policies for that class to form a loan agreement. Credit analysis is carried out before issuing a loan, however, bank officers also use this process to re-assess borrowers later on in a credit review process. The more accurate the credit analysis, the fewer losses the lender might have to bear in the future.

Because credit risk is a survival matter for all credit institutions, it is addressed in the international banking regulation Basel II, which is developed by The World Bank and currently implemented in many countries, as the first pillar. Basel II framework gives international standards and guidance to banks that adapted it for the purpose of improving credit risk, market risk and operational risk management. In terms of credit risk, the framework required lending institutions to have minimum capital that is not lower than 8 percent. It also provides different ways to evaluate risk-weighted assets using Foundation Internal Rating Based (FIRB) and Advanced Internal Rating Based (AIRB). Although applying Basel II is believed to help banks to maintain enough capital to compensate the potential losses from risks of credit activities, there are opinions against this regulation. Along similar lines, some economists share the same opinion as Persaud (2008) that Basel II is bad economics because it uses "market prices to predict market failures and destroys the natural, liquidity-inducing diversity in risk assessments". This makes the minimum capital requirements less risk-sensitive. In conclusion, even though the framework is expected to improve management of banks, banks should not too optimistic and depend too much on it.

IQ 2: How can banks control credit risk during the life cycle of loans?

A credit profile which has high quality today can be low quality in the future, therefore, banks need to have plans to supervise and monitor loans. Each of loan classes, standard, watch, substandard, doubtful and loss, should have its own supervising and monitoring approaches, which are normally covered in lending policies. Additionally, banks need to carry out reviewing process regularly in order to detect and limit credit risk. In the re-assessing process, bank officers will examine whether the debtor is using the loan on right purposes and loan covenants, which stated in the lending agreement, are fulfilled. The performance of the customer's business will also be evaluated through financial reports. Furthermore, loan review officers can also re-evaluate value and status of collaterals (if any) to minimize credit risk of the loan.

Credit risk can be reduced if a loan has collaterals backed behind it, so that if a loss event occurred, the lending bank could make up part of the loss by the collateral value. The related terms of collaterals are normally negotiated before the loan is issued. However, the terms are not fixed, during the term of the loan, the bank may require additional collaterals and revise initial terms if the credit became riskier. The disadvantage of collaterals is that many types of them are difficult to trade on the market. Fortunately, this disadvantage can be diminished when banks use asset-backed securities. Still, using ABS is not as common as other methods for credit risk management because risks are not always transferred out of banks. This is because ABSs' cash flow still depends on the ability to repay of the debtors whose loans are pledged as collaterals for the ABSs. Thus, if the debtors defaulted, originators, in this case is the lending banks, might have to pay to ABSs' buyers and still suffered losses. On the other hand, ABS still remains as a solution for banks to release their capital in order to make more loans.

IQ 3: What are the possible methods to mitigate credit risk of non-performing loans and bad debts?

If a loan is past due more than 90 days, it is likely to be considered as a non-performing loan. To handle this type of loan, banks can choose to execute one of the four following resolutions: write off, foreclosure, bad bank and restructuring loans. Banks want to avoid writing off and the premise behind is that writing-off reflects poor management and ability to collect loans of banks. They normally try to foreclosure or restructure troubled loans first. If the two methods failed, banks then have to write-off non-performance loans from the balance sheet, which would reduce tax liabilities on those loans and also profit of banks in the current financial period. This also informs investors that the bank will stop trying to collect the loans and impacts banks' financial performance negatively. After writing-off, there is a possibility that banks will sell the non-performing loans or toxic assets to a bad bank.

According to local regulations as well as internal policies of banks, each class in loan classification system will be given a specific loan loss provision. The provision is made of portions of profits from the previous operating years. For example, loans in the standard class have loan loss provision from 0 to 1 percent while loans in doubtful class require generally 50 percent. The roll of loan loss provision in credit risk management is undeniable. However, although the provision contributes to credit risk control, it lowers bank profit. Low profits prevent banks from achieving the projected net income that they promised to investors and affect their reputation as well. This leads to a very difficult question of how banks

can protect themselves from credit risk and keep profits from negative impacts of high loan loss provision at the same time. To tackle this problem, banks may try to reduce the number of loans under doubtful and loss classes by refusing to lend to low creditworthy customers, however, the high competitiveness in banking industry makes it hard to implement this solution. In some cases, under the pressure of competitiveness and investors, banks make insufficient loan loss provision or even hide the troubled loans they have.

5.2 Reliability and validity of results

The reliability of this research concerns both secondary data and primary data which are obtained using a qualitative method, interviewing via email. The secondary data are books, annual reports, internal documents of the case bank, international regulations and framework, local government regulations, articles and news. Most of them are from reliable sources, for instance:

- Annual reports are from the case bank's website
- Internal documents were provided from the bank's officers via email
- International framework and standards, in this case are Basel II framework and IAS 39 were from the official website of The World Bank

However, some information and comments from the news can be subjective and affected by their writers. The data took also some numerical data from the news, such as how much of bad debts that BIDV sold to VAMC in a specific time. These data can raise questions about their reliability because they cannot be checked by using the published reports of the case bank.

Regarding the reliability of the primary data, there are 3 interviews with the case bank's employees and 2 more interviews with bank supervisors from the Banking Supervisory Agency, State Bank of Vietnam. The sample is quite small, which can lead to different conclusions and answers if the same questionnaires are asked again on a larger scale, different time or in case there are changes in policies, regulations, etc. On the other hand, even though the number of interviewees is small, they all gave similar answers to the questions, which made interpretations more reliable.

The validity of qualitative research can simply be understood as the quality of the collected data. The data collection is done by interviewing via email because of difficulty in geographic distance between interviewer and interviewees. Since it is not face-to-face interviews, the author is aware that the data used to answer the research question might not be as good as if he could hold face-to-face meetings with the respondents. Despite not having many respondents, all of the respondents have deep knowledge about the topic, therefore, their answers provide good quality data.

5.3 Recommendations

This paper uses the lasted annual reports of BIDV as the major source for numerical data. As it can be seen in figure 6, NPLs ratios of the bank had been gradually decreased from 2011 to 2015, from 2.96% of the total outstanding loans to 1.68%. The case bank had managed to have an average decrease of approximately 0.3% per annum during this period. From this information, it seems that the credit institution has been controlling credit risk well. However, according to the second quarter of 2016 report (BIDV 2016), there are an increase in NPLs ratio in the first half year of 2016 from 1.68% to 2.13%, or \$134.44 million higher than the total NPLs on December 31st 2015 (the 2016 annual report is not published yet so it is excluded from figure 6).

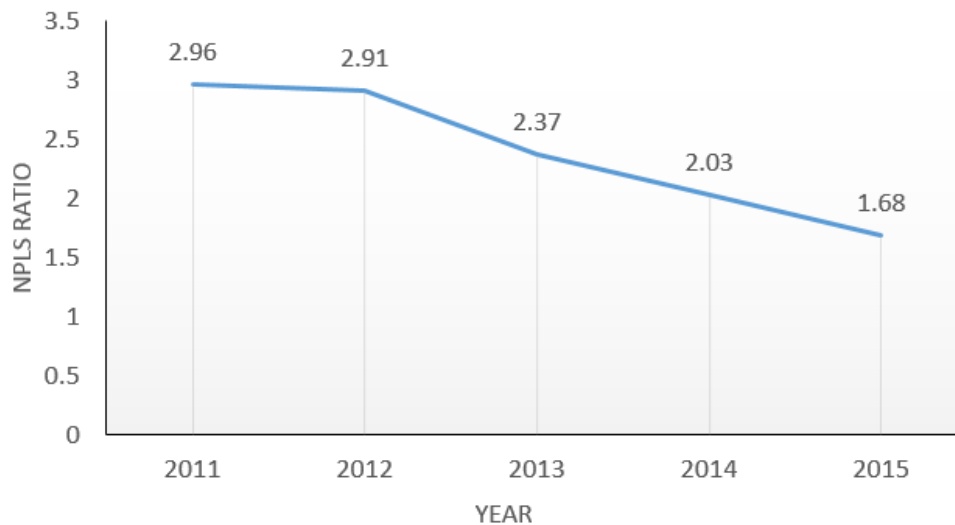


Figure 6. NPLs ratio of BIDV from 2011 to 2015 (summarized from annual reports of BIDV from 2011 to 2015)

According to opinions of bank supervisors in the previous chapter, BIDV is considered to have a quite effective risk management system. The lending institution has used a combination of various techniques to control credit risk such as establishing a lending policy, internal rating system, setting up independent supervisory board and credit committee, etc. From 2011 to 2015, these methods helped BIDV to lower its NPLs ratio but then in the first half of the year 2016, the ratio increased significantly. This change in the NPLs ratio of the bank raises questions: “Why the NPLs ratio suddenly increased again after a long period of decline?”, “Does BIDV have the ability to control credit risk for real?” The answer has something to do with SBV regulations and the bank itself.

Firstly, according to decision 780/QĐ-NHNN in 2012 of SBV, commercial banks can restructure loans, which means they can reschedule payment time, lower interest rate or

support weak loans with additional debt, without changing the loans' classification. For example, in case of BIDV, a special mention loan can go bad but instead of moving it to a lower class such as substandard or doubtful, it can be restructured and still maintain as special mention. This loan, therefore, has characteristics of an NPL but can be kept in a higher asset class for a long time until it exceeds the maximum times of restructure. Because of the regulation, a large amount of credit which is supposedly recorded as NPLs in the past now is pushed to the future. Secondly, another reason that affects the NPLs ratio is Vietnamese Asset Management Company. Many big lending institutions are selling their NPLs to VAMC but unfortunately, the state-owned debt buyer has its limit and cannot afford to buy too many bad debts. To conclude, **SBV** is recommended to **amend the decision 780/QD-NHNN** and continuously revised and adjust the credit regulations. For VAMC, the bad bank must focus more on selling the NPLs that it is holding in order to buy more bad debts from credit institutions. The State Bank also should consider the **possibility to grant VAMC with more capital** so that it can buy and sell bad debts actively.

With regard to BIDV, the lender should **pay more attention to credit analysis and assets classification** so to avoid running in similar situations as in the first-half year 2016, when NPLs ratio raises remarkably in a short time and became harmful for the bank's finance. Especially with the current assets classification regulation of SBV, BIDV needs to have a vision for long-term, not just focusing on meeting budgets and having a good financial report for investors in short-term. Loans need to be carefully re-assessed already even if they currently belong to group 2, specific mention. If they were in group 3 or 4, bank officers should carry out regular reviews. Because all of these activities are done by credit officers, higher demand for educated and experienced employees is required. Therefore, BIDV should have an **effective training program to increase its human resources' quality**.

In addition, the banks can **take in use securitization** as a tool to limit credit risk more than it currently does. It can securitize a bad debt by turning part or all of the debt's principal into bonds, which improve the bank's liquidity and gives the corporate borrower a chance to recover and generate profit in the future. In the answer from the bank supervisor (Nguyen, 16 December 2016) SBV will build a legal framework for securitization in the near future to provide a guideline for commercial banks. As it is pointed out by Mr. Nguyen (16 December 2016), the case bank has trouble in checking credit documents, thus, the writer suggests that BIDV **utilizes loan covenants** as an examining tool. The credit institution should establish a document regarding this method in supervising and monitoring borrowers because currently, the bank officers are using this method but it has not been included in any official document yet. Lastly, in 2015 annual report (BIDV 2015), the bank

stated that it has implemented some IT project, for example, management information system (MIS), enterprise resources planning (ERP), to support its information system, which is one of the key elements to produce good credit analysis. It is recommended that the bank **continues to invest in building an effective and transparent information technology.**

5.4 Self-assessment of own learning

The data used in this thesis are made up of primary and secondary data. Through the process of collecting this information and producing answers for the research question, the writer has achieved new knowledge and skills. In the prior phase and throughout the research, I had chances to practice decision making skills when building the outline and choosing a topic for the thesis. After the topic and the thesis's framework are determined, I used communication skills to find and contact the case bank and people who work and have experienced in the banking area. Later on, in the data collection phase, I had learned how to extract the information I need out of massive data sources. In terms of knowledge, this research brought me a lot of new knowledge which is very helpful for my future career as I am aiming to work in the banking industry.

On the other hand, there are some challenges during the implementation of the research. The interviewees gave short and not very detailed answers. It can be explained by the fact that the employees do not want to provide a lot of data since they can be confidential to the case bank. Some respondents did not answer all the questions directly. Another big challenge is having few interviewees because of culture and physical distance, which limited the findings of this research.

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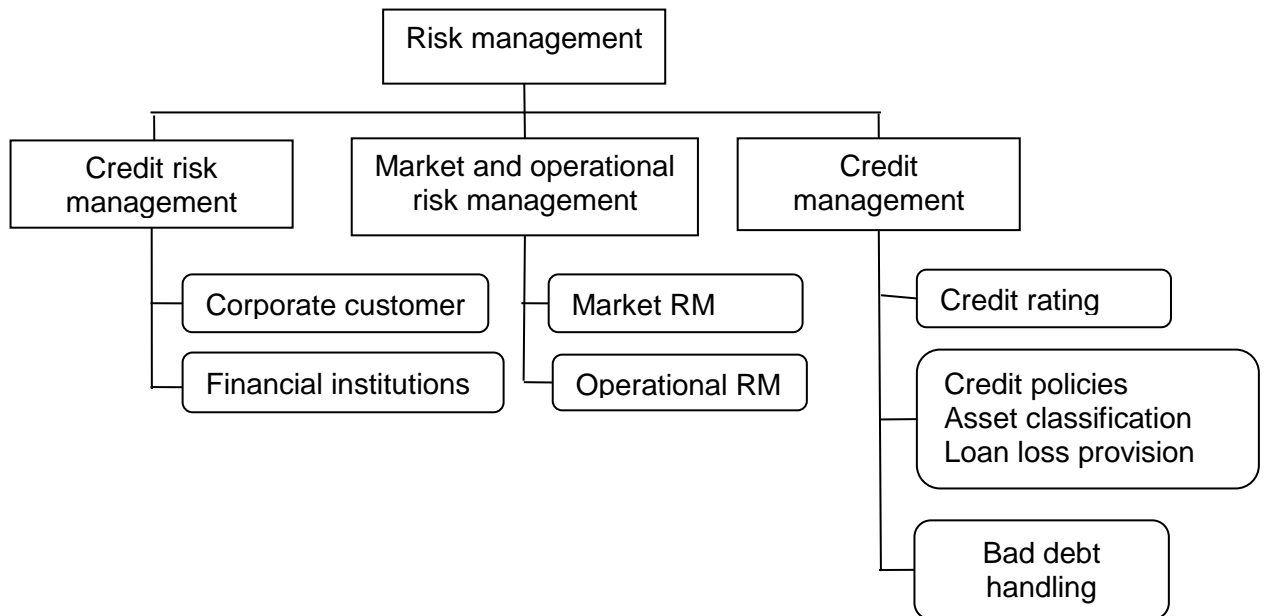
Appendices

Appendix 1. Classification rules for restructured troubled loans (Laurin & Majnoni, 2003, 20)

Group/Country	Are restructured troubled loans defined by regulation?	Classification rules for restructured troubled loans
G-10		
France	No	
Germany	No	
Italy	Yes	Any loan for which a moratorium was granted on repayment and interest was renegotiated at a below-market rate
Japan	Yes	If lending conditions have been relaxed or modified, then it is classified as a "special attention" loan.
Netherlands	No	
United Kingdom	No	
United States	No ^a	Same rules as for classifying other loans

Appendix 2. Organizational chart of BIDV's risk management

(adapted from BIDV's 2015 annual report and "Assets classification and loan loss provision policies" document)



In which:

RM is Risk management

Appendix 3. Asset classification and loan loss provision procedure at branch level

Responsible Division	Step	Action
Customer Relations Divisions	1	<ul style="list-style-type: none"> - Collect and compare information of loans to the database - Collect information from Card Division - Grading and rating borrowers
	2	Classify assets and send reports to Credit Management Division
Credit Management Division	3	Calculate specific loan loss provision
Risk Management Department	4	Review the asset classification results and specific provision calculation
	5	Submit reports to Credit Committee
	6	After the reports are approved by the Credit Committee, submit the reports to Centres of Head Office
	7	Report to SBV according to regulations and/or BIDV's internal regulations
	8	Receive the revised versions of the reports

Appendix 4. Interview questionnaire for BIDV employees

1. Can you describe the credit rating system that BIDV is applying for commercial loans?
2. How does BIDV supervise and monitor borrowers during loan period?
3. Does the bank use loan covenants as a credit monitoring method?
4. How does BIDV estimate loan loss provision?
5. In the annual report 2015, it said that BIDV is preparing to apply new credit risk control system, can you give some words about the new system? How does it differ from the existing one?
6. In case of a non-performing loan, what methods or policies that BIDV uses to support its borrowers to repay?
7. What do you think BIDV can do to improve its credit risk management?

Appendix 5. Interview questionnaire for bank supervisor

1. What do you think of the lending policy of BIDV with regard to credit risk management? Do you think it is effective or not?
2. What are supervisors' opinions about the ability to control credit risk of BIDV?
3. In banking supervision, what are the criteria used in evaluating the ability to control credit risk of commercial banks?
4. Securitizing loans is not a very common method in Vietnamese commercial banks, will SBV build a legal framework for this method?
5. What are supervisors' opinions about the common difficulties in controlling credit risk in Vietnamese commercial banks?
6. What are suggestions that SBV has to improve credit risk management in the commercial banking sector?