



Article

# Examining the Determinants of Credit Risk Management and Their Relationship with the Performance of Commercial Banks in Nepal

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**Abstract:** In recent years, after the global financial crisis, the issue of credit risk management has received increased attention from international regulators. Credit risk management frameworks are often not sufficiently integrated within the organization, there is no unified approach, and there is no holistic view of all risks. Likewise, where they exist, sound risk management practices have helped institutions to weather financial crises better than others. Therefore, the current study aimed to examine the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. It also examines the mediating role of credit risk management on the performance of commercial banks in Nepal. The results indicate that there is a positive relationship between environmental risk and credit risk management. It is also found that credit appraisal measurements have a significant effect on credit risk management. The results reveal that market risk analysis has a significant effect on credit risk management. The results show that credit risk management mediates the relationship between environmental risk, credit appraisal measurements, market risk analysis, and the performance of commercial banks. Therefore, managers should strive to impart risk prevention and control mechanisms to reduce credit risk and achieve good financial performance.

**Keywords:** environmental risk; credit risk measurements; market risk analysis; credit risk management; performance of commercial banks



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## 1. Introduction

Late in 2019, the COVID-19 pandemic began, which it has since spread over the world. To lessen the impact of the virus, governments in both wealthy and poor nations have implemented stringent rules and lockdown limitations; unlike the normal recessions, this one was followed by a decline in social activities. Offices, colleges, and other places of business were closed, sending workers home. Online transactions and interactions, such as Zoom meetings, were on the rise. In other words, economic activity in all areas has been severely disrupted (El-Chaarani et al. 2022). Bank liquidity fell throughout the crisis. When local governments did not provide financial assistance to depositors, they withdrew their money to deal with economic unpredictability (Wang et al. 2022). Bank liquidity was further decreased by defaults on the majority of loans, such as mortgages, vehicle loans, and personal loans. Banks are highly dependent on loan interest revenue as depository institutions, making them particularly sensitive to the pandemic's effects on the economy (Saleem et al. 2021).

For every nation to prosper economically, the financial sector must be stable. Global financial stability was directly threatened by the global economic crisis of 2008–2009. The crucial function that banking plays might be impacted by internal and external threats including inept management, lax regulations, and economic issues (Taskinsoy 2019). Credit

risk is thought to be the first form of risk that threatens bank survival and financial stability when taking into account the impact of numerous types of hazards (Velliscig et al. 2022). Nonperforming loans have lately received increased attention from regulators and commercial banks as a result of the global financial crisis because they pose a danger to bank stability and may result in bank failure. This type of risk stems from the traditional function of banks, which is simply to extend credit (ALrfai et al. 2022). The ability of financial institutions (FIs) to successfully manage their credit risk is essential to their survival and growth. In the case of banks, the problem of credit risk is even more concerning because particular client traits and the business environments in which they operate might raise perceived risk levels. For their clients, banks are in the business of safeguarding money and other assets. Additionally, they provide credit, lending, and payment services such as cashier checks, money orders, and bank accounts. Along with a variety of other financial services, banks are now permitted to market investment and insurance products that were previously illegal to sell (Anteneh 2021). The major source of income for banks is the generation of credit. However, there are serious hazards associated with this activity for both lenders and debtors. The possibility of a business partner failing to fulfill their contractual commitments by the due date or later might seriously undermine the banking industry's ability to operate normally. However, banks with high credit risk also run a significant risk of bankruptcy, which puts depositors at risk. The majority of financial authorities and banking regulators are quite concerned about credit risk, one of the dangers to which banks are subjected. This is due to credit risk, which makes bank failure the simplest and most likely danger (Yang et al. 2021).

Commercial banks in Nepal own a sizable part of the assets in the whole financial system. Commercial banks have the same purpose as banks in other nations: to extend credit so that banks can boost their earnings. However, it is crucial to remember that banks vary from one another in a variety of ways, including their objectives and the goods and services they offer (Paudel 2022). (Bessis 2011) Credit, liquidity, interest rate, mismatch, market liquidity, market, and foreign currency risks are some of the major hazards that banks must deal with effectively. In the sections that follow, these dangers are briefly explained. Credit risk is one of the numerous risks that banks face, and it has a big impact on how they perform financially because loans to customers account for a sizable amount of bank earnings.

The East Asian financial crisis was extraordinary in many ways because it affected the world's fastest-growing economy. The 1982 debt crisis was the worst multiyear financial disaster to affect developing nations (Radelet et al. 1998). New risk management banking approaches were established when the financial crises of the 1980s and 1990s swept the globe (Poudel 2012), and they came into prominence during the global financial crisis (GFC) (Bessis 2011), according to Yellen (2017). In Tsai (2017), there are several theories as to why the GFC occurred. According to the first perspective, this was a typical liquidity crisis, similar to a banking panic, when depositors' concerns of insolvency, whether true or false, become a self-fulfilling prophecy as their withdrawals cause bank failure. The second viewpoint is more concerned with the weaknesses in the underlying economic structures of the impacted nations that might have caused solvency issues. The pursuit of hazardous lending practices by financial intermediaries is one such vulnerability. This is partially caused by the banking sector's dubious level of control. However, there was also an issue with the lengthy history of so-called "relationship lending". Banks and other financial intermediaries base their loan choices not on solid evidence of the economic viability of a specific investment project but rather on interpersonal, commercial, or political connections. Bank lending portfolios have thus become highly risky. When the economies of these nations began to deteriorate in early 1997, these concerns became a glaring reality.

The majority of the existing literature on risk management concentrates on how it affects organizational performance (Nguyen 2020). The majority of risk management initiatives target systemic risk management vocabulary, concentrating on concepts such

as risk assessment, analysis, mitigation, and control. Because commercial banks assume large financial risks as part of their operations, risk management is crucial in the banking sector. This study only considered credit risk, which many academics and experts think to be the biggest danger to the stability of financial institutions. According to [Boahene et al. \(2012\)](#), poor credit risk management can result in significant financial losses and possibly bankruptcy. It is interesting to note that some banks continue to see credit risk management as a complementary function, which limits their capacity to accurately detect, assess, and reduce credit risk.

Globally, in 2008, the subprime mortgage lending boom to people in Nepal set off defaults that had external cascade effects on financial institutions all around the world. Subprime mortgages and other loans with fewer restrictions can result in significant losses, including the failure of businesses and financial institutions ([Brown and Moles 2014](#)). The prosperity of a corporation heavily depends on these credit choices. Overextending credit to high-risk clients may boost a bank's short-term profitability, but, in general, this practice is considered as posing a serious challenge to the economy's risk management mechanism. Consequently, risk management is the most crucial aspect of a bank's operations ([Rehman et al. 2019](#)). Banks all around the world, including those in Nepal, experience the same situation. Banks are vulnerable to a variety of risks as a result of Nepal's politically and financially unstable climate, including foreign exchange rate, liquidity, operational, credit, and interest rate concerns. In Nepal, financial institutions tend to be risk-averse, especially when it comes to mortgages and vehicle loans, where the possibility of significant losses is higher. On the other hand, during the past several years, commercial banks operating in Nepal have encountered challenges for a variety of reasons. The major causes were attributed to lax lending standards and ineffective portfolio risk management ([Bhattarai and Fischer 2014](#)). Any financial failure in a nation where commercial banks predominate can have a significant negative influence on the nation's economic development. Meanwhile, any potential insolvency in the sector has a contagious impact and may result in bank runs, crises, overall financial problems, and hardship for the economy ([Ongore and Kusa 2013](#)). As a result, the banking sector in Nepal has to make sure that efficient procedures are put in place to reduce risks and increase financial and market returns. Furthermore, the explanation above makes it abundantly evident that a specialist study is required to better understand credit risk management and the performance of Nepal's commercial bank to fulfilling research gaps. The following research issues were addressed in this study: What effective methods or procedures are there for managing credit risk in commercial banks? How well does the link between commercial banks' financial performance and credit risk management factors work? What are the determinants of credit risk management and how CRM mediates to improve bank performance?

### *1.1. Justifications*

The massive issuance of subprime mortgages to Americans in 2008, which resulted in defaults, marked the beginning of the global credit crisis. These defaults had a cascading effect on financial institutions all over the world. Subprime mortgages and other loans with fewer limitations can result in significant losses, including business collapse and financial institution insolvency ([Brown and Moles 2014](#)). The profitability of businesses is greatly influenced by these lending choices. Overextending credit to high-risk clients may boost short-term profitability for individual banks, but, overall, this lending practice was regarded as posing a serious threat to the economy's risk management frameworks. Therefore, the most crucial aspect of a bank's operations is risk management. This applies to banks all around the world, including those in Nepal. Because of the turbulent and volatile nature of Nepal's political and financial climate, banks face a variety of risks, including risks regarding foreign currency rates, liquidity, operations, credit, and interest rates. Nepal's financial institutions are often risk-averse, particularly when it comes to vehicle finance and mortgage loans, where enormous losses are possible ([Shafiq and Nasr 2010](#)). Small enterprises have few chances, and the bulk of them are informally handled

with no paperwork. The majority of commercial banks are confronted with issues such as loan document verification and loan processing. As a result, implementing adequate risk management methods can aid in understanding and mitigating the credit risk faced by Nepalese commercial banks.

This creates several risks for the banks and raises the question of how these risks should be identified, measured, monitored, and, controlled. This is primarily a matter for banks' management to deal with, but it is also an issue for banking regulators, particularly with the increased focus on risk-based supervision. We tried to assess the extent to which banks are exposed to various types of risk and the quality of the systems used for managing these risks. For this purpose, we identified three different types of determinants of credit risk: (1) environmental risk, (2) credit appraisal measurements, and (3) market risk analysis.

### 1.2. Objectives of the Research

The objective of the current study was to explore determinants of credit risk management that can influence the performance of commercial banks. We also investigated the mediating role of credit risk management in the relationship between environmental risk, credit appraisal measurements, market risk analysis, and the performance of commercial banks in Nepal.

This study aimed to provide a foundation for advice to Nepal's commercial banks on how to implement long-term risk management techniques that would improve the performance of commercial banks. The study's model illustrates the determinants of credit risk management including environmental risk, credit appraisal measurements, and market risk analysis. To comprehend the significance of each risk management method, the research also separately looked at the effects of each determinant. To the best of our knowledge, no study on the mediating role of credit risk management for Nepal using the specified parameters exists. The study's findings are designed to benefit commercial banks by providing guidance innovative structural opportunity to enhance their CRM. Policymakers can also identify and develop relevant regulations to control bank activity to reduce risk.

## 2. Literature Review and Hypotheses Development

### 2.1. Theoretical Context

#### 2.1.1. Agency Theory

Many scholars have employed agency theory in their studies to create a theoretical foundation for risk management (Smith and Stulz 1985; Tufano 1998; Phuong et al. 2020). This theory aids in the investigation of social phenomena from the principal-agent (investor-manager) standpoint. Jensen and Meckling (2019) defined the agency connection as follows: A contract that delegates certain decision-making authority to the agent and is entered into between one or more people (the principals) and another person (the agent) to execute some service on their behalf (Jensen and Meckling 2019).

Smith and Stulz (1985) used agency concern in corporate risk management to identify managers' (agents') attitudes toward risk taking and hedging. Fite and Pflleiderer (1995) then employed agency theory to describe the impact of hedging practices on company value. Tufano (1998) also provided an agency-theory-based case for risk management. He contended that managers want to hedge as much as possible without regard for the interests of their shareholders.

#### 2.1.2. Institutional Theory

Institutionalization is defined as "the process through which components of formal structure grow to be universally regarded as both suitable and essential, and serve to legitimize organizations" (Tolbert and Zucker 1983). Institutional theory has been used in previous research to explain the phenomena of risk management implementation (Collier and Woods 2011). They argued that institutionalization occurs when the risk management practices in the majority of organizations become very homogenous (Nguyen and

Dang 2023). This homogeneity can be achieved by a coercive isomorphic process in which political, legitimacy, or regulatory forces are applied to enterprises through persuasion, direction, or invitation (Dang et al. 2022; DiMaggio and Powell 1983). Given the homogeneity assumption of institutional theory, the core principles of risk management are implemented by all financial institutions, regardless of size or complexity. As a result, the current theory offers valuable insight into a plausible justification for risk management in banks (Nguyen 2022).

## 2.2. Credit Risk Management and Its Determinants

Credit risk refers to the risk that a borrower or counterparty may not fulfill their commitments under the conditions set forth, causing the financial institution to suffer a financial loss. The greatest source of credit risk is loans, but there are numerous sources of credit risk across all of a financial institution's operations, including the trading book and aspects both on and off the balance sheet. Strong measures to monitor and control this risk should be put in place given the credit risk's large weight in banks' and other credit institutions' risk profiles (Hassan et al. 2019). A thorough risk management strategy must include the efficient handling of credit risk. Commercial banking is heavily involved in commercial loans (Suyanto 2021). Commercial banks frequently engage in investment banking operations in several nations by issuing new debt to their clients (Rehman et al. 2019). When money is moved from ultimate savers to borrowers, the credit creation process occurs smoothly (Bernanke 1993). Liquidity, credit, interest rate, market, foreign currency, and political risks are only a few of the many possible sources of risk. However, the greatest risk facing banks and financial intermediaries is credit risk (Hassan et al. 2019; Nguyen 2022).

The number of subpar loans (nonperforming loans), problematic loans, or loan loss reserves are some indications of credit risk (Naili and Lahrichi 2022). According to Saleh and Abu Afifa (2020), credit risk is the possibility that a bank-issued loan will not be entirely or partially returned on time as well as the possibility that a client or counterparty may default (Ugah 2020). Before the financial sector's liberalization, banks had a strong incentive to offer loans to customers who could readily demonstrate their creditworthiness (Bryant 1999). The opportunity to satisfy credit demands from a variety of borrowers was made possible by deregulation. Due to a significant quantity of bad credit produced by 1980s boom-time advances, banks became overly cautious when granting credit (Boyd 1993). CRM procedures compel banks to set up a transparent procedure for granting new credit as well as credit extensions. Additionally, these procedures are carefully followed by monitoring, and other necessary measures are implemented to limit or lessen the risk associated with linked lending (Rajendran 2022). The evaluation of loan applications requires a credit-granting process and control mechanisms, which in turn ensure the integrity of the bank's entire loan portfolio (Boyd 1993). A fundamental component of efficient credit risk management is the establishment of a suitable credit risk environment sound credit granting procedures; appropriate credit administration; measurement, monitoring, and control of credit risk, policies, and strategies that concisely describe the scope and allocation of bank credit facilities; as well as a method in which a credit portfolio is managed, that is, how loans are originated, assessed, supervised, and collected (Bank for International Settlements 1999). The important components of credit risk management systems include credit rating techniques, the likelihood of adverse events, and the losses resulting from these adverse migrations or default events (Caouette et al. 1998). Instead of providing a regulatory and legal framework for their prevention and management, most studies have tended to concentrate on the challenges of building an efficient procedure for the disposal of these bad loans (Campbell 2007).

Credit risk determinants consist of bank-specific determinants such as environmental risk, credit appraisal measurements, and market risk.

Acceptance of environmental risk management techniques and procedures have become important items for financial institutions in recent years, driven by increased aware-



ness of environmental issues among customers and shareholders and by increasingly stringent liability legislation as a result of societal pressure (Liu et al. 2020). Investors and businesses are becoming increasingly aware of the numerous ways in which environmental concerns influence their operations, posing both obstacles and possibilities (Finger et al. 2018). Environmental concerns create corporate hazards that must be properly managed (Scholtens and van't Klooster 2019). Regulations governing enterprises and the environment are continually improving; yet, they frequently generate uncertainty for firms, resulting in substantial financial consequences. Client responses and other environmentally motivated activities pose major no regulatory hazards to a company's markets and financial health (Das et al. 2022). However, if they have taken ownership of the polluted or pollution-causing property as a result of achieving security, they are in danger of direct lender responsibility for clean-up expenses or claims for damages (Nizam et al. 2019). There is also the more concerning possibility that, in some countries, just financing a firm or project that produces environmental difficulties may subject the lender to accountability for clean-up expenses (Xi et al. 2022).

Credit appraisal management (CAM) is still at the core of the decision-making procedure that results in the granting of credit to a borrower (Misati and Kamau 2015). The main purpose of a credit evaluation is to decide whether to accept or reject a credit proposition. It entails assessing the borrower's ability to repay the loan based on the loan application. In the appraisal process, the credit-worthiness of the borrower and the stream of anticipated future cash flows are assessed together with the risk level associated with a particular borrower (Ndero et al. 2019). From a different angle, Ahmed and Malik (2015) stated that considerations for the appraisal should include the borrower's ability to repay the loan, the loan amount, the borrower's objective, and the security. Research evidence showed that financial institutions face difficulties with nonperforming loans (NPLs) as a result of poor credit analysis. The purpose of credit appraisal is to establish a borrower's capacity and desire to repay a requested loan in line with the conditions of a loan contract (Karumba and Wafula 2012). A hasty credit evaluation jeopardizes not just the bank but also depositors and investors (Mercylynne and Omagwa 2017). As a result, Chavan and Gambacorta (2016) observed that, when used correctly, credit risk evaluation systems have the potential to increase commercial banks' profits over time by avoiding losses.

In 1993, the Basel Committee on Banking Supervision (BCBS) emphasized the significance of market risk. Market risk was described by BCBS as "the risk of losses in on- and off-balance-sheet positions deriving from changes in market pricing, including interest rates, currency rates, and equities values" (Ab-Hamid et al. 2017). From there, the concept of market risk broadened to "the prospective loss induced by the unexpected changes in financial instruments including equities prices, interest rates, credit spreads, foreign exchange rates, commodity prices and other financial instruments whose values are established in a public market. Unexpected swings diminish bank profits or value, resulting in a capital loss" (Christoffersen 2011). The addition of market risk to the Basel II Framework in 2006 reinforced its significance (Ab-Hamid et al. 2017). The management of bank market risk has become more important than ever since the global financial crisis of 2007–2008. VaR is the first advanced risk measure for market risk suggested by BCBS in a complete capital framework (Grody and Hughes 2016).

### 2.2.1. Environmental Risk

Environmental risk is one of the elements that have a variety of effects on credit risk (direct, indirect, or reputation). In certain affluent nations, banks may be immediately in danger because they are directly liable under the law for clearing up any pollution left behind by bankrupt borrowers. If borrowers participate in environmentally harmful activities that result in financial penalties that raise expenses or decrease income, banks may be exposed to indirect risks because financial penalties can harm their profitability and cash flow, which reduce borrowers' capacity to repay their loans. Even if a bank complies with the law to the letter, its image might suffer if it is perceived as supporting or

being otherwise connected to projects and borrowers that are judged to be environmentally harmful (Coulson and Dixon 1995). For this reason, the creation of environmental credit risk management (ECRM), which incorporates standardized environmental risk assessment techniques into the credit rating process, is crucial for banks' risk management. Banks, business borrowers, and environmental agencies may all benefit from effective environmental credit risk management. Traditional credit risk measurements increased the right credit default prediction rate by about 7.7% when sustainability requirements were added (Weber et al. 2010). The consideration of environmental issues by banks in the lending process also provides green investment opportunities for borrowers as they recognize their environmental responsibilities and seek financing to purchase capital equipment to reduce pollution (Coulson and Monks 1999). Financing projects that consider environmental concerns (e.g., biodiversity conservation) does not undermine other development goals but rather increases environmental and economic returns (Scholtens 2006). Borrowers with good environmental performance can increase access to capital and obtain better prices for capital (Goss and Roberts 2011). Hence, it is proposed that:

**H<sub>1</sub>.** *There is a positive relationship between environmental risks and credit risk management.*

### 2.2.2. Credit Appraisal Measurements

Thisika and Muturi (2017) described CAM as the core of a high-quality portfolio. This involves collecting, processing, and analyzing quality information to identify the creditworthiness of customers and reduce incentive problems between lenders as principals and borrowers as agents. The bank's credit policies, procedures, and directives guide the credit assessment process. In one study, Zhou et al. (2022) commented that the ability of commercial banks to promote growth and financial performance depends on the extent to which financial transactions are conducted with trust, confidence, and minimal risk. This requires sound and secure loan appraisals to assess and clarify the financial situation of loan applicants before taking any steps (Noory et al. 2021). This sets the conditions applicable to loan covenants to help curb bank–customer relationships that may have a positive impact on commercial banks' financial performance. Chege (2021) pointed out that credit loan evaluation is the process of evaluating the borrower's needs and financial situation to determine the borrower's character, ability, collateral, capital, etc. Interested lenders expect loan applicants to contribute from their assets and to have taken the personal financial risk to build the business before extending any credit. We focused on an empirical study of the credit evaluation process and loan performance of commercial banks in different regions of the world.

**H<sub>2</sub>.** *Credit appraisal measurement has a positive effect on credit risk management.*

### 2.2.3. Market Risk Analysis

Market risk is the risk associated with balance sheet positions, managed accounts, derivative transactions, and risk fluctuations in option prices as a result of shifting market circumstances (Hanh et al. 2021). Market risks include interest rate, exchange rate, stock, and commodity risks (Huy 2021). In 1993, the Basel Committee on Banking Supervision (BCBS) stressed the significance of market risk. Market risk, according to the BCBS, is "related to fluctuations in market pricing (including interest rates, currency rates, rates, and stock values)" (Ab-Hamid et al. 2017). Since then, the phrase "due to fluctuations in stock prices, interest rates, credit spreads, and foreign currency" has been added to the definition of market risk. Potential losses may be faced as a result of sudden changes in financial instruments such as exchange rates, commodity prices, and other financial instruments that have an open market value. Unexpected events result in lower earnings or valuation for the bank, which causes capital losses (Christoffersen 2011). Interest rate risk refers to the risk that commercial banks experience as a result of fluctuations in interest rates. A bank's

primary function is to operate as an intermediary, collecting and disbursing public monies; hence, expenses and interests account for the majority of the bank's cost and revenue (Di Asih and Abdurakhman 2021). The net interest margin reflects changes in market risk that may harm the bank's market conditions (Deng et al. 2021). Calculating the cost of capital, which is the interest paid by the bank to each relevant source of funds, is important to improve the acquisition of NIM. The net interest margin is based on the interest rate; the greater this ratio, the higher the interest revenue from the productive assets handled by the bank, and consequently, the less probable it is that the bank would have issues. As a result, if the NIM ratio rises, the bank's profitability would as well (Chen et al. 2021).

**H<sub>3</sub>.** *Market risk analysis has a positive effect on credit risk management.*

#### 2.2.4. Credit Risk Management and Performance of Commercial Banks

Risk is the situation in which the actual return on investment differs from the expected return. Risk refers to the possibility of losing the original investment and the amount of interest it accrues. Credit risk is the risk that a borrower will default and fail to meet its obligations to repay debt. This occurs when the counterparty fails to pay or fails to pay on time (Martens et al. 2008). Effective credit risk management is inseparable from the development of banking technology, which helps to improve the speed of decision making while reducing the cost of controlling credit risk. This requires a full partner and contractor base (Uzah and Omire 2021). In terms of the nature of its business, credit risk is one of the major risks faced by banks. By effectively managing credit risk exposures, banks not only support the viability and profitability of their businesses but also contribute to systemic stability and the efficient allocation of capital in the economy (Abdullah et al. 2020). "Defaults by a small number of customers can be very costly for banks" (Khalid et al. 2021). It was identified by the Basel Committee as a major source of risk in the early days of the Basel Accords. Cheng et al. (2020) investigated the impact of credit risk and other risk factors on banks' financial performance. They found a strong relationship between risk components and banks' financial performance. Afolabi et al. (2020) examined the relationship between credit risk and bank profitability, finding a positive relationship between the two. (Abubakar et al. 2019) investigated the impact of credit risk management techniques on banks' unsecured lending performance. They concluded that financial risks in a banking organization may limit a bank's ability to achieve its business objectives.

Therefore, it is proposed that:

**H<sub>4</sub>.** *Credit risk management has a positive effect on the performance of commercial banks.*

#### 2.2.5. Mediating Role of Credit Risk Management (CRM) and Commercial Banks' Performance (CBP)

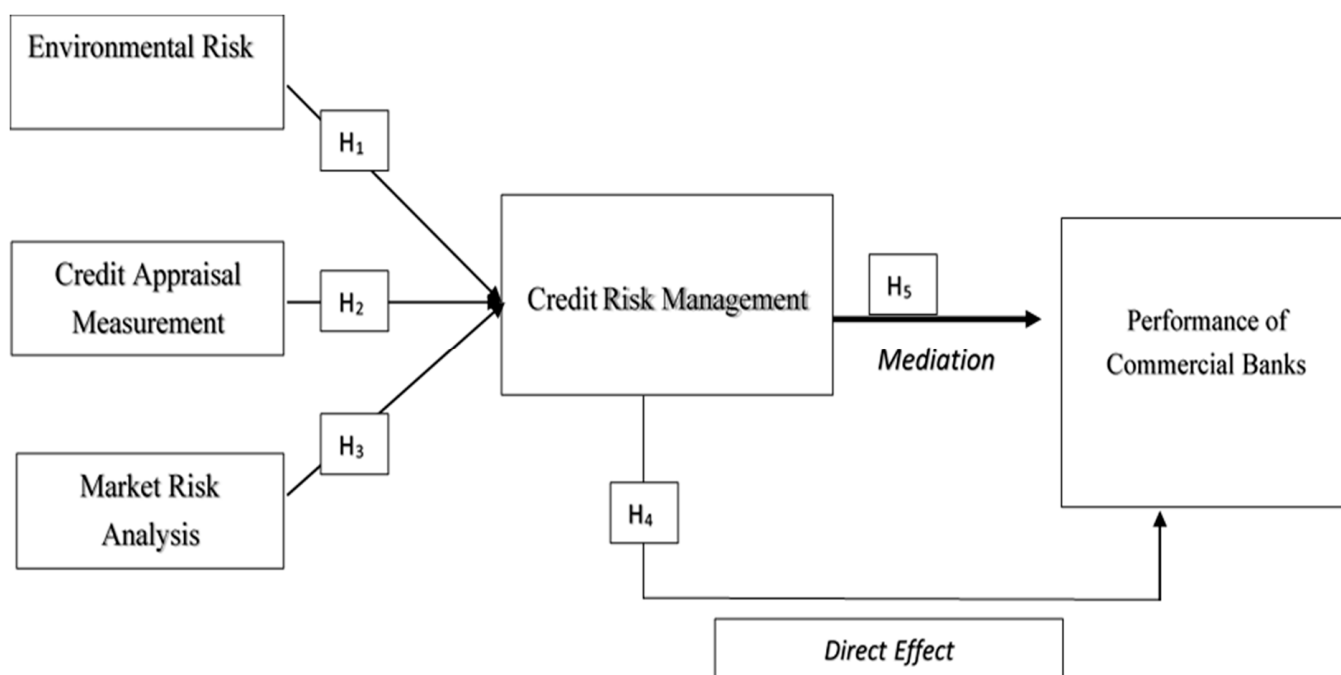
Risk management is the culmination of several efforts designed to lessen the negative consequences of uncertainty on prospective losses (Schmit and Roth 1990). Risk management in financial institutions consists of a combination of employees, rules, and processes designed to prevent probable victims (Balampaki 2021). Santomero (1997) cited four elements in the risk management process, including standards and reporting, position limitations or regulations, investment guidelines or strategies, and incentive contracts and compensation. These four processes lend credence to the theory. Risk management is characterized as a comprehensive collection of risk management techniques and models that enable financial organizations to adopt various risk-based activities. Risk management entails using all the instruments and techniques required to assess, track, and manage various risks.

According to Schroeck (2002), the aforementioned process includes numerous steps such as the classification, identification, categorization, measurement, analysis, and mitigation of a bank's risk exposure. All these actions are often used to analyze risk exposures,



formulate policies to handle these exposures, limit positions to acceptable levels, and help policymakers in risk management to meet the financial institution’s goals and objectives. To summarize, risk management at a bank is a complex process that begins with the development of a framework to identify and analyze, which is followed by the implementation of specific actions to limit or control unavoidable losses. It is crucial to begin any discussion of risk management in banking with a consideration of why risk is significant and what actions can be taken to control risk in these businesses (Alshiqi and Sahiti 2021). Poudel (2012) found that credit risk management is a bank’s best practice, adopted by more than 90% of the country’s banks. Inadequate credit policies remain a major source of serious problems in the banking industry, and effective credit risk management has received increasing attention in recent years. The primary role of an effective credit risk management policy must be to maximize a bank’s risk-adjusted rate of return by keeping credit risk within acceptable limits. In addition, banks need to manage the credit risk of the entire portfolio as well as that of individual credit transactions (Velliscig et al. 2022), as shown in Figure 1.

**H<sub>5</sub>.** Credit risk management positively mediates the relationship between the credit environment, credit appraisal measurement, market risk analysis, and performance of commercial banks.



**Figure 1.** Conceptual model of credit risk management and bank performance.

### 3. Research Methodology and Data Collection Tools

Research methods are specific procedures or techniques used to identify, select, process, and analyze information on a specific topic (Kothari 2004). Therefore, we employed quantitative methods to achieve the purpose, research questions, objectives, and hypotheses of the dissertation (Nenty 2009). The main focus was on determinants of credit risk dimensions: a mediated role of credit risk management for the performance of commercial banks in Nepal. We began with a selected study design, population, and sampling. We then focused on the instruments used, validation methods, experiments, and data collection and analysis. Thus, simple random sampling techniques guided broad purposes in the population, and each member of the population was equally likely to be selected as part of the sample. According to Olken and Rotem (1995), the logic behind simple random sampling is that it removes bias in the selection process and should produce a representative

sample. A closed-ended questionnaire was used as a data collection tool, where questions were unambiguously and straightforwardly formulated and each question was presented in a logical order. This method allowed respondents to clarify any doubts of any kind and provided an opportunity for us to explain the purpose of the research in a way that respondents were motivated and a high rate of return of questionnaires would be obtained (White et al. 2005). However, a closed-ended questionnaire was adopted from previous studies and was modified as per the need of the study. We established a sample size of 211 from 350 registered commercial banks in Kathmandu, Bhaktapur, and Lalitpur, Nepal. The target sample included credit institutions, small depository institutions, and commercial banks that provided credit and other financial services. Because the population size was relatively small and representative, they were selected using simple random sampling techniques. Conversely, a purposeful sampling method was used to select the respondents: managers, loan officers, and accountants of selected banks. The selection criteria were based on their management and operational roles and responsibilities that were critical to influencing the financial performance of the selected commercial bank.

### 3.1. Data Collection Tools/Methods

Depending on the quantitative method used, this study collected data using a survey approach, which is often associated with deductive methods (Rahi 2017). A survey strategy provided us close control over the research process and allowed the generation of survey results representative of the population of financial institutions in Kathmandu, Bhaktapur, and Lalitpur, at a lower cost (Scandura and Williams 2000). According to Bryman (2006), there are two main data collection techniques commonly associated with survey strategies, namely questionnaires and structured interviews. Thus, the current study used a self-administered questionnaire as the main source of quantitative data. Each questionnaire contained the same questions about all variables used in this study. Furthermore, the data collected with the help of questionnaires were analyzed through partial least squares structural equation modeling (PLS-SEM). The 5-point Likert scale is easy to learn and apply for both survey administrators and respondents. Higher-point scales need more time and effort to finish. Higher-point scales better fit mobile device screens. Respondents have options without feeling overburdened. Therefore, the current study used a 5-point Likert scale ranging from strongly agree to strongly disagree (Finstad 2010).

### 3.2. Measurement Scale

For credit risk management, four items were adopted from a previous study (Al-Tamimi 2002). To measure environmental risk, four items were taken (George 2015). For the measurement of credit appraisal, four items were employed (George 2015). For market risk analysis, four items were used from an earlier study (Al-Tamimi and Al-Mazrooei 2007). To measure the performance of commercial banks, four items were adopted (Abu Hussain and Al-Ajmi 2012; Ishtiaq 2015), referred to Table 1.

**Table 1.** Description of measurement scale.

S. No.	Items for Measuring Credit Risk Management	Reference
1	The credit risk strategy set by the board of directors is effectively transformed and communicated within the bank in the shape of policies and procedures by the top management	(Ishtiaq 2015)
2	The bank has an effective risk management framework (infrastructure, process, and policies) in place for managing credit risk	
3	The bank has a credit risk rating framework across all types of credit activities	
4	The bank monitors the quality of the credit portfolio on a day-to-day basis and takes remedial measures if and when any deterioration occurs	
S. No.	Items for Measuring Environmental Risk	Reference
1	The business incubator helps with improving entrepreneurial skills	
2	Business incubators provide an opportunity to create innovative business ideas	
3	The business incubator helps with improving business skills	(Ishtiaq 2015)
4	Business incubators play an important meditating role between skills development, access to finance, business networking, and entrepreneurship development	
S. No.	Items for Measuring Credit Appraisal Management	Reference
1	The credit department always checks the character of the borrower during credit review	
2	The credit department always checks the collateral of the borrower during credit review	(George 2015)
3	The credit department always checks at the capacity of the borrower during credit review	
4	The credit department always checks the capital of the borrower during credit review	
S. No.	Items for Measuring Market Risk Analysis	Reference
1	The market risk strategy set by the board of directors is effectively transformed and communicated within the bank in the shape of policies and procedures by the top management	
2	The bank has an effective risk management framework (infrastructure, process, and policies) in place for managing market risk	(Al-Tamimi and Al-Mazrooei 2007) and (Al-Tamimi 2002)
3	The bank's overall market risk exposure is maintained at prudent levels consistent with the available capital	
4	The bank adopts multiple risk measurement methodologies to capture market risk in various business activities	
S. No.	Items for Measuring Performance of Commercial Bank	Reference
1	The bank's executive management regularly reviews the organization's performance in managing its business risks	
2	The bank has highly effective continuous review/feedback on risk management strategies and performance	(Abu Hussain and Al-Ajmi 2012; Ishtiaq 2015)
3	The bank's risk management procedures and processes are documented and guide staff in managing risks	
4	Overall, the level of risk management practices of the bank is considered to be excellent	

## 4. Analysis/Results

### 4.1. Information on the Respondents in Detail

Table 2 shows the information on the respondents in detail.

**Table 2.** Respondent data.

Variable		Frequency	Percentage (%)
Sex	Male	173	81.9%
	Female	38	18.1%
Age (years)	21–30	22	10.4%
	31–40	89	42.2%
	41–50	70	33.1%
	51–60	30	14.2%
Managerial level	Top management	92	43.6%
	Middle management	68	32.2%
	Lower management	31	14.6%
	Retired	20	9.4%
Education	Bachelors	63	29.8%
	Masters	136	64.4%
	Ph.D.	12	5.6%
Experience (years)	1–5	17	8.0%
	6–10	45	21.23%
	11–15	79	37.44%
	16–20	70	33.17%

### 4.2. Measurements through Partial Least Squares Structural Equation Modeling (PLS-SEM)

Partial least squares structural equation modeling (PLS-SEM) has been widely used in educational and psychological research. Its flexibility in handling complex theoretical models and correctly handling measurement errors has made it the model of choice for many social science researchers. However, the model imposes some daunting assumptions and limitations (such as normality and relatively large sample size), which may prevent practitioners from applying the model. Partial least squares SEM (PLS-SEM) is a nonparametric technique that makes no distributional assumptions and can be estimated with small sample sizes (McDonald 1996). To assess results, the current study used two techniques: assessment of the measurement model and the structural model.

#### 4.2.1. An Assessment of Measurement Model

External measurement models define the connection between enablers and their indicators within a theoretical framework. The measuring model evaluates the validity of discrimination and convergence. Convergent validity, which is calculated to guarantee that metrics assess each contributor only but not another, is the indicator of internal consistency. According to Table 3, three tests—Cronbach's alpha (CA), composite reliability (CR), and average extracted variance (AEV)—can be used to assess the convergent validity of the measurement structure in partial least squares path modeling. CA assesses internal consistency or how closely linked a group of items is. It is considered a scale measure (Klein et al. 2001). The measuring model contains a structural quality evaluation that takes reliability and validity into account. The main topic of discussion here is how to present the validity and reliability of the research constructs. However, before presenting measurement models, researchers should first assess the factor loadings (Hair et al. 2020). According to Hair et al. (2011), the measurement model is used to estimate the reliability,

consistency, and validity of a structure. The evaluation of measurement models includes external loading factors for assessing individual reliability, composite reliability (CR) for assessing internal consistency, extraction of mean variance (AVE) for assessing convergent validity, and discriminant validity for assessing the Fornell-Larcker standard for single-item reliability. However, regarding individual item reliability, Cortina (1993) suggested that the factor loading estimates should be higher than 0.5, and ideally, 0.7 or higher. And CA should be higher than 0.7. The reliability of internal consistency should be higher than 0.7. Furthermore, concerning convergent validity, the AVE should be higher than 0.5 (Keramati et al. 2012) (see Table 3).

**Table 3.** Description of the measurement model.

Construct	Item	Loading	CA	CR	AVE	Inner VIF	f <sup>2</sup>
Environmental Risk (ER)	ER1	0.821	0.872	0.913	0.724	2.231	0.121
	ER 2	0.844					
	ER3	0.875					
	ER4	0.861					
Credit Appraisal Measurement (CAM)	CAM 1	0.730	0.824	0.884	0.657	1.805	0.255
	CAM 2	0.875					
	CAM 3	0.857					
	CAM 4	0.773					
Market Risk Analysis (MRA)	MRA 1	0.775	0.841	0.894	0.679	1.875	0.08
	MRA 2	0.876					
	MRA 3	0.863					
	MRA4	0.777					
Credit Risk Management (CRM)	CRM 1	0.865	0.830	0.889	0.671	2.224	0.021
	CRM 2	0.860					
	CRM 3	0.890					
	CRM 4	0.636					
Performance of Commercial Banks (POCB)	POCB 1	0.883	0.740	0.845	0.618	1.760	0.102
	POCB 2	0.927					
	POCB 3	0.895					
	POCB 4	0.180					

#### 4.2.2. Assessment of Discriminant Validity

Evidence of measurements of dimensions that theoretically should not be substantially linked with one another are not found to be significantly correlated with one another serves as proof of discriminant validity. In reality, convergent validity coefficients should be substantially larger than discriminant validity coefficients (Cronbach and Meehl 1955). The Fronell–Larker criterion is one of the most popular techniques for checking the discriminative validity of measurement models. According to this criterion, the square root of the mean variance of one construct must be greater than the correlation between that construct and any other construct (Henseler et al. 2015).

The heterotrait–monotrait (HTMT) correlation ratio is another indicator of discriminant validity. Henseler et al. (2015) found that a Monte Carlo simulation analysis demonstrated the method’s improved performance. It was discovered that HTMT was able to attain greater specificity and sensitivity (97% to 99%) in comparison with the cross-loading criteria (0.00%) and Fornell–Lake (20.82%). Meanwhile, an HTMT score near one denotes the absence of discriminant validity. It entails comparing HTMT with a predetermined threshold to use it as a benchmark. If the HTMT value exceeds this limit, it may be said that discriminant validity is not present. Some publications recommend 0.85 as the cutoff (Kline 2011). In support of this, Gold et al. (2001) suggested 0.90. However, Fornell and Larcker (1981) asserted that the AVE for each construct should be more than 0.50. All



AVE components were higher than the threshold of 0.50, ranging from 0.669 to 0.862. (See Table 4).

**Table 4.** Discriminant validity Through Fornell-Larcker criterion.

Construct	CAM	CRM	ER	MRA	POCB
CAM	0.891				
CRM	0.715	0.819			
ER	0.700	0.756	0.851		
MRA	0.858	0.767	0.829	0.874	
POCB	0.769	0.723	0.709	0.712	0.786

#### 4.3. Structural Model

When predicting the result of an event, the coefficient of determination is a statistical metric that looks at how differences in one variable are explained by differences in another. Stated another way, this coefficient, also known as the R-squared, measures the strength of the linear relationship between two variables and is frequently used by academics to undertake trend analysis (Di Bucchianico 2008). Values of 0.67, 0.33, and 0.19 are regarded as considerable, moderate, and weak squared correlation values, respectively (Chin et al. 2003). The latent endogenous construct’s R<sup>2</sup> value, which is more than five and is displayed in Table 5 is regarded as moderate to high. The effect size is a metric for each predictor’s impact on the dependence structure (Chin et al. 2003). The impacts of the predictors at the structural level are significant, medium, and modest if the f<sup>2</sup> is 0.35, 0.15, and 0.02, respectively (Davari and Rezazadeh 2016). The results are displayed in Table 5, which specifies that the R<sup>2</sup> in this study was 0.523. This shows that environmental risk, credit risk measures, market risk analysis, and credit risk management defined 52.3% of the variance in the performance of commercial banks, which was also suggested by Al-Mekhlafi et al. (2021). Considering the reflective nature of the measures, this study employed the cross-validation of redundancy measure Q<sup>2</sup>, evaluating the model as suggested by Consonni et al. (2010). It is an indicator of the model’s out-of-sample predictive power or predictive correlation and should be a value of MISSING if no out-of-sample data is available for testing the model’s performance. In structural equation modeling, a Q<sup>2</sup> value greater than zero for a specific reflex endogenous latent variable indicates the predictive relevance of the path model for a specific dependent structure. Therefore, as revealed in Table 6, the findings suggest that the model had predictive relevance. For the goodness of fit, we used the standardized root mean square residual (SRMR). The SRMR is an absolute measure of fit: a value of zero indicates a perfect fit, and a value less than 0.08 is considered a good fit (Hu and Bentler 1999). Table 6 shows the sufficient goodness of fit in this study.

**Table 5.** Discriminant validity using HTMT criterion.

Construct	CAM	CRM	ER	MRA	POCB
CAM					
CRM	0.820				
ER	0.719	0.720			
MRA	0.832	0.852	0.780		
POCB	0.726	0.734	0.742	0.810	

**Table 6.** Model strength.

	R-Squared	Adjusted R-Squared
CRM	0.648	0.643
POCB	0.523	0.521

Figure 2 illustrate structural equation modeling. In this study, values for the path coefficient that were close to 0.5 or higher were interpreted as corresponding to large effect sizes, values around 0.3 were interpreted as corresponding to moderate effect sizes, and values that were close to or below 0.1 were interpreted as corresponding to small effect sizes. The indirect impacts of the structure through mediating structures were thus also examined, in addition to the direct effects of the structure. At  $p = 0.05$ , all hypotheses were significant. H1 was supported because Table 6 shows that ER had a significant effect on CRM ( $\beta = 0.339, t = 4.838, p = 0.000$ ). The analysis showed that CAM had a significant effect on CRM ( $\beta = 0.2834, t = 2.608, p = 0.009$ ); hence,  $H_2$  was supported. Meanwhile,  $H_3$  proposed that MRA has a significant effect on CRM ( $\beta = 0.240, t = 2.235, p = 0.025$ ), which was consequently supported. The results for  $H_4$  showed that CRM had a significant effect on POCB ( $\beta = 0.723, t = 18.542, p = 0.000$ ); hence,  $H_4$  was supported (see Table 6).

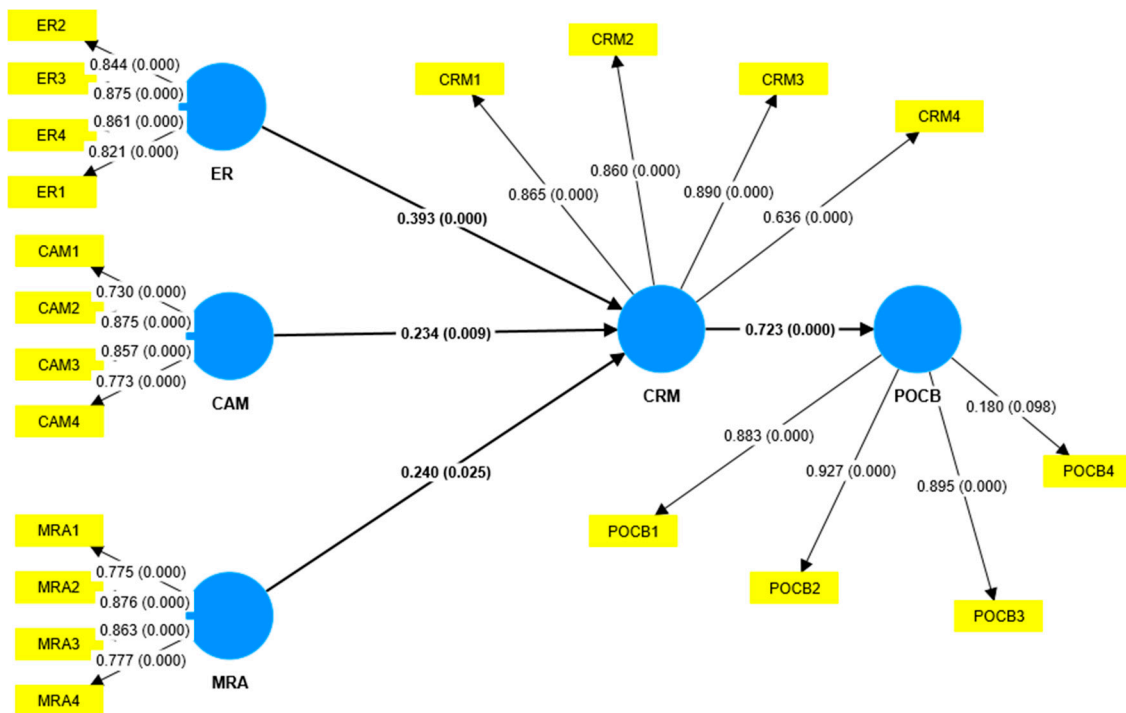


Figure 2. Structural equation modeling.

Analysis of Indirect Effects through Mediation

Mediation analysis was performed to measure the indirect effects of dependent and independent variables. For that purpose, a specific effect of ER on POCB via CRM was found to be significant (beta ( $\beta$ ) = 0.284,  $t = 5.094, p = 0.000$ ). Meanwhile, CAM significantly affected POCB through the mediation of CRM ( $\beta = 0.169, t = 2.531, p = 0.011$ ). Consequently, MAR had a significant effect on POCB through CRM ( $\beta = 0.173, t = 2.145, p = 0.03$ ). Based on the statistical analysis shown in Table 7, it was concluded that CRM positively mediated the relationship between ER, CAM, MAR, and POCB.

Table 7. Path coefficient and hypotheses testing.

	Path Coefficient	SD	T Statistics	p Value
ER -> CRM	0.393	0.081	4.838	0.000
CAM -> CRM	0.234	0.09	2.608	0.009
MRA -> CRM	0.24	0.107	2.235	0.025
CRM ->POCB	0.723	0.039	18.542	0.000

Credit risk management:  $Q_2 = 0.413$ ; performance of commercial banks.  $Q_2 = 0.236$ ; goodness of fit  $SRMR = 0.075$ ; chi-square = 3658.021.

### 5. Results and Discussion

Table 8 presents path coefficient and mediating test. The current study examined the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. The results indicated that there is a positive relationship between environmental risk and credit risk management. It was also found that credit appraisal measurements have a significant effect on credit risk management and that market risk analysis has a significant effect on credit risk management. The results also demonstrated that credit risk management mediates the relationship between environmental risk, credit appraisal measurements, market risk analysis, and the performance of commercial banks.

**Table 8.** Path coefficient and mediating testing.

Relationship	Path Coefficient	Standard Deviation	T Statistic	p Value
ER -> CRM ->POCB	0.284	0.056	5.094	0.000
CAM -> CRM ->POCB	0.169	0.067	2.531	0.011
MRA -> CRM ->POCB	0.173	0.081	2.145	0.032

Our findings also establish credit risk as a possible hazard to the banking industry that led to the development of specific banking laws to which all banks must adhere. Yet, credit risk is defined as the possibility of suffering a loss as a result of a particular debtor’s failure to repay a loan or any other line of credit. The findings of the present study specify that there are legal shortcomings in the financial system, particularly in the banking sector, as well as an absence of consistent credit information exchange among banks. As a result, it highlights the need for banks to prioritize stronger risk management techniques that might ultimately shield them. The same finding was found in earlier studies (Hummel et al. 2021; Weber et al. 2008). According to Sarfraz et al. (2018), real estate collateral has historically been linked to environmental hazards that have resulted in loan defaults. The projected value of the guarantee may be higher than the market value in the event of contamination if a lender accepts real estate collateral as loan security without checking the site or building for contamination. Therefore, a bank may receive a much lesser sum than planned or nothing at all if it wishes to establish security. However, Weber et al. (2008) concluded that banks have gained experience and that it was now routine practice in many banks to determine if the value of real estate collateral needed to be decreased to account for contamination (Weber et al. 2002). Consequently, our findings suggest that most banks consider environmental risk as part of the credit assessment process, which is in line with the results of a previous study (Coulson and Dixon 1995). In addition, the World Bank and the International Finance Corporation (IFC) published detailed guidelines for incorporating environmental assessments into credit risk assessments (Chandra and Bhatt 1998), providing an entry point for commercial banks and multilateral development banks’ environmental assessment strategies (Annandale 2001).

The empirical results revealed that to guarantee that the borrower can return the whole loan amount on time without missing any payment dates, the lender must undergo a credit evaluation procedure. This is incredibly important for a bank because it influences the firm’s capital and interest revenue (Ahmadyan 2018). This indicates that every type of loan application must go through a loan evaluation process. The preferred maturity period should be specified, the maximum suitable amount must be indicated, and insurance coverage must be obtained for the loan. Loans may generally be secured by collateral, and approval channels should be documented and approved by the board of directors. This is because weak loan policies and short-sighted credit analysis can have a large negative impact on the profitability and performance of commercial banks. Byusa and Nkusi (2012) suggested that to improve credit debits, commercial banks should use the 5Cs to measure customers’ credit status, namely: capacity and character, collateral, capital, and conditions. However, researchers argued that credit appraisal measurements remain at the heart of the decision-making process, leading to the granting of credit to debtors (Pauline

and Nadham 2022). Our findings further add that credit evaluation is mainly aimed to determine whether to accept or reject credit advice. It involves evaluating loan applications to understand the borrower's ability to repay. The appraisal process involves an assessment of the borrower's creditworthiness and expected future cash flows and the amount of risk for a particular borrower (Ndero et al. 2019). From another perspective, Ndero et al. (2019) pointed out that aspects of concern in the appraisal comprise the purpose of the client, the authenticity of the demand, the repayment ability of the borrower, and the quantum and security of the loan. Meanwhile, our research evidence shows that commercial banks often experience nonperforming loan challenges due to weak credit analysis. The purpose of a credit appraisal is to fix the borrower's ability and willingness to repay the desired loan under the terms and conditions of the loan contract.

The results of the current study revealed that several more aspects are linked with securities pricing because these factors assist in the financial decisions made by investors. The loans that a bank provides to the borrower are mainly contingent on market conditions. Decision making for credit risk mitigation and management is critical for banks. The prices and interest rates of the assets traded in such a market are impacted by the market's extreme volatility. Macroeconomic factors that affect the pricing of the securities being traded have an impact on financial markets. Because clients have a wide range of options, hedging enables businesses and their managers to implement strategies that optimize the value of the organization (Hanh et al. 2021). The results showed that market risk measures are reliable because they correlate with actual changes in future income and fair value. They also provides specific guidance on interest rate risk (that is, the exposure of a bank's current and future earnings and capital to adverse movements in interest rates) and the market risk capital rules establish regulatory capital requirements for bank holding companies and state member banks with significant market risk exposure. These rules are designed to ensure that banks hold enough capital to cover potential losses from market risks such as changes in interest rates, foreign exchange rates, and commodity prices. Kuznichenko et al. (2018) pointed out that market risk refers to "the risk of loss of off-balance sheet items due to changes in market prices". Stock prices, interest rates, foreign exchange rates, and commodities hazards are the main elements that might cause market risk to appear. The danger that changes in equities prices affect banks' off-balance sheet items is referred to as equity risk. Stock risk is composed of two types of price risk: general price risk, which is based on shifts in the whole equity market; specific price risk, which is based on shifts in particular securities. After performing a stress test on all positions (balances including securities and off-balance sheet assets), gross exposure is stated as net open positions.

The results of the current study showed that loan loss provision has a significant positive influence on nonperforming loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and a deterioration in the quality of loans, consequently adversely affecting bank performance (Banu et al. 2021). According to the study's findings, credit risk management and bank performance are mutually exclusive. Because nonperforming loans, loan and advance ratios, and liquidity ratios harm the profitability of banks, management needs to exercise caution in these areas.

The results also illustrated that credit risk management significantly mediates the relationship between environmental risk, credit appraisal measurements, market risk analysis, and performance of commercial banks, which is in line with the results of an earlier study (Huy et al. 2021). Statistical analysis showed a strong link between all latent variables and sound credit risk management. This means that without proper risk management, the various functions of a financial institution cannot work together to achieve the institution's objectives. It is an essential part of helping financial institutions develop and promote sustainability and resilience. The findings of Kargi (2011) revealed that credit risk management has a significant impact on the profitability of Nigerian banks. Meanwhile, one of our findings showed that banks' profitability is inversely affected by the level of loans and advances, nonperforming loans, and deposits, leaving them at significant risk of illiquidity and distress. According to Oudat and Ali (2021), credit risk management in

financial institutions has shifted from a compliance-driven function to a top-level integrated activity related to top decision-making and strategy development. As the extent to which the risk management function is performed and the structure is maintained depends on the size and complexity of individual financial institutions, risk management is most effective when the fundamental principles and elements of risk management are consistently applied across the financial institution.

## 6. Conclusions

The purpose of this study was to investigate the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. These findings suggest that an effective risk management approach for a bank in Nepal is dependent on several critical elements. The efficacy of risk management techniques in Nepal is heavily reliant on bank employees' good understanding of risk and risk management. Furthermore, banks must have an active risk management approach to identify, measure, monitor, and control various risks such as credit, market, liquidity, and operational risks, as well as to retain capital against these risks. The formation of a complete risk management system in Nepali banks, taking into account standard processes, is not only a beneficial exercise to satisfy regulatory requirements but also an effective practice to improve the performance of financial institutions. As a consequence, the findings of this study support the assumption that risk management has a major impact on the performance of selected banks in Nepal. While credit risk is the most common type of bank risk, the relevance of market risk should not be ignored, especially given the multiple risk measuring methodologies that are extremely important for economists and analysts. It is noted that the methodologies for market risk measurement contain flaws and limitations that manifest themselves in both normal and crisis-like conditions. However, such methodologies are still indispensable instruments in the process of embracing the overall risk to which banks are exposed, and their results contribute to a greater degree of efficiency in the banking and financial sectors.

In the present study, the impacts of environmental risk, credit appraisal measures, market risk analysis, and the mediating role of credit risk management on the performance of commercial banks in Nepal were the only variables that were the subjects of the survey. The link between human resource risk management and financial performance in Nepalese commercial banks should be examined, with other risks such as liquidity risk serving as a mediator and intellectual capital as a moderator variable being considered. The population of this study included and was limited to commercial banking in Nepal only. As such, some other categories, such as microfinance banks, can be included in a future study.

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