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Risk Assessment for Canadian Commercial Banks

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Abstract: More and more individuals, businesses, and financial institutions are realizing the importance of risk management, and it is also an integral part of the development process for commercial banks. Most people do not consider the significant risks that banks face when conducting transactions and that this is a key factor in the survival of the bank. Therefore, this paper examines how Canadian commercial banks manage risks and explores the objective causes of increased risk by collecting annual data from Toronto-Dominion Bank (TD) and comparing and analyzing it with the data of previous years. The comparison of selected data continues with an analysis of the ability of commercial banks to manage risks and how risks affect the profitability of the bank. The study finds that liquidity risk is positively correlated with the bank's profitability and performance, while market risk and credit risk have a negative correlation with the bank's performance. External factors such as inflation, interest rate hike, and COVID-19 also challenges the bank with increased risk. TD has a well-developed regulatory system and countermeasures, and the bank has a high level of risk management and response capabilities.

Keywords: Canadian commercial banking industry, risk management, response capabilities

1. Introduction

The Canadian commercial banking industry is highly concentrated and competitive, with a market dominated by six banks. Banks are different from most businesses or financial institutions in that they make a profit from their liabilities and assets. This profitability model dictates that banks are inherently risky businesses [1]. In other words, every financial operation and transaction of a bank involves different risks. The Bank of Canada states that the obligation of banks is to help develop the economy and financial welfare of Canada and emphasizes the risk management policy of banks. In the risk management policy, financial risk is included, and financial risk is related to losses caused by market, credit, and liquidity risks [2]. Financial risk is unpredictable and will have an impact on the bank's profitability, capital size, and solvency. In the development of a bank, the bank needs to have the ability to predict, identify and manage financial risks as a whole, rather than a single risk. As Stulz (2022) mentioned, risk management for banks is not only about eliminating or reducing risks, but also about maximizing the value and benefits of the bank [3]. The purpose of managing risk in banks is to optimize the allocation of resources in the market and determine the optimal level of risk, giving the bank the ability to analyze and balance the relationship between risk and profitability. In addition, risk management has a direct impact on the size of assets and liabilities and the ability to respond to risks, so risk management is also the basis for other competitiveness in the market, especially in

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highly competitive markets that usually require a higher level of risk management capabilities. Based on this risk management is not only a foundation for banks to survive and grow, but also can help them to improve their competitiveness in the market.

In addition to the financial risks managed by the banks in general, the banking sector as a whole experienced several external risks. 2008 financial crisis shocked banks worldwide and many banks went bankrupt during this period due to the increase in non-performing assets. Banks had a large number of loans that went into ineffective investments and faced investment losses, while banks were unable to balance their losses due to reduced liquidity and difficulties in recovering funds. At the same time, the global financial crisis revealed banks' inadequate capital and risk management, and the opportunity was taken to raise banks' standards of risk management [4]. The second recent crisis is COVID-19. this outbreak continues to raise risk and uncertainty for the banking industry and the market. Risk is both a means of profitability for banks and a cause of bankruptcy. If banks do not manage risk properly, they can reduce profits and weaken solvency, while shareholders do not get a return on their investment. This shows the importance of risk management for the sustainability of banks. Common financial risks include liquidity risk, market risk, credit risk, inflation risk, exchange rate risk, and insolvency risk. Most commercial banks incorporate operational risk, market risk, liquidity risk, credit risk, and strategic risk into their risk management systems. This paper will focus on the management of liquidity risk, market risk, credit risk, and exchange rate risk at TD Bank in Canada.

2. Liquidity Risk

Since banks themselves are financial institutions that circulate capital, liquidity risk naturally arises in the process of capital circulation. Many consider liquidity to be a bank's capital, but liquidity cannot be fully equated with capital; there is a fundamental difference between the two. Capital is the difference between all of a bank's assets and liabilities and the ability to measure the resources available to pay off losses. Liquidity is the bank's ability to readily liquidate when needed to meet the basic needs of its customers and its ability to keep its assets intact [5]. Liquidity risk refers to the occurrence of stagnation and interruptions in the flow of funds, the inability to pay debts as they fall due, to meet other payment obligations, and to meet normal operations promptly. Liquid assets by the bank include cash, bank deposits, financial assets, central bank reserves, and treasure bonds. Typically, high liquidity risk occurs mostly in commercial banks. If a bank is unable to pay its short-term liabilities and meet its funding commitments within a specific period, liquidity risk can arise, which can further affect profitability.

The 2008 financial crisis made the financial industry aware of banks' deficiencies in risk management, and the Basel Committee updated its new risk management standards. In Basel Acord III, the purpose of calculating the liquidity coverage ratio is to measure whether a bank has sufficient liquid assets to cope with short-term liquidity stress in an extreme short-term stress scenario . The criterion is that a bank's stock of high-quality liquid assets should be sufficient for the bank to survive until day 30 in a given stress scenario. In addition, the standard requires a capital liquidity coverage ratio of not less than 100% [6]. The management of liquidity risk by TD complies with the Basel regulatory requirements and standards. TD assumes that in severe consolidated stress scenarios, such as wholesale funding maturing within the next 90 days, deposit balances are lost at an accelerated rate and assets can be liquidated to meet a liquidity coverage ratio of not less than 100 percent over 30 days.

The following is a comparison and analysis of the changes between 2021 and 2022 based on the annual report issued by TD. The first comparison will be with TD Bank's liquid assets for the year; the total liquid assets of TD in 2022, which includes liquid assets owned by the bank and received securities, amounted to approximately $884 billion, an increase of $ 7 billion compared to 2021, and this average year figure shows a slight increase in TD Bank's liquid assets in 2022. Unencumbered

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liquid assets are one of the most important indicators of a bank's ability to take on liquidity risk, and unencumbered liquid assets of TD in 2022 will increase by approximately 2.4%, or $1.4 billion, compared to 2021. Liquid assets indicate that TD is able to liquidate in a short time and has improved its ability to pay off short-term debt compared to the previous year. Next, the liquidity coverage ratio is analyzed to further assess the bank's risk management capabilities. The total high-quality liquid assert and total net cash outflows of TD in 2022 are $366 billion and $286 billion respectively, and the liquidity coverage ratio is 128%. All three figures are higher than in 2021, with the liquidity coverage ratio increasing by 7%.

According to the minimum standards of Basel III, high-quality liquid assert must be at least equal to total net cash outflows and coverage ratio not less than 100%, TD meets the standards of the agreement both in terms of regulatory requirements and data requirements [6]. From these data so far, TD has a high ability to manage and take liquidity risks. Bourke describes a positive correlation between liquidity and the bank's profitability, so we will analyze the change in TD's profit growth [7]. TD's annual report in 2022 shows reported earnings of $ 49 billion, which is a 15% increase from 2021. In addition, the non-interest income in 2022 also increased by 17% from 2021 to about $ 21.8 billion. this result shows that liquidity can directly affect the bank's profitability, which means that the bank needs liquidity to be more efficient. In other words, when liquidity becomes higher, banks' efficiency also increases. By comparing and analyzing the data, it can be seen that TD has an excellent performance in managing and dealing with liquidity risk and has a high liquidity and solvency capacity, especially during the COVID-19 epidemic.

3. Market Risk

Market risk is the risk of loss to a bank due to rapid changes in exchange rates, interest rates, equities, and commodities, usually including interest rates, credit spreads, equities, foreign exchange, and commodities, each of which presents a different risk to the bank and affects efficiency [8]. Value at risk (VaR) is a method of estimating the maximum loss in asset value that could result from a market movement over a specified period and at a confidence level [9]. The VaR of TD includes interest rate risk, credit spread risk, equity risk, foreign exchange risk, commodity risk, idiosyncratic debt-specific risk, and diversification effects, and is used to monitor and control the level of market risk. TD (2022) mentioned that there are 37 days of trading losses in 2022 as calculated by the formula [10]. According to the trend chart of VaR and net trading income provided by the bank, the VaR for the year was not exceeded and was negative. a negative Var means that the bank has more offsetting risk and has a higher ability to identify and manage market risk, and also means that the portfolio has a higher probability of profitability. In other words, TD can control its risk to a minimum given the expected return. Although TD's loss for the year did not exceed the VaR, when we compare the several risks it covers, they all increased compared to 2021.

From TD's calculation of portfolio market risk, the total average VaR across the market grew from $29.9 million to $45.2 million between 2021 and 2022. VaR is essentially an assessment of the volatility of asset values in the market, and the increase in VaR represents a year in which TD experienced high market volatility, and higher market volatility also means higher risk [11]. Many reasons affect the increase in market volatility, but for TD it is inflation and interest rate increases. As inflation levels have continued to increase, several countries have taken to raising interest rates as a tool to restrain inflation as well as ease economic pressure from the imbalance between money and demand, and Canada is no exception. the Bank of Canada announced an increase in its benchmark interest rate to 4.25% in 2022, a move that brought a shock to the banking industry [12].

The announcement of an interest rate hike further increases volatility across the financial markets, especially in the bond or equity markets. The interest rate increase will attract customer deposits resulting in less liquidity of cash. At the same time, banks will increase the interest rate on loans, and

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the increase in loan interest rates will add to the burden of borrowers, then giving banks the potential risk of not being able to recover their funds. In addition, another factor that may affect market volatility is COVID-19 pandemic. VaR can also be used to measure risk spillover, if the higher the degree of risk spillover, then it will bring more risk to the financial market. Tan et al (2022) explained that under the influence of the pandemic, the center of risk spillover shifts from developing countries to developed countries, and Canada is one of the risk spillover centers [13]. Because of the strong correlation between financial markets, fluctuations in the bond or equity markets can be transmitted to other financial markets. Whether risks occur in Canadian banks or financial markets, they are rapidly contagious and affect other banks in the same market as well as financial markets in other regions. The analysis of TD data shows that although TD has a high ability to monitor and absorb risk using VaR, some force majeure or external factors increase volatility and risk for the bank's overall assets. In general, the analysis of risk management mainly considers transactional risk because the possibility of risk exists with transactions, thus ignoring non-transactional market risk. Non-trading risk is a risk caused by the bank itself. TD is currently facing two non-trading risks, namely basis risk and equity risk, which also affect the bank's capital size, return on capital, and efficiency level [10].

4. Credit Risk

Credit risk is one of the highest and most important risks for banks. Credit risk is the risk of financial loss to the lender as a result of the borrower's failure to meet its obligations under the agreed covenants [11]. Although credit risk does not directly affect assets like liquidity and market risk, a lack of attention to credit management can also cause losses to the bank. If a borrower fails to make the required payments, the bank's assets will be lost and the solvency will be affected. Many bank failures have been caused by a lack of attention to credit management. Therefore, many banks assess the qualifications of borrowers before lending or borrowing to reduce the occurrence of significant credit risk. The model adopted by TD to manage credit risk is the borrower and facility risk rating, also known as the credit scoring system [10]. Based on scoring techniques and criteria, the bank monitors borrowers and quantifies their risk into a numerical value, which is later categorized into different risk levels. The credit scoring model is based on looking at the borrower's occupation, income, age, and assets, where bank size and credit bureau information are also included.

According to Basel III, all banks must measure and assess credit risk according to criteria such as PD, LGD and EAD, where exposure at default (EAD) is the amount of funding that predicts a bank's potential exposure to default [14]. TD aggregates gross credit risk exposure for 2022, which can also be referred to as EAD. Compared to 2021, total gross credit risk exposure, including retail and non-retail, increased by approximately $183 billion. The increase in EAD means that the credit balance that may be at risk due to borrower defaults has increased. In other words, the more EAD increases, the higher the probability of default and the higher the credit risk faced by banks. TD has increased credit risk in 2022 compared to before thus negatively affecting the later performance and growth of the bank. As concluded by Twum et al (2022), credit risk and bank performance are negatively correlated, as credit risk increases, then performance decreases [15]. Based on this, if EAD continues to rise, it will reduce the bank's profitability as well as increase the non-performing loans. By looking at the data of recent years, it is found that EAD of TD has increased significantly after 2019, and the average data between 2020-2022 has increased by about $400 billion compared to the previous period. The main reason for the extreme growth of EAD is COVID-19, which has brought uncertainty to the whole financial market.

Not only the financial markets, but COVID-19 has caused turmoil in the global markets. The global recession has forced many companies to stagnate their business as well as face closure. On the other hand, there was an increase in unemployment and many people had no income as well as reduced

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household expenses. During this period, a considerable number of corporations and clients were unable to repay their credit cards and loans, and these are the default and credit risks that banks need to assume. Therefore, credit rating systems alone cannot monitor and reduce credit risk and banks need to combine multiple management models. In TD 2022 annual report, TD uses collateral to reduce credit risk. Collateral is generally non-liquid assets, such as investment properties, fixed assets and automobiles. Some large loans require borrowers to pledge collateral and have it appraised, which is done to reduce credit risk and prevent borrowers from defaulting and forming non-performing loans. When the borrower is unable to pay on time, the bank can liquidate the collateral to cover the loss, thus avoiding or eliminating credit risk. TD Bank has a well-developed risk management system to identify and monitor credit risk, and TD has a variety of measures to respond well to the risk to ensure that the bank's credit risk is minimized.

5. Foreign Exchange Risk

Exchange rate risk is generally covered by financial institutions as market risk, but fluctuations in exchange rate risk can also seriously affect a bank's effectiveness [16]. Foreign exchange risk, also known as exchange rate risk, is the risk of loss in value of a bank's assets and liabilities denominated in foreign currencies due to fluctuations in foreign exchange rates. Foreign exchange risk is a double-edged sword, which on the one hand can bring income and increase asset liquidity for banks, and on the other hand, may cause huge losses and affect solvency [17]. Foreign exchange risk of TD mainly comes from the bank's overseas investment business. When foreign exchange rates change, the bank's earnings are also affected, and TD incorporates exchange rate risk into its market risk, which includes both transactional and non-transactional foreign exchange risk. Among the transactional market risk, TD's foreign exchange risk value increased more in 2022, especially at the end of the year, from $1.8 million in 2021 to $4.8 million in 2022.

Inflation, interest rate hikes, and COVID-19 also cause fluctuations in foreign exchange risk to varying degrees. For the non-trading foreign exchange risk component, TD will adopt foreign exchange hedging instruments to reduce the impact of foreign exchange fluctuations on the bank's net income and shareholders' equity. Foreign exchange hedging mainly consists of financial hedging and operational hedging. Financial hedging requires financial derivatives based on currencies, interest rates, and exchange rates, while operational hedging is related to operability of bank [18]. Financial hedging is more like a contract between two parties to protect the price of all or part of the asset value from interest rate and market fluctuations for a given date, intending to eliminate the risk and uncertainty associated with the high volatility of the exchange rate itself. Deng (2020) concluded from his research that although many companies now use operational hedging to complete foreign exchange hedging, financial hedging is more convenient and less costly in comparison [18]. Based on this conclusion, TD can adopt financial hedging more in the future to identify, manage and reduce market risks arising from foreign exchange fluctuations with low cost and convenience.

6. Conclusion

In conclusion, risk management is related to the survival and growth of a bank, and any risk may lead to bank failure. Through data analysis and comparison, TD has high-risk identification, management, and response capabilities. TD strictly regulates and manages risks following Basel Accord III, including testing performance under short-term scenario stress, calculating VaR and EAD, credit assessment, and foreign exchange hedging to manage and monitor risks. In addition, inflation, interest rate hikes, and COVID-19 are the main reasons for increased market risk, credit risk, and foreign exchange risk of TD in 2022. In this regard, TD has well-developed countermeasures to reduce the negative impact of these risks. There are some limitations in this paper. firstly, the paper does not provide the calculation formula and detailed research methodology. secondly, the paper does not analyze the whole Canadian banking industry and whether the whole industry has an impact on the performance of TD. It also lacks the analysis of several other financial risks such as operation risk, insurance risk, and model risk. In the future, performance of TD in the context of the overall Canadian industry will continue to be examined, as well as management of all risks and comparisons with several other major commercial banks for more detailed analysis.

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