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Journal of Economics and Management

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Journal of Economics and Management (JEM) seeks to bridge the gap between general business practice and financial analysis practices through standard academic journals of economics and management. It publishes articles and reviews highlighting the ongoing research on current issues in the fields of economics and management and their impact on management practices.

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Editorial Notes

Volume 4, Issue 1 | Journal of Economics and Management

It is with great pleasure that we present Volume 04, Issue 02 of the Journal of Economics and Management (JEM), which continues to serve as a platform for the dissemination of high-quality research, innovative ideas, and critical analysis. This issue brings together a diverse collection of articles that reflect the journal's commitment to advancing knowledge and nurturing intellectual exchange across economics, business, and management. Journal of Economics and Management (JEM) is a double-blind, peer-reviewed scholarly journal, and it is published on a yearly basis. Published by Birgunj Public College (BPC), affiliated to Purbanchal University. The journal concentrates on both empirical and descriptive papers that advance our understanding of management science. It aims to provide a platform for academia, management researchers, management practitioners, and management students to publish their original works. We believe that management is an innovation-oriented discipline that inherently demands evolving knowledge and skills that cross discipline boundaries or intersect in many areas. We also believe that both researchers and practitioners can and should contribute by translating their understanding into action and linking theory into practice.

The Journal welcomes original research papers using archival, case, experimental, field survey, or any other relevant empirical method, as well as analytical models, frameworks, or thought pieces, substantive review articles, and research notes subject to a double-blinded peer review process. The Editorial Board would like to invite contributions from national and international scholars and experts concerned with business management for the upcoming issues of JEM. We offer sincere gratitude to all our team members on the Editorial Board for their outstanding enthusiasm and support in getting this issue into the hands of readers. We further express our sincere thanks to Patron Prof. Dr. Deepak Bahadur Shakya and Sankalp Shakya, Chairman, Birgunj Public College (BPC); Advisory Board followed by Editorial Board Members for their inspiration and supportive attitude for the successful publication of this issue from the editorial team of Birgunj Public College (BPC). The article from editor included after double blind peer review without involving them during the process.

As always, we are deeply grateful to our contributors, reviewers, and editorial board for their unwavering commitment to maintaining the highest academic standards. We also extend our gratitude to our readers, whose engagement inspires us to continually strive for excellence.

We encourage you to engage with these articles and consider how their insights can inform both research and practice in your respective domains. Together, let us continue to foster a vibrant academic dialogue that bridges theory and practice for a better future.

Thank you for your continued support.

Warm regards,

Dr. Binay Shrestha

Editor-in-Chief

Journal of Economics and Management (JEM)

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Climate Change Impacts of Health Workers Without Safety Measures on Working Places

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Abstract

This study aims to explore the effects of climate change on health workers in Nepal, particularly in workplaces lacking safety measures. Climate change poses significant threats that can accumulate over time, leading to long-term changes in health and reliance on occupational safety and health (OSH). Factors such as rising ambient temperatures, air pollution, ultraviolet radiation exposure, and extreme weather events adversely affect OSH. Examples of climate change impacts include sea-level rise, warming oceans, shrinking ice sheets, glacial retreat, ocean acidification, and reduced snow cover. This research employs a review-based approach, utilizing systematic literature analysis to recommend pragmatic solutions. The researcher primarily employs deductive reasoning throughout the review process, employing in-depth archival analysis and intensive review strategies. The study finds that climate change affects organizational operations, leading to illnesses or injuries among health workers and increasing stress levels. Many health workers in Nepal operate without adequate safety measures; for example, healthcare personnel often lack gloves and masks, construction workers do not use protective gear, and farmers apply pesticides without safety equipment. These unsafe practices expose workers to respiratory and cardiovascular diseases, reproductive dysfunctions, vector-borne diseases, and other climate-sensitive health risks. The findings underscore the urgent need for improved occupational safety measures to protect health workers from the adverse effects of climate change.

Keywords

Climate change, Job, Safety, worker, work

Introduction

Nepal is among the countries most vulnerable to anthropogenic climate change, with its impacts felt across various sectors. The phenomenon of Loss and Damage (L&D) resulting from climate change is increasingly evident in Nepal, characterized by both slow-onset events (such as drought and glacier melting) and rapid-onset events (including floods, fires, and landslides). These events are escalating in frequency, intensity, and magnitude. L&D in Nepal is defined within a global discourse that emphasizes the country's ecological and social diversity. The proposed definition encapsulates the actual and potential negative consequences of climate change on extreme events both sudden (e.g., heatwaves, extreme rainfall) and gradual (e.g., snow loss, droughts, glacial retreat) to which communities in Nepal's diverse geographical regions are unable to adapt due to overwhelmed ecosystems and infrastructure, leading to significant losses in life, livelihoods, and cultural heritage (Government of Nepal, MoFE, 2021).

According to NASA, climate change refers to long-term alterations in average weather patterns that define Earth's climate. The United Nations defines it as changes attributed directly or indirectly to human activities that modify the global atmosphere's composition beyond natural variability (UNFCCC, 2019). Despite contributing negligibly to global greenhouse gas emissions, Nepal is acutely vulnerable to climate change impacts across critical sectors identified in the National Adaptation Programme of Action (NAPA) 2010, including agriculture, forestry, water resources, energy, public health, urbanization, infrastructure, and disaster management.

Research indicates that climate change exacerbates health risks through vector-borne diseases and other conditions linked to extreme weather events. The working population faces daily exposure to adverse climatic conditions that increase the risks of diseases and injuries. For instance, outdoor workers are particularly susceptible to vector-borne infections due to rising temperatures expanding vector habitats. Additionally, heat exposure can significantly reduce productivity in sectors such as agriculture and construction.

Air pollution further compounds these challenges by impacting public health through increased morbidity and mortality rates associated with respiratory and cardiovascular diseases. Particulate matter (PM), nitrogen oxides, sulfur dioxide, volatile organic compounds (VOCs), dioxins, and polycyclic aromatic hydrocarbons (PAHs) are significant pollutants contributing to various health issues.

As climate change intensifies existing workplace hazards while creating new ones, outdoor workers will face

increased exposure to extreme heat and infectious diseases. The ongoing climate crisis necessitates urgent action from global leaders to support vulnerable populations like those in Nepal through adequate financing and technical assistance for adaptation measures.

Statement of problem

Climate change is a global phenomenon that significantly impacts biodiversity and contributes to the reduction of emissions from deforestation and forest degradation in developing countries, particularly through initiatives like Reducing Emissions from Deforestation and Forest Degradation (REDD). The warming of global temperatures and changing climatic patterns have led to a loss of biodiversity, affecting various species, including animals, plants, insects, and pests. Among the most pressing issues arising from these changes is the impact on human health, particularly for health workers who often operate without adequate safety measures such as masks and gloves.

In Nepal, many laborers in agriculture and construction work without protective gear, exposing themselves to hazardous conditions. Health professionals frequently lack essential safety equipment, which increases their vulnerability to infectious diseases. The absence of proper safety protocols can lead to severe health consequences for both workers and the communities they serve.

The effects of climate change are evident in the increased frequency and intensity of extreme weather events, which exacerbate existing health risks. For example, rising temperatures can enhance the spread of vector-borne diseases, while air pollution contributes to respiratory and cardiovascular illnesses. As climate change continues to alter ecosystems and disrupt biodiversity, it poses significant challenges to public health, emphasizing the urgent need for comprehensive strategies to protect vulnerable populations and ensure safe working conditions. Addressing these challenges requires a multi-faceted approach that includes improving occupational safety standards and enhancing resilience against climate-related health risks.

Objective

To analyse the effects of climate change on health workers in Nepal, particularly focusing on their working conditions without adequate safety measures.

Literature Review

This interdisciplinary study builds upon existing research regarding the future challenges that occupational safety and health (OSH) will face in light of climate change. Although practical strategies for organizational adaptation to climate change have been infrequently proposed, future research should prioritize the exploration of adaptive approaches and the development of corresponding practices (Tappura, 2022). Climate change has the potential to increase the incidence of work-related diseases and injuries, necessitating improved detection and prevention mechanisms to safeguard occupational health. Employers, governments, and policymakers must implement a multifaceted approach to protect workers from the long-term health consequences of climate change. Additionally, workers should be informed about the actions being taken to mitigate these effects (BH, 2022).

Heat exposure is a significant concern for the workforce, with recent studies emphasizing that heat-related illnesses, such as heat stroke, account for only a small proportion of health impairments, illnesses, and injuries that occur during hot periods (Narocki, 2021). In Québec, the impacts of climate change on OSH are evident through various direct and indirect factors, including heatwaves, air pollution, ultraviolet radiation, extreme weather events, and the spread of communicable vector-borne and zoonotic diseases. Furthermore, several additional factors such as changes in agricultural and animal husbandry practices, the fishing industry, forest ecosystem disturbances, degradation of the built environment, and the emergence of "green" industries have been identified as potential threats to OSH in Québec (Adam-Poupard, 2013).

The changing climate, characterized by more frequent and intense extreme weather events, is challenging workers' physical resilience, especially through prolonged heatwaves and unusually high temperatures. Certain worker groups are particularly vulnerable to the adverse health effects of these conditions (Humphrys, 2020). Climate change may directly impact the workplace and workers' health, contributing to greater exposure to extreme weather conditions, temperature-related stress (such as heatstroke and hypothermia), and other health risks such as skin and eye diseases, water contamination, storm-related injuries, dehydration, and mental fatigue. Additionally, increased exposure to air pollution and airborne particles exacerbated by phenomena like wildfires or dust storms could lead to respiratory and cardiovascular issues. The effects of climate change could also alter disease patterns, with changes in vector-borne diseases (from insects and animals) and the spread of pathogens, moulds, and allergens leading to infectious diseases, dermatitis, allergies, and asthma (CCOHS CA, 2023).

Climate-related disasters, such as floods, exacerbate malnutrition and food insecurity in vulnerable populations, particularly children under five years old in low- and middle-income countries (LMICs) (Agabiirwe, 2022). In this context, climate change also affects building operations, with insufficient attention to climate adaptation measures in many developing countries (Athauda, 2023). Without adequate control measures, climate change may increase risks of injury, disease, and death among workers, particularly from heat stress, extreme weather events, hazardous chemical exposures, air pollution, and infectious diseases. Numerous health effects

have been linked to climate change, including cancer, cardiovascular diseases, respiratory conditions, and psychological impacts (ILO, 2024).

The International Labour Organization (ILO) has identified six key climate change impacts on OSH: excessive heat, solar ultraviolet radiation, extreme weather events, workplace air pollution, vector-borne diseases, and agrochemical exposure (ILO, 2024). The working population is inevitably exposed to climatic conditions based on their occupational settings, increasing the risk of diseases, injuries, accidents, and fatalities related to weather patterns such as heat, rain, and air pollution (Ferrari, 2022).

The adverse health impacts of climate change are far-reaching, encompassing heat-related disorders like heat stress, respiratory conditions worsened by air pollution, infectious diseases (including vector-borne and waterborne diseases), food insecurity, and mental health challenges such as post-traumatic stress disorder and depression following natural disasters. Reductions in fossil fuel combustion could provide substantial co-benefits, improving both public health and economic outcomes (Patz, 2023).

The Vulnerability and Impact Assessment (VIA) has shown that climate change will have significant effects across various sectors, including agriculture. In Nepal, for example, agriculture is a critical economic sector, employing two-thirds of the population and contributing approximately 27% of GDP. This sector is highly vulnerable to climate-induced hazards, such as rising temperatures and altered precipitation patterns, which affect crop and livestock production. Despite some adaptation efforts, farmers' capacity to adapt remains limited, and further initiatives are needed to assist farmers in coping with climate change (Government of Nepal, MoFE, 2021).

Climate change also affects the spread of vector-borne diseases, with malaria, kala-azar, and other diseases increasingly appearing in new geographic regions due to changes in climate patterns and vector distribution. These shifts make disease control more complex, as evidenced by the geographic spread of malaria and kala-azar in Nepal's Hill and Mountain districts over the past decade (Government of Nepal, MoHP, 2022).

In rural mountain areas of Nepal, households have reported increased temperatures, reduced winter rainfall, more frequent natural disasters, and the emergence of new insect species over the last two decades. These changes have been linked to decreased crop yields, reduced dairy production, and increased household work. Vulnerability to food insecurity is expected to worsen under future climate conditions (Poudel et al., 2017).

Flooding in the Karnali region of Nepal has also had significant impacts on child malnutrition. A study conducted by Mayanath Ghimire et al. (2023) found that children in flood-affected areas were more likely to suffer from malnutrition compared to those in unaffected areas. The annual flooding of the Karnali River, which can displace entire communities for extended periods, highlights the severe consequences of climate-induced disasters on food security and child health.

At Mangal Secondary School in Kirtipur, Kathmandu, the prevalence of wasting among students was noted, with 4.5% of children experiencing severe and moderate wasting, indicating the health impacts of local climate events (Ghimire, 2024). These findings underline the urgent need for targeted interventions to address both the immediate and long-term impacts of climate change on public health, particularly for vulnerable populations.

According to R. K. Timilsina et al. In conclusion, raising chickens in Nepal's Mid-Terai region has several advantages, such as increased income, job opportunities, and better nutrition. It does, however, also have significant limitations and drawbacks, including high production costs, problems with disease control, and volatile markets. Addressing these issues and guaranteeing the long-term survival of poultry businesses require strong enforcement and support structures. It is feasible to improve the sustainability and beneficial effects of poultry farming for Brahmin farmers and the larger society by taking into account the social effects and putting in place extensive support measures (Timilsina, R. K. et al., 2024).

According to Khadka, K. et al. The Boyar breed gives farmers significant financial rewards while giving a workable way to satisfy market demands. Therefore, adopting Boyar goat farming could be essential to developing Nepal's goat meat business and raising the standard of living for those working in it (Khadka, K. et al, 2024).

Research Methodology

This research employs a scientific review process, specifically using meta-synthesis, to investigate the effects of climate change on human residential areas. Climate change is a global issue with widespread implications, and the researcher predominantly applies deductive reasoning throughout the review process. The research strategy involved a comprehensive archival analysis, followed by an intensive review of relevant documents.

The approach in this review article includes a thorough examination and evaluation of both national and international sources, such as reports from the Intergovernmental Panel on Climate Change (IPCC), World Health Organization (WHO), national statistics, and annual publications from Nepal's Department of Health Services, in addition to other pertinent materials. This approach ensures a broad and systematic understanding of the subject, drawing on a diverse range of authoritative sources to address the issue of climate change and its impact on human habitation.

Result and Discussion

Climate change is a pressing global issue characterized by significant increases in temperature, rising sea levels, and extreme weather events. This comprehensive discussion highlights the key aspects of climate change, its effects on health and safety, particularly in Nepal, and potential adaptive measures.

Since the late 19th century, the Earth's average temperature has risen approximately 2.0 degrees Fahrenheit (1.1 degrees Celsius). This increase is largely attributed to carbon dioxide emissions from human activities, primarily fossil fuel combustion

Each of the last three decades has been successively warmer than any preceding decade since 1850, with most warming occurring in the past 35 years; notably, 16 of the 17 warmest years on record have occurred since 2001

The year 2016 holds the record as the warmest year recorded to date

The trend of rising temperatures correlates with various environmental changes:

Sea Level Rise: Global sea levels have risen about 8 inches in the last century due to thermal expansion and melting ice sheets.

- *Warming Oceans:* Ocean temperatures have also increased, contributing to coral bleaching and altered marine ecosystems.
- *Shrinking Ice Sheets:* Glacial retreat is accelerating, particularly in polar regions.
- *Decreased Snow Cover:* Snow cover is diminishing in many regions, affecting water supply and ecosystems.
- *Ocean Acidification:* Increased CO₂ levels are leading to higher acidity in oceans, impacting marine life.

Health and Safety Concerns in Nepal

In Nepal, climate change exacerbates existing vulnerabilities among health workers and laborers. Many health personnel operate without essential protective equipment such as gloves and masks. Construction workers often lack proper safety gear including caps and boots, while farmers apply pesticides without adequate safety measures.

These conditions expose them to various health risks. The working population faces daily exposure to adverse climatic conditions—such as extreme heat, rain, and air pollution—which heightens the risk of diseases, injuries, accidents, and even fatalities during labor. The effects of climate change can disrupt organizational operations, leading to increased stress among workers and potential job insecurity.

Health Risks Associated with Climate Change

Climate change significantly impacts public health in Nepal through:

- **Vector-borne Diseases:** Changes in climate patterns can expand the range of diseases like malaria.
- **Diarrheal Diseases:** Increased rainfall and flooding can lead to outbreaks of waterborne diseases such as cholera.
- **Malnutrition:** Food security is threatened by changing agricultural conditions.
- **Cardiorespiratory Diseases:** Air pollution exacerbated by climate change contributes to respiratory issues.
- **Psychological Stress:** The mental health impacts of climate-related disasters are profound. According to projections, between 2030 and 2050, an estimated 250,000 additional deaths per year may occur due to malnutrition, malaria, diarrheal diseases, and heat stress linked to climate change.

Adaptive Measures and Policy Recommendations

To mitigate the effects of climate change on agriculture and food security in mountainous regions like Nepal, various adaptive strategies are recommended:

- **High-Yielding Crop Varieties:** Utilizing genetically improved crops can enhance food production under changing climatic conditions.
- **Enhanced Irrigation Systems:** Improving water management can help sustain agricultural productivity.
- **Fertilizers:** Appropriate use of fertilizers can boost crop yields but must be managed to prevent environmental degradation.

Policy Instruments for Food Security

Effective policy instruments are crucial for enhancing food security amidst climate change. These may include:

- Investment in sustainable agricultural practices.
- Development of infrastructure that supports resilience against climate impacts.
- Education programs for farmers on safe pesticide use and sustainable practices.

The impacts of climate change are profound and multifaceted. In Nepal, where health infrastructure is weak, the challenges posed by rising temperatures and extreme weather events are particularly acute. Addressing these issues requires a concerted effort involving adaptive measures in agriculture, enhanced health safety protocols for workers, and robust policy frameworks aimed at mitigating the adverse effects of climate change on vulnerable populations.

Conclusion

The evidence of climate change is unequivocal, with global temperatures having risen approximately 2.0 degrees Fahrenheit (1.1 degrees Celsius) since the late 19th century, primarily due to increased carbon dioxide emissions from human activities. The past 35 years have seen a trend where 16 of the 17 warmest years on record occurred since 2001, with 2016 being identified as the warmest year in history. This alarming increase in temperature is accompanied by various adverse effects on both the environment and human health. In Nepal, the situation is particularly concerning as health workers and other laborers often operate without essential safety equipment, exposing themselves to significant health risks. The lack of protective measures not only jeopardizes individual health but also diminishes overall working efficiency. It is imperative that employers provide minimum safety materials at every workplace to ensure the well-being of their employees and foster a healthier work environment. The initial impacts of climate change are evident among health workers who serve as first responders in disaster scenarios, where they provide critical medical assistance and support to vulnerable populations. However, these workers frequently neglect their own safety in emergency situations, highlighting a critical gap in occupational health and safety policies. Climate change manifests in various forms, including the disappearance of numerous species, melting ice leading to rising sea levels, decreased food supply, and an increase in tropical diseases such as dengue and malaria. These changes necessitate the integration of occupational safety and health into climate change policies and actions to create safer working environments. Extreme weather conditions pose additional threats to worker safety. Exposure to extreme temperatures can result in heat stress or cold-related injuries, while intensified sunlight increases the risk of skin and eye diseases. Moreover, contaminated water sources and severe storm conditions exacerbate these risks, leading to greater exposure to air pollution and associated health complications.

In conclusion, addressing climate change requires a multifaceted approach that includes enhancing occupational safety standards across various sectors. By implementing effective safety measures and integrating health considerations into climate policies, we can protect workers' health while simultaneously addressing the broader challenges posed by climate change. This proactive approach is essential for safeguarding human life and promoting a sustainable future amidst ongoing environmental changes.

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Capital Structure and Profitability of Public and Government Banks in Nepal

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Abstract

The study will examine how capital structure influences Nepalese public and government bank profitability. The study's statistical analysis utilizes secondary data. Descriptive and casual comparative analysis utilizing bank website data and correlations and multiple regression models for hypothesis testing was done using software. The study sampled 6 public banks and 2 governments from the population. The capital structure and profitability were examined as a cause-and-effect connection utilizing informal comparative study. This study uses NIM as a dependent variable and leverage ratio, bank size, liquidity ratio, and capital ratio as independent variables. Mean, standard deviation, correlation, multiple regression model, and hypothesis testing are statistical methods. Excel and SPSS assess such variables. Leverage Ratio boosts Public Bank NIM but not significantly. Bank Size negatively affects NIM somewhat. NIM and Liquidity Ratio are positively correlated. Public bank NIM is little affected by capital ratio. Leverage Ratio and bank size negatively affect Nepal's government banks' NIM. NIM positively and insignificantly impacts Liquidity Ratio. Capital ratio positively affects government bank NIM. Banks should recognise other variables' importance.

Keywords

Leverage ratio, bank size, liquidity ratio and capital ratio.

Introduction

Capital structure is a word that is frequently used in financial research. The Pecking Order Theory, NOI Approach, MM Approach, and Trade-off Theory are among the capital structure theories that we cover. Other company-specific criteria, such as profitability, will also be considered. Financial leverage is related to a number of capital structure characteristics, as our research showed. Several potential future trends have also been investigated based on our findings (Gupta & Khanna, 2022). An explanation for why capital structure and company performance are inversely related is the central question of this research. Accounting metrics for company success are the center of this first-of-its-kind investigation into the moderating influence of firm size on these aspects. As a result of the possibility for fluctuation (IQBAL, 2022). Previous research focused on evaluating the impact of capital structure alone on bank profitability, but we take note of multiple studies that looked at low-income emerging nations like Ethiopia to investigate the relationship between capital structure and bank profitability. While multiple studies examined the effect of non-interest revenue on profitability, our research primarily examined capital structure. The year 2021 was mentioned by Ayalew. Once again, we review previous studies that focused on emerging nations in Asia, such as Bangladesh (Rana-Al-Mosharraf & Islam, 2021). Nevertheless, there is a lack of study regarding the interplay between capital structure, operational efficiency, and non-interest revenue as it pertains to the profitability of the banking business (Hossain & Ahamed, 2021). The relative importance of local and foreign capital is a key component of capital structure. Foreign capital includes both short-term and long-term debt in this context. Despite using retained earnings and ownership interests as the company's own finances, the goal is to raise the market value of the business (Brigham & Eharhrdt, 2011). An essential part of any organization is its capital. Funds are essential for every organization to run. Without capital, it is impossible to launch any kind of business, from mom-and-pop shops to multinational conglomerates. It is the financial contributions of promoters, owners, or shareholders that allow every given organization to begin with a balance of zero. There need to be sufficient funds for any group to function. The majority of people's wealth comes from banks, yet those same banks also have to generate new money to keep their doors open. A bank's responsibility to the public makes its depositor capital very important. As a result, depositors' money is best protected when banks have enough capital (Patheja, 1994). The general public deposits a large quantity of money with commercial banks. Knowing that their money is securely held at a bank provides depositors with a sense of comfort and security. What would happen, though, if the bank didn't have enough capital on hand to protect itself from potential losses? Banks need sufficient capital to safeguard their counterparties' and depositors' money from issues like credit and market risk. If this weren't the case, depositors would lose money because banks would spend all of their money on themselves. The Nepal Rastra Bank (NRB), which oversees the country's banking system, has mandated that all B and C class institutions use DCGC to protect depositors' funds up to two lakhs (Paudel, 2009). Both the bank's management and its shareholders place a premium on a healthy capital structure and healthy profitability.

“Nepalese commercial banks' capital structure and performance have been the subject of scant academic investigation. Nepalese Commercial Bank are generally not aware about the capital structure and profitability. So that, the following issue was raised by this research:

- RQ1: What is the impact of Leverage ratio on NIM (Public and Govt. banks)? RQ2: What is the impact of bank size on NIM (Public and Govt. banks)?
- RQ3: Is there any impact of impact of liquidity ratio on NIM (Public Govt. banks)? RQ4: Is there any impact of impact of capital ratio on NIM (Public Govt. banks)?

Review of Literature

Capital structure and bank profitability: evidence from Vietnam by Pham, Hoang, and Pham (2022). Clear and convincing This study analyzes the impact of capital structure on the profitability of Vietnamese commercial banks. This study analyzes the correlation between capital structure and profitability utilizing an unbalanced panel data set of Vietnamese commercial banks from 2012 to 2018, a pivotal era for the execution of the Prime Minister's directive (254/QD-TTg) to reform the banking industry. The authors utilize client deposits and non-deposit liabilities to illustrate the capital structures of Vietnamese commercial banks. A study of 30 Vietnamese commercial banks indicated that customer deposits adversely impact bank profitability, but non-deposit liabilities had a beneficial effect. The research indicates that Vietnamese commercial banks ought to assess assets and loans with greater rigor and impartiality prior to extending credit. To guarantee the quality of bank assets, investment projects and long-term loans require comprehensive analysis. This study investigates the influence of capital structure on the profitability of Vietnamese commercial banks, addressing a gap in the existing literature. Sahibzada (2022) analyzed the impact of capital structure on the profitability of Afghan commercial banks. This research investigates the impact of capital structure on the profitability of Afghan commercial banks. We utilized quantitative methodologies to achieve the objective. The panel data was derived from the audited financial statements of nine commercial banks for the years 2013 to 2017. The linear regression model was employed to analyze panel data in SPSS 22.0. This analysis indicates that the capital of Afghan commercial banks is derived from deposits. This indicates that these banks are considerably in debt. This research indicates a statistically insignificant positive correlation between the debt-to-total-assets ratio and net interest margin. Nonetheless, the loan-to-deposit and deposit-to-asset ratios significantly influence commercial banks' net interest margins, whereas asset size and growth were judiciously selected throughout the formulation of the financing structure. Ultimately, increasing bank size, reducing loans and non-deposit liabilities, enhancing equity financing, and effectively mobilizing deposits can enhance profitability and value. Ayalew (2021) Analyzed the capital structure and profitability of Ethiopian private banks utilizing panel data. The study employed panel fixed effects to analyze the empirical relationship between capital structure, measured by total and short-term debt ratios, and the profitability of private banks in Ethiopia from 2013/14 to 2018/19. The study examines 16 private banks. Regression analysis indicates that capital structure determinants and various bank-specific characteristics significantly account for the variability in bank profitability. Return on assets, net interest margin, total and short-term debt ratios, loan-to-deposit ratios, and credit risks generally escalate with profitability. Established banks exhibit more profitability than their younger counterparts. The size negatively impacts the ROA model, suggesting that Ethiopian private banks are underachieving. The coefficient estimates for the cos-income ratio and employee productivity were inconsistent. Otekunrin et al. (2020) examined the capital structure and profitability of Nigerian deposit money institutions. The profitability of eight Nigerian Deposit Money Banks was analyzed from 2003 to 2018 (16 years) to assess the impact of capital structure on profitability. This work included a descriptive research methodology and regression analysis. The study utilized secondary data from the annual reports of selected Nigerian Deposit Money Banks for the years 2003 to 2018. The research identified an inverse relationship between capital structure (debt-to-equity ratio and leverage ratio) and profitability (returns on equity). The debt-equity ratio and leverage ratio can substantially affect profitability if mismanaged. The trade-off theory and agency theory recommend determining the optimal capital structure (a combination of debt and equity) to enhance profitability, corporate and shareholder value, and agency costs. An alternative is to utilize retained earnings (internal financing). Zaman, Ullah, and Ali (2020) investigated the relationship between capital structure and profitability from a dual banking perspective. The capital structure and profitability of Islamic and conventional banks listed on the Karachi Stock Exchange were analyzed using 250 financial statements from 2006 to 2016. The study examines the correlation using regression analysis. A significant correlation was seen between the D/E ratio and ROA in conventional banks; however no such correlation was found in Islamic banks. The conventional banking system categorizes all deposits as liabilities, but Islamic banks exclusively regard current accounts as debts, elucidating the results. Deposits in Islamic banks based on Modaraba are classified as equity. This book conceptually enhances the literature on Islamic finance in Pakistan. The research suggests that Islamic banks can increase savings deposits due to their risk-free and equity-like nature. Bhatt and Jain (2020) analyzed the capital structure and performance of Nepalese commercial banks. The financial growth of a country relies on an operational banking industry. The Islamic banking sector in Pakistan has experienced significant growth in recent years. Nonetheless, it is beset with financial stability challenges. This study analyzes the impact of working capital and financial structure on the profitability of Pakistani banks. The research utilized GLS estimate technique on five Islamic banks from 2006 to 2014 and fifteen conventional banks from 2008 to 2014. The dependent variables include ROA, ROE, and NI, whereas the independent variables consist of working capital and the proportion of bank credit. Control variables

encompass bank size, deposit ratio, GDP, and CPI to mitigate heterogeneity and collinearity. The research demonstrated that both Islamic and conventional banks experience a decline in profitability when working capital increases. Financial leverage statistically enhances the profitability of Islamic banks, but it has the opposite effect on conventional banks. Noreen (2019). An analysis of the capital structure and profitability of Islamic and conventional banks in Pakistan. This study examines the impact of capital structure on the profitability of Islamic and conventional banks and investigates if their capital structures are same. A sample of ten banks was collected from 2006 to 2016. Samples autonomously a t-test was employed to compare the capital structures of Islamic and conventional banks, while regression analysis (Fixed effects model) was performed to assess the impact of capital structure on profitability. The two types of banks had similar capital structures, with the exception of significant disparities in size. The capital structures of both conventional and Islamic banks were negatively correlated with ROA. ROE shown a robust correlation with the capital structures of both conventional and Islamic banks. Furthermore, two explanatory factors had a positive correlation with EPS for both Islamic and conventional banks, while two others demonstrated a negative correlation. This study examines economies of scale and two principal capital structure theories pecking order and trade-off pertaining to conventional and Islamic banks in Pakistan. Musah (2018) Investigated the profitability and capital structure of Ghanaian commercial banks. The capital structure (short-term debt ratio, long-term debt ratio, and total debt ratio) and profitability (Return on Assets and Return on Equity) of Ghanaian commercial banks were assessed. A six-year examination of 23 banks from 2010 to 2015 utilized annual reports. The analysis included descriptive statistics, correlation, and panel regression techniques. Notwithstanding the augmentation of minimum equity capital, Ghanaian banks exhibit significant leverage, with debt financing constituting 84% of total capital, of which 77% is comprised of short-term loans. The regression analysis indicated that the profitability of Ghanaian banks is negatively connected with both short-term and long-term debt ratios. The profitability of Ghanaian banks had a positive correlation with the aggregate debt ratio. The control variables indicated a positive correlation between firm size, foreign ownership, and bank age with profitability, whereas client deposit growth had a negative association. The findings indicate that Ghanaian commercial banks have to shift their funding emphasis from deposits to alternative sources, as deposits hinder profitability. The findings indicate that businesses should utilize an appropriate mix of short-term and long-term debt to enhance bank profitability.

Objectives

The study's major goal is to determine the causes and effects of capital structure on the profitability of those banks from 2069–2070 to 2078–2079 in terms of financial performance by selecting six public and two government as a sample bank. The objectives are listed as follows:

- To examine the impact of leverage ratio on Net Interest Margin (Public and Government Banks).
- To analyze the impact of bank size on Net Interest Margin. (Public and Government Banks).
- To assess the impact of liquidity ratio on Net Interest Margin (Public and Government Banks).
- To examine the impact of capital ratio on Net Interest Margin (Public and Government Banks).

Hypothesis Formulation

According to the hypothesis, the amount of debt financing decreases as a company becomes more successful (Frank & Goyal, 2003). The hypothesis is not supported by any actual data. But these hypotheses have stimulated a number of academics to examine the impact of capital structure on bank profitability, and subsequently, a study has shown that debt ratio has a negative impact on profit margin in the Ethiopian banking sector (Birru, 2016). However, Demirguç-Kunt and Huizinga (1999) found a statistically significant positive correlation between the capital structure and profitability, indicating that well capitalized banks tend to have lower default rates and can reduce expenses while increasing profitability. The results are in line with (Adesina et al., 2015; Anafo et al., 2015). Consequently, we can speculate that:

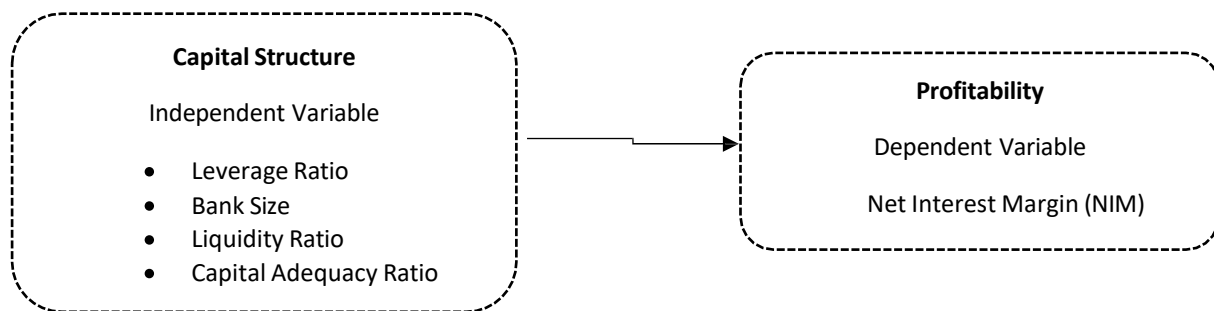
- H1: There is a significant impact of Leverage ratio on Net Interest Margin (Public and Government Banks).
- H2: There is a significant impact of Bank Size on Net Interest Margin (Public and Government Banks).
- H3: There is a significant impact of Liquidity ratio on Net Interest Margin (Public and Government Banks).
- H4: There is a significant impact of Capital adequacy ratio on Net Interest Margin (Public and Government Banks).

Theoretical Framework

The theoretical framework underpins a research study's theory. This means it explains the research study's hypothesis and the research challenge's origins. This section develops research theories and motivations. A research study theory will be chosen together with the theme and supporting materials. This section will focus on the

research study's dependent and independent elements. Many independent elements affect the bank's profitability. However, investors' investing preferences will determine this. While short-term investors focus on technical and economic issues, long-term investors. Some of these factors are given here since economic challenges account for most of this study's variables. The following graphic shows these variables' theoretical context.

Figure 1: Conceptual Framework



(Source: Mehzabin, Shahriar, Hoque, Wanke, & Azad, 2022).

NIM is the dependent variable because the research study is based on data from the financial report. Furthermore, NIM is directly impacted by other variables. Because they are unaffected by other variables, the leverage ratio, bank size, liquidity ratio, capital ratio (CAP) will also be considered independent variables of the public banks and government banks.

Research Methodology

Research methodology is a systematic way of approaching the research question. Stated in distinct ways, research methodology encompasses the methods and approaches employed during the entirety of the study. The phrase "research methodology" describes the several steps a researcher must follow in order to analyze a topic with particular objectives in mind, as well as the rationale behind each action (Kothari, 1994:9). "Under the (Gebayel et al., 2018; Mercier Suissa et al., 2018; Salloum et al., 2019; Salloum et al., 2015), This study's estimated model is reliable and consistent. Additionally, panel data estimations incorporate bank specific and panel-specific variables that involve in random aspects and account for persistent variability over time, resulting in an effective conclusion. Additionally, this econometric approach allows the assessment of dynamic impacts, which are usually difficult to establish by implementing cross-sectional or time series investigations (Athanasoglou et al., 2008). Research methodology refers to the entire process by which we attempt to resolve problems or provide answers to inquiries. It is based on a number of theories, notions, and procedures. It's a technique for approaching the study problem methodically. It is the process of identifying a problem's solution by the purposeful and methodical collection, assessment, and interpretation of data. It includes several kinds of research designs, population and sample, data sources, methods for gathering and processing data, and tools and approaches for analyzing data (software to be used in the research, statistical and financial instruments)." Various dependent and independent variables are also included (Arellano & Bover, 1995). The process used to collect information and data to ensure that business decisions can be made. The methodology may include published research, interviews, surveys, and other research techniques in along with current and historical data. Research technique refers to the several steps that researchers perform sequentially while analyzing a topic with certain objectives in mind. In order to prepare this thesis, a variety of data from the NRB provided balance sheet, profit and loss account, and financial statement of the Commercial Bank has been separated out, along with information from the annual report of Banking from a few books and publications. After the relevant data has been sorted, financial and statistical methods have been used to study and interpret the different financial components of Commercial banks. Basically, how the report has been put together.

Research Design

The term "research design" refers to the framework and plan that a researcher prepares in order to conduct their study from start to finish. The causes and effects of the capital structures and profitability of six public banks and two government are examined using a casual comparative research design. The comparative research approach has been utilized in this context due to its focus on historical occurrences. It is a process for obtaining, evaluating, verifying, and interpreting previous evidence in an orderly and objective manner with the goal of reaching a conclusion. The management of capital structures in commercial banks also takes historical data into reference. For this specific examination, a descriptive and analytical research approach has been employed. This helps in gathering sufficient facts and information in accordance with needs.

Population and Sample

The 22 commercial banks that are now in operation across the country make up the study's population. Out of 12 public banks and 3 government banks, 6 public banks and 2 government are focused of the study's sample. In a casual comparison analysis, the researcher studied into the capital structure and profitability of Nepal's commercial banks. Only six public and two government banks have decided to use purposive sampling to provide a sample for a casual comparative study. In this manner:

Table 1 List of Sampled Banks with no. of Observations.

S.N.	Name of commercial	Abbreviations	Sample Period	No. of Observations
1	Agriculture Development Bank	ADBL	2069/70-2078/79	10
2	Nepal Bank Limited	NBL	2069/70-2078/79	10
3	NIC Asia Bank Limited	NICA	2069/70-2078/79	10
4	Siddhartha Bank Limited	SBL	2069/70-2078/79	10
5	Global IME Bank Limited	GBIME	2069/70-2078/79	10
6	Civil Bank Limited	CBL	2069/70-2078/79	10
7	Kumari Bank Limited	KBL	2069/70-2078/79	10
8	Laxmi Bank Limited	LBL	2069/70-2078/79	10

The researcher has chosen ADBL, NBL, NICA, SBL, GBIME, CBL, KBL and LBL Bank. Due to the fact that several commercial banks have been founded.

Table 2 Variable Review

Variables	Measures	References
Leverage Ratio	Computed by the ratio of total debt to total assets.	Ayalew (2021), Mkadmi et al. (2021)
Bank Size	Bank size, computed by the natural logarithm of total assets ln (TA)	Adusei (2015), Ali and Puah (2019)
Liquidity Ratio	Computed by the ratio of Current Assets to Current Liabilities.	
CAP	Capital ratio, computed by the ratio of total equity to total assets.	Rana-Al-Mosharrafa and Islam (2021),
NIM	Measure of net interest margin, Computed by ratio of investment Return minus interest expenses to Average earning assets.	Shrieves and Dahl (1992)

All independent variable and a dependent variable can be assessed with the diverse data analysis method known as multiple regression. Cohen et al. state that nonlinear relationships, quantitative or qualitative independent variables, and the influence of one or more factors with or without the influence of other variables are all acknowledged on this study. Regression analysis is a statistical technique for examining relationships between variables. There are various methods for modeling and assessing multiple variables, with the relationship between the dependent variable and one or more independent variables usually the main focus.

Profitability= f (LR, BS, CRR, CAP)

Model I will tire to find out the effect of variable with Net Interest Margin. The model is given below:

$$NIM = \beta_0 + \beta_1 LR + \beta_2 BS + \beta_3 CRR + \beta_4 CAP + \epsilon_i \dots \dots \dots (i)$$

Whereas,

β_0 = Constant term

NIM = Net Interest Margin LR =

Leverage Ratio

BS = Bank Size

CRR = Liquidity Ratio CAP =
Capital Ratio

$\beta_1, \beta_2, \beta_3, \beta_4$ = regression coefficient

ϵ_i = error terms

Data Analysis

The presentation of the data provides the basic framework for classifying and organizing the data for the analysis. After data collection is complete, the data will be in raw form. The data will still be kept in early estimations, data collection forms, and note cards. Data analysis includes data organizing, tabulation, statistical analysis, and drawing conclusions. "This chapter's topics are the data collection, analysis, and presentation. NEPSE has classified the listed companies into various sectors, and samples were obtained according to these sectors. The chapter's study is divided into the sections that follow, each of that deals with the capital structure in a different way. This chapter's main objectives are data analysis and presentation. This study has attempted to analyze the collected data through a range of graphical displays in addition to financial and statistical methods. The comparative profit and loss statements are included for the years 2069–2070 and 2078–2079 as well as the comparative balance sheet.

Table 3 Descriptive statistic of Public Banks

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Leverage Ratio	60	4.27	15.56	9.2522	2.17277
Bank Size	60	23.63	26.61	25.1904	.76678
Liquidity Ratio	60	3.23%	35.14%	14.3240%	9.98245%
Capital Ratio	60	6.04%	18.97%	10.2133%	2.35149%
Net Interest Margin	60	2.37%	3.96%	3.1363%	0.37669%
Valid N (listwise)	60	-	-	-	-

Source: Calculation using SPSS version 26 under Appendix I

Table 3 shows the leverage ratio from minimum of 4.27 to maximum 15.56 leading to average of 9.25. The bank size presented by total assets of the public banks during the study period has 25.19 with the minimum of 23.63 and a maximum of 26.61. Likewise, the liquidity ratio has a minimum value of 3.23 percent and a maximum of 35.14 percent with mean 14.32 percent. The average capital ratio of the selected public banks during the study period is 10.21 percent with a minimum value of 6.04 percent and a maximum 18.97 percent. And, the NIM has a minimum value of 2.37 percent and a maximum of 3.96 percent with a mean 3.13 percent. Therefore, the maximum mean and minimum mean statistic of the sampled public banks are Bank Size from minimum of 23.63 to maximum 26.61 leading to average of 25.19 and net interest margin has a minimum and maximum mean statistic of the sampled banks is 2.37 percent and 3.96 percent with mean 3.13 percent.

Table 4 Descriptive Statistics of Government Banks

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Leverage Ratio	20	4.12	14.41	6.2387	2.38640
Bank Size	20	24.98	26.28	25.6125	.40780
Liquidity Ratio	20	4.06%	36.21%	20.8685%	10.55431%
Capital Ratio	20	6.49%	19.54%	14.8160%	3.39973%
Net Interest Margin	20	2.86%	6.31%	4.5355%	1.10380%
Valid N (listwise)	20	-	-	-	-

Source: Calculation using SPSS version 26 under Appendix I

Table 4 shows the leverage ratio from minimum of 4.12 to maximum 14.41 leading to average of 6.24. The bank size presented by total assets of the government banks during the study period has 25.61 with the minimum of 24.98 and a maximum of 26.28. Likewise, the liquidity ratio has a minimum value of 4.06 percent and a maximum of 36.21 percent with mean 20.87 percent. The average capital ratio of the selected government banks

during the study period is 14.81 percent with a minimum value of 6.49 percent and a maximum 19.54 percent. And, the NIM has a minimum value of 2.86 percent and a maximum of 6.31 percent with a mean 4.54 percent. Therefore, the maximum mean and minimum mean statistic of the sampled government banks are Bank Size from minimum of 24.98 to maximum 26.28 leading to average of 25.61 and net interest margin has a minimum and maximum mean statistic of the sampled banks is 2.86 percent and 6.31 percent with mean 4.54 percent.

Table 5 Correlation of public banks

Correlations						
	Leverage Ratio		Bank Size	Liquidity Ratio	Capital Ratio	Net Interest Margin
Leverage Ratio	Pearson Correlation	1	.265*	.336**	-.937**	.104
Bank Size	Pearson Correlation		1	.061	-.234	-.093
Liquidity Ratio	Pearson Correlation			1	-.342**	.402**
Capital Adequacy Ratio	Pearson Correlation				1	-.043
Net Interest Margin	Pearson Correlation					1
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Calculation using SPSS version 26 under Appendix I

The Pearson Correlation Coefficient between the independent variable Leverage Ratio and dependent variable Net Interest Margin are .104. Which implies that there is a positive correlation of leverage ratio with NIM of the public banks. It indicates that large NIM results in higher the leverage ratio. This can be concluded that NIM has positively correlated with LE at 1 percent significant level i.e. ($r = .104$, $p=0.00<0.01$) of the public banks. The Pearson Correlation Coefficient between the independent variable Bank Size and dependent variable NIM are -.093. Which implies that there is a negative correlation with NIM of the public banks. It indicates that large NIM results in lower the bank size. This can be concluded that NIM is negatively correlated with BS at 1 percent significant level i.e. ($r = -.093$, $p=0.00>0.01$). The Pearson Correlation Coefficient between the independent variable Liquidity Ratio and dependent variable NIM are .402. Which implies that there is a positive correlation of liquidity ratio with NIM of the public banks. It indicates that large NIM results in higher the liquidity ratio. This can be concluded that NIM has positively correlated with liquidity ratio at 1 percent significant level i.e. ($r = .402$, $p=0.00<0.01$). The Pearson Correlation Coefficient between the independent variable Capital Ratio and dependent variable are -.043. Which implies that there is a negative correlation with NIM of the public banks. It indicates that large NIM results in lower the Capital ratio. This can be concluded that NIM has negatively correlated with CAP at 1 percent significant level i.e. ($r = -.043$, $p=0.00>0.01$) of the public banks.

Table 6 Correlation of Government Banks

	Leverage Ratio		Bank Size	Liquidity R	Capital Ratio	Net Interest Margin
Leverage Ratio	Pearson Correlation	1	-.263	-.230	-.940**	-.170
Bank Size	Pearson Correlation		1	-.106	.205	-.595*
Liquidity Ratio	Pearson Correlation			1	.302	.453*
Capital Adequacy Ratio	Pearson Correlation				1	.349
Net Interest Margin	Pearson Correlation					1

Source: Calculation using SPSS version 26 under Appendix I

The Pearson Correlation Coefficient between the independent variable Leverage Ratio and dependent variable NIM are -.170. Which implies that there is a negative correlation of leverage ratio with NIM of the government banks. NIM results in lower the leverage ratio. This can be concluded that NIM is negatively correlated with LE at 1 percent significant level i.e. ($r = -.170$, $p=0.00>0.01$). The Pearson Correlation Coefficient between the independent variable Bank Size and dependent variable is -.595. Which implies that there is a negative correlation with NIM of the government banks. It indicates that large NIM results in lower Bank Size. This can be concluded that NIM is negatively correlated with Bank Size at 1 percent significant level i.e. ($r = -.595$, $p=0.00>0.01$). The

Pearson Correlation Coefficient between the independent variable Liquidity Ratio and dependent variable NIM is .453. Which implies that there is a positive correlation with NIM of the government banks. It indicates that large NIM results in higher liquidity ratio. This can be concluded that NIM is positively correlated with liquidity ratio at 1 percent significant level i.e. ($r = .453, p=0.00<0.01$).” The Pearson Correlation Coefficient between the independent variable Capital Ratio and dependent variable NIM is .349. Which implies that there is a positive correlation of Capital Ratio with NIM. It indicates that large NIM results in higher the Capital ratio. This can be concluded that NIM is positively correlated with CAP at 1 percent significant level i.e. $r = .349, p=0.00<0.01$ of the government bank.

Regression Analysis

The multivariate statistics statistical principle, on which regression is based, calls for the simultaneous observation and examination of several statistical outcome variables. The method is applied in the design and analysis of trade studies in several dimensions, accounting for the impacts of each variable on the important responses. In statistics, the coefficient of determination, or R^2 , is used to describe statistical models whose main objective is the prediction of future outcomes based on other relevant data. The degree to which a regression line fits a set of data is indicated by its R^2 value, which ordinarily varies from 0 to 1. If the R^2 is close to 1, then a regression line fits the data well; if the R^2 is close to 0, then the regression line does not fit the data well. Adjusted R^2 is used to take into consideration the addition of new variables to the model. Adding extra independent variables expands the regression model. Unadjusted R^2 will never go down, but it will nearly always climb. This will occur even if the extra components don't have a significant impact on the dependent variable's explanation. To compensate for this, adjusted R^2 is connected with the number of independent variables in the model. The result is an adjusted R^2 , which varies based on whether the introduction of a new variable increases or decreases the model's ability to explain phenomena. Corrected R^2 is always going to be less than unadjusted. The results of the analysis are presented in an ANOVA table. The column declares in this table are "Source," "SS or Sum of Squares," "df" for degrees of freedom, "MS" for mean square, "F" for ratio of F, and "P, Probe, Probability, sig, or sig. of F." The t-test allows us to determine if a difference between two groups is "significant". A statistical technique called analysis of variance (ANOVA) is used to identify meaningful differences between means. "1%," "5%," and "10%" are frequently used to indicate significant quantities.

Table 7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661 ^a	.413	.355	.003461

a. Predictors: (Constant), Capital Ratio, Bank Size, Liquidity Ratio, Leverage Ratio

Source: Calculation using SPSS version 26 under Appendix I

R represents the multiple correlation coefficient with a range lies between -1 and +1. Base on table 7 the R value has remained 0.661 of the public banks. It means net interest margin had a positive relationship with leverage ratio, bank size, liquidity ratio and capital ratio. R square represents the coefficient of determination and ranges between 0 and 1. Since R square value was .413, it means 41.3% of the variation in net interest margin was caused by leverage ratio, bank size, liquidity ratio and capital ratio of the public banks.

Table 8 Anova Test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.000	4	.000	3.715	.010 ^b
	Residual	.001	55	.000		
	Total	.001	60			

a. Dependent Variable: Net Interest Margin

b. Predictors: (Constant), Capital Ratio, Bank Size, Liquidity Ratio, Leverage Ratio

Source: Calculation using SPSS version 26 under Appendix I

The dependent variable net interest margin was regressed on predicting variable of leverage ratio, bank size, liquidity ratio and capital ratio. The independent variables significantly predict net interest margin $F(4, 55) = 3.715$, $P<0.01$, which indicates that the four factors under study have a significant impact on net interest margin of public banks.

Table 9 Multiple Regression Analysis (Public Bank, NIM)

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.

1	(Constant)	.027	.018		1.508	.137
	Leverage Ra-tio	.001	.001	.514	1.483	.091
	Bank Size	-.001	.001	-.126	-1.013	.076
	Liquidity Ra-Tio	.016	.005	.427	3.347	.001
	Capital Adequacy Ratio	.089	.055	.555	1.612	.053
a. Dependent Variable: Net Interest Margin						

Source: Calculation using SPSS version 26 under Appendix I

Table 9 shows that liquidity ratio has positive relation with the dependent variable of the public bank. It indicates statistically significant, because the p value for this variable is lower than 0.05. This indicates that when the liquidity ratio of the public banks increase, it 's results to increase the net interest margin of the banks. Leverage Ratio, Bank Size and Capital Ratio has negative relation with the dependent variable. It indicates statistically insignificant because the p value for this variable is higher than 0.05. This indicates that when the leverage ratio, bank size and capital ratio of the public banks increase, which results to decrease the net interest margin of the banks.

Table 10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856 ^a	.734	.662	.0064131

a. Predictors: (Constant), Capital Ratio, Bank Size, Liquidity Ratio, Leverage Ratio

Source: Calculation using SPSS version 26 under Appendix I

R-square represents the multiple correlation coefficient with a range lies between -1 and +1. Base on table 10 the R value has remained 0.856, it means net interest margin had a positive relationship with leverage ratio, bank size, liquidity ratio and capital ratio. R square represents the coefficient of determination and ranges between 0 and 1. Since R square value was 0.734, it means 73.4% of the variation in net interest margin has caused by leverage ratio, bank size, liquidity ratio and capital ratio of the government banks.

Table 11 Anova Test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.002	4	.000	10.321	.000 ^b
	Residual	.001	15	.000		
	Total	.002	20			

a. Dependent Variable: Net Interest Margin

b. Predictors: (Constant), Capital Ratio, Bank Size, Liquidity Ratio, Leverage Ratio

Source: Calculation using SPSS version 26 under Appendix I

The dependent variable net interest margin was regressed on predicting variable of leverage ratio, bank size, liquidity ratio and capital ratio. The independent variables significantly predict net interest margin. F (4, 15) = 10.321, P<0.01, which indicates that the four factors under study have a significant impact on net interest margin.

Table 12 Multiple Regression Analysis (Gov. Bank, NIM)

Table 12 Multiple Regression Analysis (Gov. Bank, NIM)

Coefficients						
	Unstandardized Coefficients			Standardized Coefficients		
Model	B	Std. Error		Beta	t	Sig.
1	(Constant)	.365	.106		3.426	.004
	Leverage Ratio	.004	.002	.896	2.219	.042
	Bank Size	-.016	.004	-.591	-4.194	.001
	Liquidity Ratio	.023	.015	.220	1.535	.091
	Capital Ratio	.405	.132	1.246	3.064	.008
a. Dependent Variable: Net Interest Margin						

Source: Calculation using SPSS version 26 under Appendix I

Table 12 shows that leverage ratio, bank size and capital ratio have positive relation with the dependent variable of the government bank. It indicates statistically significant, because the p value for this variable is lower than

0.05. This indicates that when the leverage ratio, bank size and capital ratio of the government banks increases, which results to increase the net interest margin of the banks. Liquidity Ratio has negative relation with the dependent variable. It indicates statistically insignificant because the p value for this variable is higher than 0.05.” This indicates that when the liquidity ratio of the government banks increase, its results to decrease the net interest margin of the banks.

Discussion

Leverage Ratio has remained insignificantly positive with NIM of public banks, which has remained similar with Leverage Ratio increasing the profitability of the bank (Mehzabin, Shahriar, Hoque, Wanke, & Azad, 2022). Additionally, the result reveals that the Leverage Ratio has remained similar with Leverage Ratio. There is no substantial negative link between the size of the bank and the net interest margin of public banks. As a result, this suggests that it is distinct from in some sense. The reason for this is that Mehzabin, Shahriar, Hoque, Wanke, and Azad (2022) explain that the size of the bank increases the profitability. Research that was quite similar to this one found that the Liquidity Ratio of public banks continued to have a substantial positive link with NIM. According to Berger (1995), Bourke (1989), and Hassan and Bashir (2003), it indicates that it creates comparable effects with lower expected bankruptcy costs, which decrease the cost of finance and risk exposures. This resulted in more money being available to support more revenue-generating enterprises, which ultimately led to an increase in profitability. The capital ratio continues to have a correlation with the net interest margin (NIM) of public banks that is insignificantly negative. It gives the impression that the effects are not comparable to those that Doku, Kpekpena, and Boateng (2019) encountered. Both the capital structure and the performance of businesses. Increasing the capital to asset ratio of a bank is good for riskier institutions in terms of decreasing expected bankruptcy costs and interest expenditures, according to Berger (1995), who found a positive and statistically significant correlation between the ratio of a bank's capital to its assets and the profitability of the bank. Furthermore, the findings indicate that the leverage ratio has maintained a substantial negative association with the net interest margin (NIM) of government banks. This link has remained distinct with the fact that the leverage ratio has been shown to boost the profitability of banks (Mehzabin, Shahriar, Hoque, Wanke, & Azad, 2022). The size of the bank has continued to have a considerable negative link with the net interest margin of government banks. As a result, this suggests that it is distinct from in some sense. The reason for this is that Mehzabin, Shahriar, Hoque, Wanke, and Azad (2022) explain that the size of the bank increases the profitability. In research that was quite comparable to this one, the Liquidity Ratio was found to have a strong positive link with the Net Interest Margin of government banks. This indicates that it results in a dissimilarity with According to Berger (1995), Bourke (1989), and Hassan and Bashir (2003), a decrease in the expected costs of bankruptcy makes it possible to lower the cost of finance and risk exposures, which in turn enables a bigger amount of money to support a higher number of revenue-generating enterprises, hence boosting profitability. It is still the case that the capital ratio maintains a considerable and positive relationship with the net interest margin of the government banks. Consequently, it suggests that the effects are comparable to those that Doku, Kpekpena, and Boateng (2019) encountered.

Conclusion

The purpose of this research is to investigate the extent to which the capital structure influences the profitability of the banking industry. The leverage ratio has maintained an insignificant positive link with the NIM of the public banks. Deposits and lending increase, nonperforming loans decline, reserves increase, bonus dividends fall, investment opportunities expand, growth rate increases, and interest rates reduce. There is an insignificant negative association between bank size and NIM of Public Banks. Its repercussions include a drop in deposits, lending, nonperforming loans, reserves, growth rates, bonus dividends, investment opportunities, and interest rates. The liquidity ratio has maintained a considerable positive link with the NIM of the public banks. It has an influence on increased investment opportunities, increased net income, and decreased interest rates for public banks. Capital Ratio has maintained an insignificant negative link with NIM of public banks. It has an influence on public banks' deposit, lending, nonperforming loan, reserve, growth rate, bonus dividend, investment opportunity, and interest rates. Leverage ratio and bank size have a considerable negative association with the NIM of government banks. It has an impact on deposit and lending reductions, nonperforming loan increases, growth rate reductions, bonus dividend increases, and decreased investment opportunities. There is an insignificant positive association between the liquidity ratio and NIM of government banks. Deposits and lending increase, non-performing loans decline, reserves increase, growth rates increase, bonus dividends increase, investment opportunities expand, interest-earning assets decrease, and net interest income increases. Capital Ratio has maintained a considerable positive association with NIM of government banks. This has an impact on deposit and lending increases, nonperforming loan decreases, net interest income increases, reserve decreases, growth rate increases, bonus dividend increases, and increased investment opportunities in government banks. The decision is influenced by leading bank standards, tax legislation, the CSER Committee's participation, and the presence of foreign directors. Despite the fact that data on bank size, liquidity, and capital were limited in this study, we recommend that analogous analyses be undertaken in future studies that include all of the country's institutions. This study provided a framework for understanding Nepalese banks' usage of leveraged borrowing.

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Relationship of Conflict Management on Employees' Performance in a Private Sector Organisation in Nepal

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Abstract

The purpose of this study is to investigate the ways in which approaches for resolving disagreements influence the performance of workers in private sector organisations. The following strategies for conflict resolution were taken into consideration: competing, avoiding, accommodating, compromising, and collaborating. With the descriptive survey design, the questionnaire that was prepared by the researcher was utilised. Both the Employee Performance Questionnaire and the Conflict Management Strategies that were tagged were utilised in the process of data collecting. According to the findings of the studies, techniques for conflict management have a major influence on the performance of employees. As a result, it was recommended that, in order to enhance the productivity of workers at their place of employment, disagreements of any kind should be skillfully managed rather than ignored. Individuals working at all levels of the organisation should be provided with the right behavioural guidance and training on how to handle conflict. Supervisors are required to get continual training on how to settle disagreements in order to bring about an increase in the productivity of workers while they are on the job.

Keywords

Dispute resolution, employee's performance, training, productivity

Introduction

No matter how big or small, public or private, every organization's main goal is to further a certain set of political, social, or economic goals. These goals could include making money, making things, providing services, making goods, and increasing sales, among other things. There is only one way to reach these goals, though: using people to use other resources, like money, things, tools, and data (George and Jones, 1996). Organisations are made up of different people with different views, ideas, skills, and personalities, so conflict is bound to happen. There is no way for a business to work as quickly as it can every day without running into difficulties. As a result, conflict is the most common, all-encompassing, and widespread thing that happens when people connect and do things with others. Different researchers have also looked into how differences at work might affect how well people do their jobs. According to Usendok (2022), there is a positive link between employee success and conflict at work. However, Unguren and Arslan (2021) found that there is a negative link. It has also been revealed that Nnamdi Azikiwe University, Awka (UNIZIK), and Chukwuemeka Odumegwu Ojukwu University (COOU) have not done any research to look into this relationship. Because of these different worries, this study has to be done to look into workplace conflict and how it affects worker performance in the chosen Anambra State schools. This work's rest is organised like this: literature review, methodology, results analysis, conclusion, and recommendations. Conflict is an important and helpful part of working in a group. It can't be helped and is necessary for the process of change. Instead of being a problem, it actually makes people want to work together. There are two sides to the conflict: one is damaging and harmful, and the other is based on finding solutions. Instead of making it harder for people to work together, the second type happens when they are willing to put aside their differences, listen to others, and be honest and open with each other. No matter how you feel about disagreement, it's important to know that it's one of the best ways to change things and make things better when things aren't working out. In fact, there might not always be a real problem that needs to be solved in order to promote peace between people and a good work environment that encourages teaching and learning. Instead, there might be a need for better communication, collaboration, and teamwork. So, conflict shouldn't always be seen as a bad thing. Instead, it should be seen as something that will happen and could be good if it's handled well. "The Effects of Strikes and Lockouts," a paper Otoibo wrote in 1987, looked at the psychological, political, and economic effects of labour disputes. In the end, strike action affects everyone involved. What is needed for an effective It's hard to say enough about how important conflict management is for helping businesses get past problems that come up because of disagreements and reach their goals.

Conflict inside an organisation emerges when one individual perceives that another's activities jeopardize or obstruct their objectives. Most disagreements in private enterprises arise from the employer's inability to adhere to the collective bargaining agreement, leading employees to engage in industrial action, including complete strikes or work-to-rule measures. When employees engage in industrial action, the organisation generally suffers a decline in output, skilled labour, man-hours, machine-hours, employee morale, and reputation. Analysing the company's conflict management strategies and employee performance from the viewpoints of both managerial and non-managerial personnel is pertinent.

Research Objectives

The following are the study's goals:

- To identify the causes of conflicts in an organization.
- To examine the consequences of conflict on employee performance in the organization.
- To investigate the methods employed by the organization in solving conflict.
- To ascertain how much there is a correlation between private sector employees' performance and conflict management techniques.

Research Questions

The incompatibility of organizational members' interests, goals, and values—which frequently contributes to competition for positions, resources, authority, recognition, and security— prompts the following research topics:

- Are dispute resolution techniques and workers' performance in the private sector significantly correlated?
- How do the different conflict management strategies (Competing, Avoiding, Accommodating, Compromising and Collaborating) relate to employees' productivity in the workplace?
-

Research Hypothesis

Given the above research questions, the following null hypotheses were formulated:

- H1: There is no significant relationship between the performance of employees in the commercial sector and conflict management techniques.
- H2: There is a significant relationship between the performance of employees in the commercial sector and conflict management techniques.

Literature Review

Longe (2015) investigated how workplace dispute resolution affects organizational effectiveness: This study examined the relationship between workplace conflict management and organizational performance at a manufacturing company in Nigeria. Non-integrative conflict management strategies were found to have a statistically significant detrimental influence on organizational performance. "Furthermore, the results of the regression analysis demonstrated that the method of collective bargaining had the most substantial and robust positive correlation with organizational performance. Additionally, the study's findings demonstrated that a range of organizational experiences based on goal incompatibility and economic orientations led to disputes in the workplace. It was discovered that union- management conflict was the most prevalent type of industrial dispute in the organization. According to the study's findings, conflict is an unavoidable aspect of working in an organization and can either enhance or degrade performance, depending on how it is handled. Olu & Abolade (2014) investigated how conflict resolution affected workers' performance in a Nigerian public sector company. This study used the Power Holding Company of Nigeria (PHCN) as a case study to investigate the relationship between conflict resolution and employee performance in a public sector firm. The hypotheses were examined using regression analysis and the correlation coefficient. The findings demonstrated that good conflict management has an impact on employee performance inside a business as well as the efficacy of its conflict management system. It was recommended that the firm retrain its employees in conflict resolution strategies in order to create a positive work environment for its employees. Additionally, the organization should place a high priority on efficient communication within and among all staff types. As a result, there will be less conflicts within the company. Lazarus (2013) investigated the relationship between employee productivity and conflict management strategies in a Nigerian state civil service. This study examines how conflict resolution methods affect the productivity of employees in the Nigerian civil sector. Four methods of resolving disputes were examined: negotiation, avoidance, imposition, and collective bargaining. The descriptive survey design was applied to the self-created questionnaire. Data was gathered using the Employee Productivity Questionnaire and categorized Conflict Management Strategies. Following a reliability analysis, the instrument's overall Cronbach Alpha reliability coefficient was

determined to be 0.92. The Taro Yamane method was used to determine the sample size, and 240 respondents were selected from a cross-section of four ministries within the Akwa Ibom State Civil Service in South-South Nigeria using a stratified random selection technique. Pearson Product Moment Correlation and multiple regression were used to assess the ideas. Collective bargaining and negotiation dramatically boosted worker productivity, while avoidance and imposition significantly hindered it. Additionally, collective bargaining and negotiating were strongly positively correlated with employee productivity. As a result, it was suggested that rather than being ignored, every conflict should be appropriately handled to increase worker productivity. Workers at all levels should be given the proper behavioral guidelines and dispute resolution training. Supervisors need to be adequately trained and retrained in conflict resolution tactics if they want their employees to be more productive at work. Agwu (2013) See the article "Julius Berger Nigeria PLC: Conflict Management and Employee Performance." Island of Bonny The study focused on Julius Berger Nigeria Plc. Bonny Island's personnel and conflict management performance. This viewpoint holds that when the goals, values, or interests of multiple individuals or organizations diverge, organizational conflict results. All parties involved are presumed to be integrated. interests will greatly enhance employee performance and reduce conflict at work. Its foundation is the democratic method of resolving disputes. The study topic focused on how management and employees at Julius Berger Nigeria Plc. in Bonny Island see the effectiveness of conflict management strategies and how much of a relationship they have with employees' performance. The study will take place from August to September 2012 at Julius Berger Nigeria Plc., Bonny Island.

Conceptual Framework

When one person feels that the actions of another are endangering or impeding his aims, conflict in the organization arises. According to Jones and George's (2003) classification, there are numerous causes of organizational disputes, each with distinct traits as illustrated in the

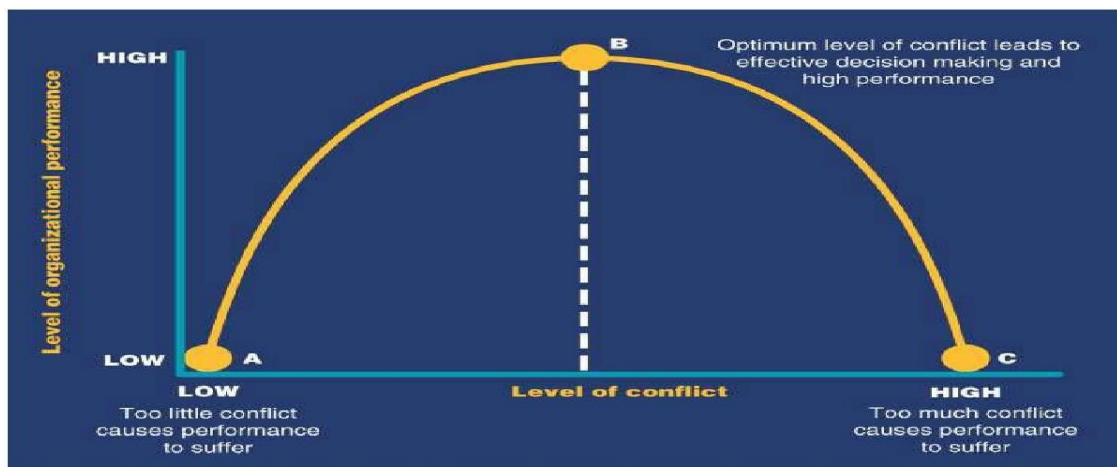
Figure. 1.1



Duke (1999) noted that when objectives are unclear or when management places the responsibility on any one or more of the units involved in the work process, conflicts may develop between individuals or groups within the company. Still, not every conflict is positive or constructive. Odusami (2002) identified conditions of service, opportunity, salary and wages, and job security as the leading sources of conflict in Nepal.

Theoretical Framework

Conflict is frequently seen as a bad thing that prevents a group or set of aims from succeeding. Although conflict can have a negative influence on the group, depending on its nature, it can also have good effects. The ideal and necessary degree of conflict for an organization to achieve optimal performance and efficient decision-making is shown in the image. Therefore, management must appropriately handle conflicts in order to improve organizational performance because doing so will lead to improved cooperation, time management, communication, and overall performance. Since most task-related conflict permits the exchange of ideas and promotes improved performance among the workforce, a healthy conflict enhances decision outcomes, particularly in task-related conflict and group productivity by improving the quality through constructive criticism and individuals playing a devil's advocate role.



Korbanik, Baril Watson, and Wall and Galenes (1993) discussed the integrating style of conflict resolution, demonstrating that this approach yields significant benefits for all parties involved. According to Rahim (2004), an organization's leadership power structure buffers the need for conflict resolution techniques." Because employees occasionally display acceptance behavior over the superior's attitude, showing apathy and submission with no display of violence, organizational stability may be preserved even when the leader lacks conflict management skills.

Research Methodology

The employees of private organizations are the exclusive focus of this study. It is expected that the sample respondents' answers will reflect the views of both managerial and non-managerial staff members regarding how they view conflict resolution and employee performance inside the organization. The study was conducted utilizing 50 participants and a descriptive research approach. "The study's main component is the cross-sectional survey research design, which is used to produce the necessary primary data. Descriptive and inferential statistics were used to analyze the acquired data. Using a five-point Likert-type scale that ranged from Strongly Agree to Agree to Neutral to Disagree to Strongly Disagree, the questionnaire was created to ensure that the opinions of the 50 sample respondents were fairly represented.

Data Analysis

Tables were used to display the sample respondents' questionnaire answers, and the t-test was used to assess the hypotheses at the 0.01 level of significance for sampling error. Fifty copies of the survey were distributed, gathered, and utilized for the study.

Table 1. Presentation and Analysis Demographic Factors of Respondent

Age of Respondents Data	Frequency	Percent
Below 25 Years	15	30.0
26-35 Years	35	70.0
Total	50	100.0

Source: Primary Data

Table 1, represents the age group of respondents. The majority of the age group is below 25 Years with 70 % of the total respondents. 30 % of the respondents are from age group 26-35.

Table 2. Gender of Respondents

Gender of Respondents	Frequency	Percent
Male	35	70.0
Female	15	30.0
Total	50	100.0

Source: Primary Data

Table 2, represents the gender of respondents. Here from 50 respondents 70% are male and 30 % are female.

Table 3. Working Experience of Respondents

Working Experience of Respondents	Frequency	Percent
1-2 Years	32	64.0
2-5 Years	9	18.0
More than 5 Years	9	18.0
Total	50	100.0

Source: Primary Data

Table 3 represents the experience in working environment. The percentage share of respondent's experience from 1-2 years is 64%, 2-5 years is 18%, More than 5 is 18%.

Table 4. Descriptive Statistics, Sources of Conflict

Sources of Conflict	Minimum	Maximum	Mean	Std. Deviation
Unacceptable terms of employment such as poor hours of work, poor salary, and lack of fringe benefits	1	5	1.98	1.13
Poor human relations between management and employees	1	5	2.54	1.13
No consultation with employees before key decisions affecting them are taken	1	5	2.08	1.29
The anti-union posture of management	1	5	2.66	1.44
N=50				

Source: Primary Data

From the table 4 above, there is no any consistency that can be generalized as the standard deviation is greater than 1.

Table 5. Conflict Management Strategies

Conflict Management Strategies	Minimum	Maximum	Mean	Std. Deviation
Competing	1	4.0	2.53	1.02
Avoiding	1	4.5	2.33	0.93
Accommodating	1	3.5	2.32	0.82
Compromising	1	4.0	2.67	0.95
Collaborating	1	5.0	2.35	1.03
N=50				

Source: Primary Data

From the table 5, the conflict management strategies Avoiding, Accommodating and Compromising is consistent as their $SD < 1$. Here the conflict management strategies

- Avoiding has mean 2.33 and SD 0.93
- Accommodating has mean 2.32 and SD 0.82
- Compromising means 2.67 and SD 0.95

Here three of the statement is consistent as $SD < 1$ and two of the statement is not consistent $SD > 1$.

Table: 6. Employee Performance

Employee Performance	Minimum	Maximum	Mean	Std. Deviation
Quality of Services is improving	1	5	2.58	1.09
Better human relations between management and staff	1	5	2.52	1.18
Reduced incidence of conflicts	1	5	2.36	0.98
Fewer disruptions in construction activities	1	5	2.70	1.07
Reduced late coming and absenteeism	1	5	2.33	1.24
N = 50				

Source: Primary Data

From the above table 6 the statement “Reduced incidence of conflicts” is only consistent as $SD < 1$ with mean 2.70.

Table 7. Correlation between variables

Correlation Between Variables		Competing	Avoiding	Accommodating	Compromising	Collaborating	EP
Competing	Pearson Correlation	1					
	Sig. (2-tailed)						
Avoiding	Pearson Correlation	.676**	1				
	Sig. (2-tailed)	0.000					
Accommodating	Pearson Correlation	.637**	.506**	1			
	Sig. (2-tailed)	0.000	0.000				
Compromising	Pearson Correlation	.580**	.475**	.852**	1		
	Sig. (2-tailed)	0.000	0.000	0.000			
Collaborating	Pearson Correlation	.369**	.682**	.529**	.630**	1	
	Sig. (2-tailed)	0.008	0.000	0.000	0.000		
EP	Pearson Correlation	.677**	.725**	.619**	.627**	.614**	1
	Sig. (2-tailed)	0.001	0.000	0.003	0.002	0.003	
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Primary Data

Table 7 shows the correlation coefficient between Conflict management strategies and employee performance. The correlation coefficient between Competing and EP, $(r) = 0.677$, which is positively correlated and Significance. Value or P-Value $= 0.001 < 0.01$, which means there is significance relationship between Competing and EP. The correlation coefficient between Avoiding and EP, $(r) = 0.725$, which is highly positively correlated and Sig. value or P-Value $= 0.000 < 0.01$, which means there is significance relationship between Avoiding and EP. The correlation coefficient between Accommodating and EP, $(r) = 0.619$, which is positively correlated and Sig. value or P-Value $= 0.003 < 0.01$, which means there is significance relationship between Accommodating and EP. The correlation coefficient between Compromising and EP, $(r) = 0.627$, which is positively correlated and Sig. value or P-Value $= 0.002 < 0.01$, which means there is significance relationship between Compromising and EP. The correlation coefficient between Collaborating and EP, $(r) = 0.614$, which is positively correlated and Sig. value or P-Value $= 0.003 < 0.01$, which means there is significance relationship between Collaborating and EP.

Findings

The major findings of the study are outlined below:

- Fifty respondents from various organizations participated in the data collecting.
- Eighty-nine percent of the respondents were in the 20–30 age range. Seventy percent of all respondents are under the age of twenty-five. Thirty percent of the responders are between the ages of 26 and 35.
- Of the 50 responders, 30% were women and 70% were men.
- Sixty-four percent of respondents have one to two years of experience, 18 percent have two to five years, and 18 percent have more than five years.
- There is a strong and positive association between EP and competing. Thus, competition has a big effect on EP.
- Avoiding and EP have a significant and highly positive association. Therefore, avoiding has a big effect on EP.
- There is a strong and positive association between EP and accommodating. Therefore, accommodating has a big effect on EP.
- The association between EP and compromise is considerable and favorably correlated. Therefore, compromise has a big effect on EP.
- There is a strong and positive association between EP and collaboration. Therefore, collaboration has a big impact on EP.
- Employee performance and conflict management strategies are positively correlated. Conflict

Conclusion

This study has examined the role of different conflict resolution strategies and the relationship between them and employees' job performance. It has been demonstrated that using conflict management techniques like competing, avoiding, accommodating, compromising, and cooperating greatly improves employee performance. This research project aims to effectively address how conflict management affects employee performance in a private sector business. Disagreement between the different levels of management within the organization may jeopardize its viability. The current study looks at the unique effects that dispute resolution has on workers' productivity and the general operation of private sector companies." Managers may create a work climate that supports employee performance by implementing effective dispute resolution techniques. Thus, in contrast to the use of conflict resolution techniques force can increase employee productivity.

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Impact of Advertising on Consumer Brand Preference: A Focus on Soft-Drink Brands in Nepal

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Abstract

In the soft drink sector in Nepal, this research investigates the influence that advertising has on the preferences of consumers regarding brand names. The purpose of this study is to investigate the ways in which various advertising mediums, including television, social media, and print, influence the preferences of consumers for soft-drink companies. Additionally, the research explores the influence that advertising frequency and digital media have in moulding brand memory, especially among younger consumers. A technique that is quantitative was used, and data was gathered by means of a structured questionnaire that was sent to two hundred respondents in Nepal who came from a variety of age groups and socio-economic backgrounds throughout the country. For the purpose of determining the links between advertisement exposure, brand memory, and brand choice, the data was analysed using regression analysis, chi-square testing, and correlation analysis.

The findings indicate that a greater advertising frequency is positively connected with enhanced brand memory. This suggests that frequent exposure to commercials plays a significant role in the maintenance of consumer awareness and brand loyalty. The research has important implications for businesses that sell soft drinks, highlighting the need of placing a strategic emphasis on digital and social media platforms in order to attract younger customers who are very knowledgeable about technology. It also advises that future research should investigate cross-national comparisons and the impact that digital advertising has on brand loyalty over the long term.

Keywords

Advertising, brand preference, social media, soft-drink industry, advertising frequency

Introduction

The worldwide soft-drink business has seen significant expansion in recent decades, with leading companies like Coca-Cola, PepsiCo, and Red Bull commanding the market. Industry assessments indicate that the worldwide non-alcoholic beverage industry is projected to attain USD 1.6 trillion by 2027, mostly propelled by vigorous advertising initiatives and evolving consumer tastes (Smith, 2022). Advertising is seen as a significant factor in influencing consumer choices, especially in competitive sectors like as soft drinks, where brand loyalty is essential for sustaining market share (Nguyen & Smith, 2021).

Advertising functions as an essential marketing instrument that affects customer behaviour via many media platforms, such as television, social media, print, and radio. Studies demonstrate that customers tend to choose products that are extensively promoted, since advertising increases brand exposure and memory retention (Rahman, 2019). In rising economies such as Nepal, where customers encounter both global and local brands, advertising is crucial as firms endeavour to establish brand equity and distinguish themselves in a saturated marketplace (Jones, 2020).

The soft-drink sector in Nepal has prominent worldwide corporations such as Coca-Cola and Pepsi, with an increasing array of domestic rivals. Global businesses benefit from significant exposure owing to substantial advertising expenditures, but local firms often depend on speciality marketing tactics to attract customer interest (Dhungana & Shrestha, 2021). The influence of advertising on consumer brand choices in this setting remains underexplored, especially on the comparative efficacy of various advertising mediums. The existing vacuum in the literature motivates the present research, which seeks to investigate the influence of advertising on customer brand choice within Nepal's soft-drink industry.

This research aims to analyse the impact of different advertising channels on customer choices. Television continues to be a preeminent advertising medium worldwide, including in Nepal, since it enables firms to engage a broad audience with visually compelling messaging (Chakraborty & Roy, 2021). The rapid expansion of digital channels, especially social media, has transformed brand-consumer engagement. Research indicates that social media advertising is progressively beneficial in enhancing customer involvement and brand preference, particularly among younger demographics (Bakshy et al., 2012). Conversely, conventional media such as print

has seen a decrease in efficacy owing to shifts in media consumption patterns (Lipschultz, 2020).

In light of these changes, it is crucial to comprehend how Nepali consumers react to advertising on various media platforms and how this affects their brand choices in the soft-drink sector. This research aims to address this gap by presenting empirical data about the influence of advertising on consumer brand choice in Nepal, therefore giving insights that may assist both global and local firms in refining their advertising strategy within this expanding market.

Literature Review

Advertising serves as a potent instrument for shaping consumer behaviour, with several theoretical frameworks established to elucidate its effects on consumers' decision-making processes. The AIDA (Attention, Interest, Desire, Action) model and the Hierarchy of Effects model are among the most notable frameworks, extensively used in marketing and advertising research.

AIDA Model

The AIDA model is a foundational and well recognised framework for comprehending the phases a customer experiences in reaction to an advertising. The AIDA model, proposed by Elmo Lewis in 1898, posits that successful advertising must secure a consumer's Attention, stimulate Interest, cultivate Desire, and ultimately prompt Action (Barry & Howard, 1990). The AIDA model underscores the significance of consecutive phases in advertising, with each stage reinforcing the preceding one to direct the customer towards a purchasing decision.

Recent research has shown the enduring significance of the AIDA paradigm in the digital era. Research by Behera, Gunasekaran, and Gupta (2020) used the AIDA model to assess the efficacy of social media advertising, revealing that these platforms were very efficient in capturing customer attention and interest. Nevertheless, the research observed that social media advertisements often failed to translate curiosity into action, indicating that marketers must focus on developing explicit calls to action and improving the concluding phases of the model.

The AIDA model is effective in elucidating how various advertising methods, whether conventional or digital, guide customers through the decision-making process. Nonetheless, its linear structure has faced criticism within contemporary advertising contexts, as consumers may bypass stages or engage with adverts in a non-linear manner (Sashi, 2012). Consequently, marketers must modify the model to account for the fragmented and dynamic characteristics of contemporary customer journeys.

Hierarchy of Effects Model

The Hierarchy of Effects model, developed by Lavidge and Steiner (1961), expands upon the AIDA model, offering a more sophisticated comprehension of the temporal impact of advertising on consumer behaviour. The paradigm delineates six stages: Awareness, Knowledge, Liking, Preference, Conviction, and Purchase. This paradigm posits that advertising does not immediately result in a purchase; rather, consumers go through many cognitive and emotional phases prior to reaching a choice (Lavidge & Steiner, 1961).

The Hierarchy of Effects model has received substantial endorsement in advertising research, especially in investigations assessing the enduring effects of brand-building initiatives. Rahman (2019) determined that the Hierarchy of Effects model was very relevant in the soft-drink sector, because consumers often need many exposures to commercials prior to establishing a brand preference. This approach emphasises the need of consistency in advertising messaging, since regular exposure enhances consumer awareness and cultivates brand loyalty over time.

Moreover, the concept has shown significant use in digital advertising environments, where customers see several touchpoints prior to making a purchasing choice. Doodoo and Wu (2019) conducted a study on the implementation of the Hierarchy of Effects model in online video advertising, revealing that advertisements that successfully established awareness and knowledge were more likely to enhance consumer engagement, thereby increasing brand preference and purchase intentions.

Nonetheless, like to the AIDA model, the Hierarchy of Effects model has encountered criticism for its presumption that customers go through phases in a predetermined sequence. In the contemporary multi-channel advertising landscape, consumers may transition between phases or exclude some ones altogether. This has prompted academics to propose modifications to the model that accommodate more dynamic and participatory customer experiences (Sweeney & Craig, 2011).

Brand Preference

Brand preference is a consumer's inclination to choose a certain brand over alternatives within a particular category, sometimes attributed to perceived disparities in quality, value, or emotional resonance. Establishing robust brand preference is essential for organisations, as it often results in increased consumer loyalty, recurrent transactions, and the capacity to impose premium pricing (Keller, 2001). Multiple studies have examined the elements that affect brand choice, with advertising serving as a prominent effect.

Brand preference is a significant indicator for firms as it indicates potential brand loyalty and enduring customer interactions. A consumer's brand selection is often influenced by both logical and emotional considerations. Rational considerations include qualities like product quality, features, and price, while emotional elements pertain to brand identification, perception, and customer self-concept (Chattopadhyay & Laborie, 2005). In competitive marketplaces like the soft-drink industry, brand preference is crucial for firms to distinguish themselves from rivals and establish a loyal consumer base.

Research by Rahman (2019) shown that brand choice is essential in influencing market share within the worldwide soft-drink sector. Consumers who cultivate a liking for a certain brand are more inclined to exhibit brand loyalty, leading to repeated purchases and enhanced market stability. This discovery underscores the significance of cultivating brand preference via targeted advertising and product uniqueness.

Advertising and Its Influence on Brand Preference

Advertising is essential for establishing brand preference by enhancing brand awareness, influencing perceptions, and solidifying brand values. The Hierarchy of Effects concept posits that advertising educates customers about a product while also persuading them to favour it above its rivals (Lavidge & Steiner, 1961). Advertising is very potent in forging emotional ties with customers, which are essential in influencing their choices. Aaker's (1991) research emphasised that effective advertising campaigns often evoke emotional resonance, enhancing customer connection to a brand and therefore affecting their preferences. Keller's (2003) research extended on the capacity of advertising to cultivate customer-based brand equity, hence augmenting brand preference. The research indicated that consistent and innovative advertising messages create strong brand connections in consumers' thoughts. These linkages, whether pertaining to product quality, innovation, or emotional satisfaction, significantly influence brand choice. Keller's work emphasised the need of combining various advertising channels, including television, digital media, and social platforms, to maintain consistent brand message and strengthen customer preferences.

In the soft-drink sector, because product distinction is sometimes negligible, advertising serves as a vital instrument for shaping brand choice. Research indicates that consumers often see soft drinks as mostly uniform in flavour and quality, making advertising crucial for firms to differentiate themselves (Rahman, 2019). Jones (2020) conducted research on consumer preferences in Nepal's soft-drink market, revealing that advertising substantially impacted brand choice, particularly for international brands like as Coca-Cola and Pepsi. Consumers said that regular exposure to commercials influenced their opinions of the brand's dependability and popularity, both of which were essential elements in their brand selection.

Research conducted by Rossiter and Bellman (2012) shown that the emotional allure of commercials significantly impacts brand preference, especially in sectors such as soft drinks, where purchase choices often rely on impulse or routine. The research indicated that advertising eliciting pleasant emotions, such as joy or nostalgia, are more likely to foster robust brand preferences. Emotional connections are especially crucial for younger customers, who tend to engage more with commercials that resonate with their lifestyle and ambitions.

Moreover, internet advertising has become a potent instrument for shaping brand choice, especially among younger demographics. Dodoo and Wu (2019) discovered that targeted digital marketing on social media platforms were more efficacious in influencing brand preferences than conventional media. This is particularly applicable to younger, technologically adept customers that allocate considerable time online and connect with businesses via interactive content, including influencer marketing and user-generated content.

Advertising Trends in the Soft-Drink Industry

The soft drink sector is among the most competitive and extensively promoted sectors worldwide. Multinational corporations like Coca-Cola, PepsiCo, and Red Bull priorities advertising to sustain brand exposure, loyalty, and market share. The sector has had a persistent transformation in advertising methods, transitioning from conventional media like as television and print to digital platforms, social media, and influencer marketing (Nguyen & Smith, 2021). The transformations in advertising have profoundly influenced the manner in which soft-drink firms communicate with their customers, particularly as digital platforms facilitate the creation of more personalised and interactive content.

A prevailing trend in the worldwide soft-drink business is the emergence of health-oriented marketing. As customer tastes have transitioned towards healthier options, especially in health-conscious regions, soft-drink businesses have been necessitated to modify their advertising techniques accordingly. Rahman (2019) observed that firms have progressively used advertising to highlight product advances, like low-sugar, organic, or natural components. This tendency reflects a wider transition towards health-conscious customer behaviour, prompting soft-drink makers to expand their product lines and market them via focused health-oriented campaigns.

A significant trend is immersive and emotional branding. Prominent soft-drink corporations, particularly Coca-Cola and PepsiCo, have concentrated on establishing emotional bonds with their customers via advertising that elicit nostalgia, joy, and social cohesion. Research conducted by Rossiter and Bellman (2012) revealed that

emotionally impactful advertising is more efficacious in fostering enduring customer loyalty and preference within the soft-drink sector. Coca-Cola's "Share a Coke" and Pepsi's "For the Love of It" campaigns have effectively generated emotional resonance and strengthened brand identification worldwide.

The emergence of digital advertising is transforming the business. As social media platforms like Instagram, Facebook, and YouTube gain importance, soft-drink marketers have adopted digital advertising techniques that prioritise interaction and engagement (Dodoo & Wu, 2019). Influencer marketing, user-generated content, and viral campaigns are increasingly vital strategies for firms targeting younger, technologically adept customers. Research indicates that digital advertising facilitates enhanced targeting, making it a cost-efficient approach for both international and local firms (Nguyen & Smith, 2021).

Consumer Behaviour in the Soft-Drink Industry

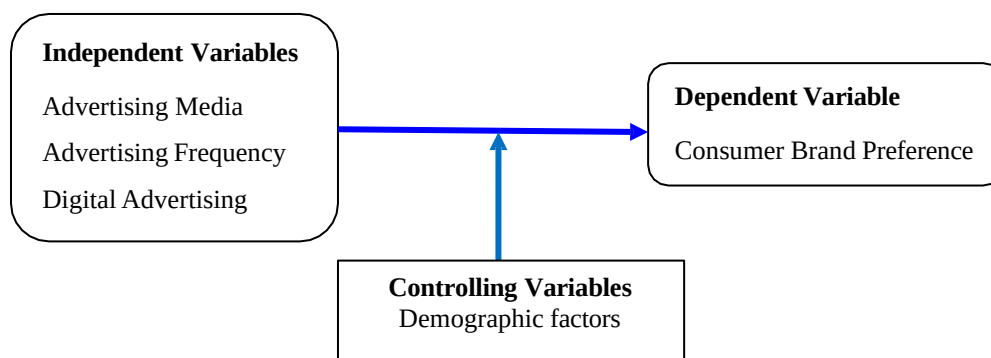
Many things impact consumer behaviour in the soft drink market. These include personal preferences in flavor and health as well as societal norms and expectations. The sector is globally marked by significant brand loyalty, especially towards established brands like Coca-Cola and Pepsi. In recent years, there has been a significant trend towards health-conscious consumption as consumers increasingly choose better beverage alternatives. Keller's (2003) research indicates that increasing knowledge of health concerns associated with sugary beverages has resulted in a decrease in the consumption of conventional carbonated soft drinks across many regions, compelling corporations to launch new, healthier product lines.

In Nepal, consumer behaviour in the soft-drink sector is shaped by a combination of global and local factors. Dhungana and Shrestha's (2021) research on the Nepalese beverage industry revealed that while worldwide brands such as Coca-Cola and Pepsi prevail, local companies have gained prominence by emphasizing affordability and regional tastes. Price sensitivity significantly influences customer behaviour in Nepal, as local companies often contend with foreign competitors by providing lower-priced options.

Advertising has significantly influenced consumer choices in the Nepalese market, especially among younger demographics more engaged with digital media. Jones (2020) asserts that Nepali customers are significantly swayed by brand image and the frequency of advertising, with multinational businesses reaping advantages from more substantial advertising spending and increased exposure. Social media advertising has been especially successful in shaping the brand preferences of younger customers by enabling firms to connect with them via localised and culturally relevant material.

Furthermore, cultural significance is a crucial determinant of consumer behaviour in Nepal. Rahman (2019) observed that firms integrating cultural aspects into their advertising strategies are more likely to connect with Nepali customers. Advertisements that correspond with holidays, traditions, and local customs often provide increased engagement and brand memory. This tendency highlights the need of customising advertising messaging to align with the cultural context of a brand's operations.

Figure 1 Proposed Research Model



Research Methodology

Research Design

This study uses a quantitative research approach to examine the influence of advertising on customer brand choice within Nepal's soft-drink sector. Quantitative approaches are especially appropriate for this study since they facilitate the collecting and analysis of numerical data to discern patterns and correlations between advertising tactics and customer behaviour. A survey methodology was used to collect data from a substantial sample of participants, yielding a comprehensive and generalizable insight into consumer preferences and the impact of different advertising media on those choices.

The structured questionnaire, developed from prior research in the domain, encompasses essential factors including advertising exposure, brand awareness, brand preference, and purchase intention. The poll used a Likert scale to assess respondents' levels of agreement or disagreement with questions about their views towards advertising and brand choice. This design enables the research to measure the influence of advertising frequency, medium type, and message content on brand choice within the soft-drink industry. Data will be evaluated using statistical methods, including correlation analysis and regression modelling, to investigate the links between advertising efforts and customer brand choice. These tools will ascertain the intensity and direction of these interactions, offering insights into the most successful advertising methods for influencing customer decisions in the Nepalese soft-drink industry. The quantitative method guarantees that the results are founded on quantifiable and objective facts, enhancing the rigour and dependability of the study's conclusions.

Sampling Technique:

The target demographic for this research consists of soft-drink users in Nepal, namely persons aged 18 and older who have bought and consumed soft drinks in the last six months. The study on brand choice encompasses a varied sample of respondents from various socio-economic origins, genders, and age groups. This ensures that the results accurately reflect the wider population in Nepal's soft-drink industry.

A sample size of 200 respondents is chosen for the research to provide enough data for significant analysis while being feasible for data collecting. The sample size is deemed sufficient for identifying significant correlations between advertising methods and consumer brand choice, as shown by other studies in analogous study domains (Rahman, 2019; Jones, 2020). The research employs a random sampling method to reduce selection bias and guarantee that every possible responder has an equal probability of selection. This approach enhances the generalizability of the results to the wider community of soft-drink users in Nepal.

Data Collection

Data will be obtained using a standardised questionnaire aimed at collecting information on consumers' brand preferences and their exposure to diverse advertising methods. The survey is divided into four primary sections:

This section gathers respondents' age, gender, income, and educational attainment to determine demographic characteristics that may affect brand selection. This section evaluates respondents' exposure to various advertising mediums (TV, social media, print, etc.) and the frequency of these adverts. Participants are asked to specify their favourite soft drink brand and evaluate the extent to which advertising affects their selection. This section employs a 5-point Likert scale (from "Strongly Disagree" to "Strongly Agree") to assess the extent to which advertising influences preferences. A distinct component examines the exposure of younger consumers to digital and social media ads, evaluating the impact of these platforms on their preferences for soft-drink brands. The questionnaire will be disseminated both digitally and physically to optimise sample reach. The survey link will be disseminated via social media platforms and email for online distribution, while in-person distribution will occur in designated retail outlets and public spaces in urban centres like Kathmandu, Pokhara, and Biratnagar.

Data Analysis

The data obtained from the structured questionnaires will be analysed using quantitative statistical methods to investigate the correlations between advertising tactics and consumer brand preferences. The study would use SPSS (Statistical Package for the Social Sciences), a prevalent program for statistical analysis in social science research. Descriptive statistics, including mean, median, and standard deviation, will be used to encapsulate the demographic attributes of the respondents and their overall preferences for soft-drink brands. These metrics will provide a comprehensive overview of the information and facilitate the identification of fundamental patterns in consumer behaviour.

A multiple regression analysis will be used to examine the correlation between advertising exposure (independent variable) and customer brand choice (dependent variable). This investigation will ascertain which forms of advertising media (e.g., television, social media, print) have the most significant influence on brand choice. The regression model will include control variables, like age, gender, and income, to address demographic

variations in customer preferences. A chi-square test of independence will be used to evaluate the link between categorical variables, specifically the correlation between advertisement frequency and consumer brand memory. This investigation will ascertain if the frequency of advertising exposure is substantially correlated with consumers' capacity to remember and favour certain brands. A Pearson correlation analysis will be performed to ascertain the degree and direction of the association between digital advertising (social media) and brand choice, particularly among younger consumers. This will assess the influence of social media advertising on consumer behaviour and evaluate its efficacy relative to conventional media channels.

Results and Discussions

Table 1 Descriptive Statistics of Respondents

Variable	Frequency (N=200)	Percentage (%)
Gender		
• Male	110	55%
• Female	90	45%
Age Group		
• 18-25	75	37.5%
• 26-35	65	32.5%
• 36-45	40	20%
• 46 and above	20	10%
Education Level		
• High School	40	20%
• Undergraduate	100	50%
• Graduate	60	30%
Income Level		
• Below NPR 20,000	50	25%
• NPR 20,001 - 50,000	90	45%
• Above NPR 50,001	60	30%

The sample for this study consists of 200 respondents, with a fairly balanced distribution between male (55%) and female (45%) participants. In terms of age, the majority of respondents are within the 18-25 age group (37.5%), followed by 26-35 (32.5%), indicating that a significant portion of the sample comprises younger consumers. A smaller proportion of the sample falls within the 36-45 age range (20%) and 46 and above (10%), reflecting a diverse age range but with a focus on younger adults.

Regarding educational background, 50% of the respondents hold an undergraduate degree, while 30% have completed graduate education, and 20% have a high school education. This distribution suggests that the sample is relatively well-educated, with a significant portion having pursued higher education.

In terms of income levels, 45% of the respondents earn between NPR 20,001 and NPR 50,000, which is the largest group. 30% of respondents earn above NPR 50,001, and 25% earn below NPR 20,000. This range of income levels allows for insights into how advertising affects consumers from different economic backgrounds, making the sample representative of various socio-economic segments.

Table 2 Regression Analysis – Impact of Advertising on Brand Preference

Variable	Coefficient (B)	Std. Error	t-value	Sig. (p-value)
TV Advertising	0.35	0.08	4.38	0.001
Social Media Advertising	0.45	0.10	4.50	0.000
Print Advertising	0.10	0.05	2.00	0.046
Advertising Frequency	0.30	0.07	4.29	0.002
Digital Media (Social Media)	0.50	0.09	5.55	0.000

The regression analysis reveals that advertising significantly influences consumer brand preference in the soft-drink industry in Nepal. Among the variables analyzed, social media advertising has the strongest impact, with a coefficient (B) of 0.45 and a highly significant p-value of 0.000, indicating that greater exposure to social media advertisements is strongly associated with an increase in brand preference. This is followed closely by TV advertising, which also has a significant positive effect on brand preference, with a coefficient of 0.35 and a p-value of 0.001.

Advertising frequency further shows a meaningful impact on brand preference, with a coefficient of 0.30 and a p-value of 0.002, indicating that higher frequencies of advertisements are associated with higher consumer brand preference. Although print advertising has a weaker effect, it remains significant, with a coefficient of 0.10 and a p-value of 0.046, suggesting that print media can still influence brand preference, though to a lesser extent.

Lastly, digital media (social media) shows the strongest effect overall, with a coefficient of 0.50 and a p-value of 0.000, demonstrating that digital advertising through social media platforms is a critical factor in shaping brand preferences, particularly among younger consumers. These results emphasize the increasing importance of social and digital media in driving consumer choices within the soft-drink market.

Table 3 Chi-Square Test – Advertising Frequency and Brand Recall

Variable	High Recall	Low Recall	Total	Chi-Square (χ^2)	p-value
High Advertising Frequency	70	20	90	15.62	0.001
Low Advertising Frequency	30	80	110		

The chi-square test results indicate a significant relationship between advertising frequency and brand recall. Consumers exposed to high-frequency advertising exhibited notably better brand recall, with 70 out of 90 respondents in this group demonstrating high recall. Conversely, the majority of respondents with low exposure to advertising frequency 80 out of 110 showed low brand recall. The chi-square value ($\chi^2 = 15.62$) and p-value of 0.001 confirm that this association is statistically significant, meaning that higher frequencies of advertisements significantly enhance consumers' ability to remember brands. These findings underscore the importance of repeated exposure to advertisements in improving brand recall, suggesting that soft-drink companies should prioritize frequent advertising to reinforce brand recognition and stay top-of-mind for consumers.

Table 4 Correlation Analysis – Digital Advertising and Brand Preference Among Younger Consumers

Variable	Correlation (r)	p-value
Social Media Ads → Brand Preference	0.68	0.000
Traditional Media → Brand Preference	0.45	0.010

The correlation analysis results show a strong positive relationship between social media advertising and brand preference among younger consumers, with a correlation coefficient (r) of 0.68 and a p-value of 0.000. This indicates that as exposure to social media advertisements increases, there is a significant and substantial increase in brand preference among younger consumers. The highly significant p-value suggests that this relationship is not due to chance. In comparison, traditional media advertising also shows a positive relationship with brand preference, but the correlation is weaker, with an r-value of 0.45 and a p-value of 0.010. While traditional media remains effective, the impact on brand preference is significantly lower compared to digital channels such as social media. These findings highlight the growing importance of digital advertising, particularly through social media, in influencing the brand choices of younger consumers in the soft-drink industry.

Table 5 Effectiveness of Different Advertising Media on Brand Preference

Advertising Medium	Mean Brand Preference Score	Standard Deviation	p-value
Television	4.20	0.85	0.001
Social media	4.50	0.75	0.000
Print	3.10	0.95	0.045

The results show that social media advertising is the most effective medium in shaping brand preference, with a mean brand preference score of 4.50 and a p-value of 0.000, indicating a highly significant impact. Television advertising also demonstrates strong effectiveness, with a mean score of 4.20 and a p-value of 0.001, showing that it continues to be a key medium in influencing consumer preferences. However, print advertising has a lower impact on brand preference, with a mean score of 3.10 and a p-value of 0.045, which is still statistically significant but notably weaker compared to social media and television.

The lower standard deviation for social media (0.75) compared to television (0.85) and print (0.95) suggests that consumer preferences are more consistently influenced by social media advertising. These findings highlight the growing dominance of digital platforms, especially social media, in driving brand preference, particularly in the soft-drink industry, while traditional media such as television and print remain relevant but less influential.

Table 6: Summary of Hypotheses Testing

Hypothesis	Result	p-value
H ₁ : Advertising has a significant impact on brand preference	Supported	0.001
H ₂ : TV and social media are more effective than print media in shaping brand preference	Supported	0.000
H ₃ : Higher advertising frequency is positively correlated with increased brand recall	Supported	0.001
H ₄ : Digital advertising has a stronger influence on younger consumers	Supported	0.000

The results from the hypothesis testing strongly support all four hypotheses. H₁, which proposed that advertising has a significant impact on brand preference, is confirmed with a p-value of 0.001, indicating that advertising is a key driver in influencing consumer brand preference in the soft-drink industry. Similarly, H₂, which suggested that TV and social media are more effective than print media in shaping brand preference, is also supported, with a p-value of 0.000, demonstrating the superior influence of digital and television advertising over traditional print media. H₃, which posited that higher advertising frequency is positively correlated with increased brand recall, is confirmed by a p-value of 0.001, emphasizing the importance of frequent exposure to advertisements in enhancing consumers' ability to recall soft-drink brands. Lastly, H₄, which proposed that digital advertising has a stronger influence on younger consumers, is strongly supported with a p-value of 0.000, highlighting the growing significance of digital platforms, especially social media, in shaping the brand preferences of younger audiences.

Discussion and Conclusion

This research offers significant insights into the influence of advertising on consumer brand choice within Nepal's soft-drink sector. The data indicates that social media advertising is the most impactful channel in influencing brand choices, especially among younger consumers, with television advertising following closely behind. Both media formats are very successful in enhancing customer engagement and loyalty; nevertheless, print advertising, although still pertinent, has a significantly diminished impact on consumer brand choice. The research underscores the significance of advertising frequency, since increased exposure to commercials significantly enhances brand memory and fosters brand loyalty. The results substantiate the assumptions that advertising, especially via internet and television mediums, significantly influences consumer behaviour and preferences in the soft-drink industry. The report highlights the increasing prevalence of digital platforms, while acknowledging the enduring significance of conventional television advertising within the marketing mix.

Implications

This study's results have significant practical ramifications for soft-drink producers in Nepal and other developing countries. The growing efficacy of digital platforms, particularly social media, indicates a strategy transition that beverage firms must adopt. Brands can no longer depend only on conventional media; they must include social media advertising into their fundamental marketing strategy to reach younger, technologically adept customers who are more susceptible to dynamic, interactive content. The robust association between advertising frequency and brand recall indicates that organisations must sustain constant and frequent exposure across channels to keep their brands prominent in consumers' minds. Considering the diminished influence of print media, firms might gain by shifting advertising expenditures to more impactful digital and television platforms, therefore improving the cost-efficiency of their campaigns. The significance of customising adverts to align with the interests and behaviours of younger customers, who are more likely to interact with businesses on social media, is paramount. This discovery highlights the need for soft-drink businesses to have a more customer-focused strategy that use consumer data to provide personalised and targeted ads.

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Impact of Corporate Governance on Performance of Public Commercial Banks in Nepal

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Abstract

With regard to non-performing loans in Nepal, this research study seeks to investigate the effect of corporate governance on the profitability of public commercial banks. While several studies have examined the "Impact of Corporate Governance on profitability of commercial banks in Nepal," publicly traded commercial banks in the country have been the subject of far less investigation. By focusing just on Nepal's banking sector, this research aimed to address that void. The non-performing loan (NPL) is used as a dependent variable to measure performance, while the percentage of female directors, audit committee size, audit committee independence, board diligence, and board size all serve as independent variables in corporate governance. The study examined the governance procedures and their influence on the performance of public commercial banks in Nepal using panel data analysis. The data was collected from 2017/018 to 2021/022, and statistical methods such as descriptive statistics, correlation, multiple regression, and t-test were employed. Board diligence (DB) significantly and positively affects nonperforming loans (NPL), according to the empirical findings. Other factors (BS, FD AC, BI, ACI) did not significantly affect the return on assets (ROA) of Nepal's public commercial banks, according to the results.

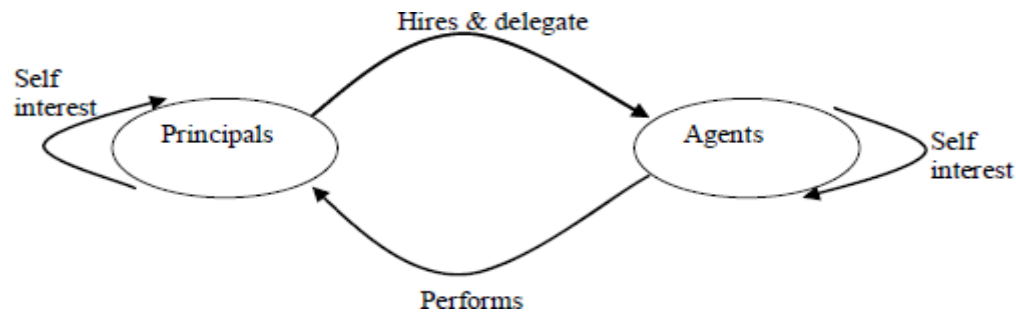
Key words

Corporate governance, board side, board independence, audit committee size, board diligence **Introduction**

In major commercial organisations, corporate-governance entails reaching choices and then putting those decisions into effect through several tiers of management. In corporate governance, the triad of accountability, credibility, and transparency is paramount. As was determined in the case of *Salomon v. Salomon* (*Salomon v. A Salomon & Co Ltd.* [1896] UKHL 1, 1897), the separation of "ownership and control" gave rise to the early arguments on agency concerns. The standards for corporate governance were issued in 2002 by the Nepal Rastra Bank, the country's national bank. Up to this point, Nepal Rastra Bank's regulatory norms have served as the gold standard for corporate governance. A number of rules and directives have been published by the Nepal Rastra Bank with the goal of enhancing corporate governance. The Nepalese commercial banking industry is currently grappling with the policy's apparent lack of ground-level execution, despite several directions, rules, and regulations issued by Nepal Rastra Bank. Corporate governance in Nepal's banking sector is crucial, as the country's real estate crisis has shown (NRB, 2011).

Literature Review

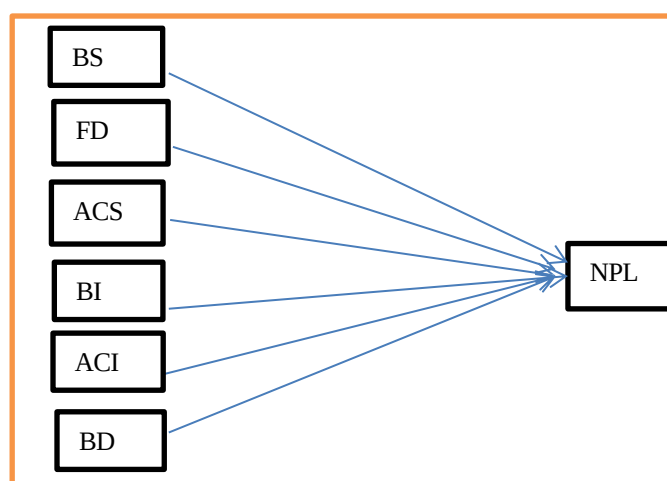
In large business organizations, ownership and management exists as two separate entities. Management works for the shareholders (ownership) as an agent. "In the organization, agency problem exists. Agency problem is the conflict of interest that is arose between the agents and principals in an organization. The theory discusses the principal appoints managers (the agents) to perform the activities and expects that the managers (agents) would take decisions keeping into view the interests of the principals. But in practice, managers are not truly interested to make decisions that are only in the interests of the principals. Rather agents also look for their self-interest. This theory believes that agents could be made responsible by applying rewards and punishments systems of management.

Figure: 1

Source: Theories of Corporate Governance: Agency, Stewardship etc. <https://www.papertyari.com>. 19 Aug 2018

Empirical Literature

Md. Harun Ur Rashid, et al. (2020) in their research work entitled “Corporate Governance and banks’ productivity: evidence from banking industry in Bangladesh” found that there is a positive relationship between the variables of corporate governance and the financial performance of commercial banks in Bangladesh. Also, he found that good corporate governance helps to balance the needs of agents (the managers) and owners (the shareholders). Ultimately it results in positive effect in the efficiency. Furthermore, he also found that banks should keep board sizes as small as possible, because a large board size needs more resources and can reduce efficiency of banks. He also found that independent directors, board size have no effect on the efficiency of commercial banks. Rudi Zulfikar, et al. (2020) in their research work entitled “Corporate Governance Compliance in Banking Industry: the role of board” has found that board size, high proportion of independent directors, more frequent board-meetings, all these variables have positive impact on improving corporate governance compliances and hence improve the financial performance in commercial banks in Indonesia. Himal Bhattarai, Dr Shinu Abhi and Dr U.M. Premalatha (2017) in their research work entitled “Effect of Corporate Governance on Financial Performance of banks in Nepal” found that bank size, independent directors are very closely correlated with financial performance of commercial banks. Progress Shungu, et al. (2014) in their research work entitled “Impact of Corporate Governance on the Performance of Commercial bank in Zimbabwe” summed up that board composition, board diversity has positive impact on financial performance of banks. Similarly audit committee and board size have negative impact on the performance. Ashenafi Beyene Fanta et al. (2013) in their work entitled “Corporate Governance and Impact on bank performance” found that a good corporate governance always leads to the better financial performance of banks. The study found that the board size has negative impact on financial performance of banks.

Figure 2 Conceptual Model

This study has been done on the basis of Dynamic Panel Data taken from the year 2017-018 to 2021-22 for 5 years. Data have been taken from Annual reports of all the 11 Class “A” commercial Banks of Nepal that are published on Web sites of the concerned commercial banks. Corporate-governance variables are used as independent variables. NPL has been taken as Dependent variables. Statistical Software Application SPSS has been used to find out correlations among the variables and finding the impact of independent variables upon the dependent’s variable. Fig. 1

Research Objectives

Looking into the statement of problems, it is important to review whether variables of corporate-governance have or have not impact on the financial performance of Nepalese commercial banks. It is also important to give an authentic recommendation to stakeholders about the influence of corporate governance practices in the improvement of the financial performance of commercial banks in Nepal. The step of the Central bank has further strengthened the financial capability and also requirement of a good governance system to strengthen the performance and to safeguard the interest of shareholders. Corporate- governance is very important for an emerging economy in a Least Income Countries (LIC) like Nepal. Objectives are outlined as follows.

- To examine the impact of board size, board independence, board diligence, female directors, audit committee size, audit committee independence on NPL of commercial banks in Nepal.
- To examine the relationship between board size, board independence, board diligence, female directors, audit committee size, audit committee independence on NPL of commercial banks in Nepal.

Hypothesis formulation

Based on research objectives, following research hypothesis have been formulated.

H1: There is statistically significant impact of board size on NPL of commercial banks of Nepal.

H2: There is statistically significant impact of female director on NPL of commercial banks in Nepal.

H3: There is statistically significant impact of audit committee size on NPL of commercial banks in Nepal

H4: There is statistically significant effect of board independence on NPL of commercial banks of Nepal.

H5: There is statistically significant effect of audit committee independence on NPL of commercial banks of Nepal.

H6: There is statistically significant influence of board diligence on NPL of commercial banks of Nepal.

Research Methodology*Research design*

Descriptive and causal comparative research design has been used for the research work. *Population and Sample size* Eleven commercial banks were taken (out of 21 commercial banks) as a sample for the study. Data for independent variables and dependent variables were taken from the websites of the concerned commercial banks of Nepal. *Data Collection Tools and Process* Secondary data were collected from the annual report of websites of concerned commercial banks. The data were taken for 5 years from the fiscal year 2017-018 to 2021-022. The total number of observations was 55 (11 commercial banks for 5 years observations for each). Various statistical tools like Descriptive Statistics, Correlation Analysis, Regression analysis, t-test, were applied using software application SPSS.

Regression model

$NPL^i = \alpha_0 + \beta_1 BS^i + \beta_2 FD^i + \beta_3 AC^i + \beta_4 BI^i + \beta_5 ACI^i + \beta_6 BD^i + \epsilon^i$ Whereas,

α_0 = constant

$\beta_1, \beta_2, \beta_3, \dots, \beta_6$ = slope of independent variables

ϵ = error term

BS =

Board Size

FD = Female director

AC = Audit Committee Size

BI =

Board Independence

ACI = Audit Committee Independence

BD =

Board Diligence

NPL = Non-Performing Loan

Data Analysis and Empirical results*Descriptive statistics*

The descriptive statistics for dependent variable, NPL and independent variables BS, FD, AC, BI, ACI and BD are described in Table no 1. Mean, standard deviations are used as the descriptive statistics. N represents the no of observation.

Table 1 Descriptive statistics and correlation

	Mean	SD	NPL	BS	FD	AC	BI	ACI	BD
NPL	1.3638	1.2227	1						
BS	6.9455	0.93131	.262	1					
FD	0.1781	0.30042	.231	-.002	1				
AC	3.2364	0.66566	-.217	.051	-.213	1			
BI	8.8983	8.12032	-.564**	-.227	-.324*	.378**	1		
ACI	2.1925	7.4702	.511**	-.072	.124	-.080	-.262	1	
BD	32.5455	32.40246	.763**	.053	.414**	-.319*	-.571**	.316*	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 1 shows the relationship between corporate governance and performance of commercial banks in Nepal. The average value of NPL is 1.3638 with standard deviation 1.2227. The average value of BS is 6.9455 with standard deviation of 0.93131. The average value of FD is 0.1781 with standard deviation of 0.30042. The average value of AC is 3.2364 with standard deviation of 0.66566. The average value of BI is 8.8983 with standard deviation of 8.12032. The average value of ACI is 2.1925 with standard deviation of 7.4702. The average value of BD is 32.5455 with standard deviation of 32.40246

Regression Analysis

A multiple regression technique which was used by many researchers was applied to examine the relationship between the corporate governance and firm performance (Al-Matari et al.,2012; Al-Sahafi et al.,2015; Farhan et al.,2017; Naushad & Malik,2015). It has also been stated by Hutcheson and Sofroniou (1999), that when the regression model comprises both continuous and dummy variables, OLS is a suitable statistical technique. Hence, the OLS regression has been used to test the relationship between corporate governance variables and financial performance of commercial banks in Nepal.

Table 2 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.860 ^a	.739	.707	.66226

a. Predictors: (Constant), BD, BS, AC, ACI, FD, BI

Table 2 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.481	.858		-1.726	.091
BS	.295	.102	.225	2.897	.006
FD	-.418	.333	-.103	-1.256	.215
AC	.034	.150	.019	.230	.819
BI	-.016	.015	-.105	-1.075	.288
ACI	.051	.013	.312	3.951	.000
BD	.024	.004	.641	6.631	.000

a. Dependent Variable: NPL

Table 2 shows the results on financial performance of commercial banks in Nepal using NPL as the dependent variable. The table shows that audit committee independence (ACI) and Board diligence (BD) were statistically positively significant with NPL at 1% level.” The result indicates that the increase in the number of meetings of board (BD) and audit committee independence could promote more diversified ideas on a regular basis which in turn decrease in NPL as a result of better decisions.

Conclusion

The purpose of this study was to investigate the link between the financial performance of commercial banks in Nepal and the corporate governance variables of board size, female director, audit committee size, board independence, audit committee independence, and board diligence by examining the interaction between these factors. The fact that there have been so few studies conducting research in the topic of corporate governance, particularly in the banking business, is what prompted the decision to conduct this study. This study makes a contribution to the existing body of literature about the significance of corporate governance in the banking business in Nepal. All of the hypotheses that were offered are not supported by the findings of the study. There is a possibility that the government, the body in charge of the capital market, commercial banks, and other financial institutions might benefit from this study. Another potential benefit of this study is that it might serve as a source of inspiration for other financial industries, such as insurance and financial services, amongst others. As the dependent variable, non-performing loans (NPL) were used to analyse the findings about the financial performance of commercial banks in Nepal. Both board diligence (BD) and audit committee independence (ACI) were shown to have a statistically significant positive relationship with non-performing loans (NPL) at the 1% level, as shown in the table. According to the findings, an increase in the number of board meetings (BD) might potentially encourage the development of a wider variety of ideas on a consistent basis, which would then lead to a reduction in non-performing loans (NPL) as a consequence of having better decisions.

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Strategic Management Practices and Performance of Nepalese Commercial Banks

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Abstract

The adoption of good strategic management strategies is crucial for banks to attain long-term success and maintain their competitiveness. Examining strategic management practices in Nepalese commercial banks is aim of this study. Four independent variables i.e., environmental scanning, strategy formulation, strategy execution, and strategy assessment control, as well as one dependent variable i.e., performance of Nepalese commercial banks, were primary focus of this study. This study is quantitative in nature. For the study, a causal comparative research design was chosen. To gather primary data on the factors and investigate their relationship, a survey was conducted. Simple random sampling was used to distribute self-administered questionnaires for this investigation. Data was collected from 216 respondents from among 10 commercial banks of Nepal. In the analytical section, both descriptive and inferential analyses were conducted. Data analysis was made using SPSS. With an R^2 value of 0.685, the inferential analysis demonstrates that every aspect of strategic management techniques under investigation has a favorable and statistically significant effect on the operations of Nepal's commercial banks. Among the four dimensions of strategic management practices strategy formulation have the most influential role on performance of commercial banks in Nepal in financial and non-financial terms. Managers of Nepalese commercial banks should take steps to continuously apply the approaches of strategic management for long-term competitive advantage.

Keywords

Strategy formulation, environmental scanning, strategy implementation, strategy evaluation and control, strategic management

Introduction

Due to its ability to facilitate transactions and offer financial services to both individuals and corporations, the banking industry is a highly competitive and dynamic sector of the economy (Broby, 2021). The adoption of good strategic management strategies is crucial for banks to attain long-term success and maintain their competitiveness. The process of establishing objectives, creating strategies, and carrying them out is known as strategic management. It helps firms accomplish their goals and targets. Strategic management can significantly affect organizational performance in the banking sector (Bryson & George, 2020; Irawati et al., 2019).

Increased profitability is one of main benefits strategic management contributes for organizational performance in the banking sector. Banks can enhance their profits by lowering expenses and raising income through well-defined goals and well-executed plans for reaching them (Broby, 2021). Banks can achieve increased efficiency by optimizing their operations and optimizing resource allocation through the implementation of strategic management principles (Mansaray, 2020). This can be accomplished via restructuring the bank's operations or by implementing technology, such as automation. This enhanced effectiveness may result in higher output, lower expenses, and quicker service delivery, all of which boost the bank's overall performance (Gitahi & Misango, 2020).

Increased innovation in the banking sector can also be a result of effective strategic management. Establishing unambiguous objectives and promoting innovation and trial and error, banks can create novel and enhanced offerings that cater to the evolving demands of their clientele. In the quickly evolving banking sector, this can assist banks in staying one step ahead of their rivals and being relevant (Al Balushi, et al., 2022; Roghanian et al., 2012).

Furthermore, risk management benefits from strategic management. Credit risk, market risk, and operational risk are just a few of the hazards that banks must control and reduce. Banks that practice effective strategic management will be better able to recognize and evaluate these risks, create management plans for them, and put in place efficient controls to lessen their impact. As a result, there may be a decrease in possible losses, which would enhance the bank's overall performance (Isoh & Nchang, 2020).

In order to survive and remain related in face of a constantly varying environment, an organization and, industry participants must make decisions about its mission, values, goals, strategies, priorities, and activities. This process is known as planning. Therefore, developing a wide-ranging plan or program is not same as strategic planning. but it is "unifying theme that gives coherence and direction to actions and decisions" (Grant, 2003).

Stonehouse (2004), strategic management is a collection of theories and frameworks that help managers plan and imagine the long-term future of the company as a whole. Strategic Management can be defined as “the art and science of formulating, implementing and evaluating cross-functional decisions that enable an organization to achieve its objective.” By putting strategic plans into action, businesses are able to react appropriately to the unstable environment, ensuring their survival and profitability and giving shareholders a return on their investment (Porter, 1998).

Three stages of strategic management process are generally implementation, assessment, and implementation. According to Certo and Peter (1991), the formulation phase is a method designed to make sure that companies meet their goals.

Second, is this the phase of implementation where activities are started in line with strategic plans? Businesses must define objectives, design policies, motivate employees, and allocate resources for carrying out planned strategies. If they are not executed well, organizations cannot benefit from carrying out organizational analysis, establishing organizational direction, or creating organizational plans. The assessment and control step comes last and calls for gathering data on strategic performance and contrasting it with accepted norms. In addition, performance is measured, current plans are reviewed, and corrective action is taken as part of the evaluation process. “Since there is no assurance that a strategy will be successful tomorrow, strategy evaluation is necessary. Every success brings with it a fresh set of issues; complacent organizations eventually face collapse” (David, 2005).

Chang (2016) asserts that in order for a company to remain competitive, strategic management helps it make important decisions and take actions that can decide what it does, why it does it, and how to do it. According to Ginter, Duncan, and Swayne (2018), businesses that use strategic management techniques are more likely to succeed than those that don't. It was shown to have improved the performance of up to 89 percent of the investigated enterprises.

The implementation of strategic management practices is crucial for an organization as it improves its capacity to prevent issues. This is because managers who foster a planning culture benefit from their subordinates' awareness of the importance of strategic planning, which helps them in their monitoring and forecasting duties.

The connection between an organization's performance and strategic management has been the subject of numerous studies. Although it is simple to identify strategy as the defining factor, there is little research to substantiate this claim. Once more, it is imperative to acknowledge the existence of additional variables, including political ones. Consequently, there is a need to close this research vacuum by making contributions to studies on how strategic management practices affect an organization's performance in the context of Nepalese commercial banks.

Issues

Pant's (2006) research, the majority of organizations in Nepal lack a strategic orientation, despite the fact that a small number of NGOs and growing business organizations have been implementing various forms of strategic management. According to Somlai (1992), sycophancy, domination of power centre and procrastination are characteristics of Nepalese management methods. Top-down management is evident in practice of submitting formalized written memorandums to top management for last approval.

As previously said, there are very few research-based insights available regarding strategic management approaches in Nepal. Examining if and to what extent the fundamental ideas of strategic management as they are understood and applied in the west are applied in Nepal, a developing nation, could yield important insights. Furthermore, research indicates that, like commercial organizations, not-for-profit organizations are likely to encounter growing pressure from stakeholders and competition, which will lead them to embrace and benefit from strategic management approaches. It is obvious that there is a need to comprehend strategic management methods in Nepal given the peculiarities of South Asia and the paucity of study on these practices.

Furthermore, according to O'Regan and Ghobadian (2000), not many scholars have examined how financial organizations formulate their strategies. The scant amount of research that has been done has a strong business sector foundation and is related to the strategy creation process.

Hence, the required issues needed to be addressed for were, about what strategic management techniques do Nepalese commercial banks employ? What is the association between strategic management practices & performance of Nepalese commercial banks? How does strategic management practices influence the performance of commercial banks in Nepal?

Purpose of the Study

In order to address these major issues, the main purpose of study was to ascertain how strategic management techniques affected operational efficiency of commercial banks' in Nepal. The study was conducted to determine strategic management practices adopted by Nepalese commercial banks also to find out association between strategic management practices and performance of Nepalese commercial banks and to analyse influence of strategic management practices on Nepalese commercial banks.

Literature Review

In order to create and maintain a competitive advantage, strategic management is frequently understood as a process that involves conducting an environment analysis, identifying and developing original strategies, and skillfully implementing those strategies (Hoskisson et al., 1999).

Process of defining organisation goals, creating plans and policies to reach them, and assigning resources to carry out plans and policies is known as strategic management. To put it another way, strategy creation, execution, and assessment are all combined under strategic management (David, 2005). Rothaermel, (2013) because it deals with organizational priorities and resource allocation, gives the entire company a general direction, and has an overall impact on the organization, strategic management is a top management responsibility.

Realized or actual strategy is often a blend of emergent (following unanticipated possibilities and adapting to changes in the environment) and intentional (pursuing what was planned) strategies (Mintzberg and Waters, 1985). Realized strategies are usually a combination of prearranged actions and responses to fresh changes in the market and competitive settings that present unanticipated possibilities and difficulties. Since organization's realized strategy is the product of both planned and emergent strategies, strategic management is not always a top-down process. This also necessitates the involvement of the entire company in the formulation and execution of organizational strategies.

The Dynamic Capabilities Theory: According to the dynamic capabilities model, a company needs to be adaptable enough to seize new opportunities when they present themselves and have the technological know-how to incorporate new information sources into its operations in order to succeed in the cutthroat market of today (Gates, 2010). The idea explains how giving environmental issues first priority can help a company's profit line. According to Dudu and Agwu (2014), "dynamic capability" refers to a company's ability to adapt its inner and outside strengths to suit the demands of various circumstances. Given the rapid depletion of exceptional firm-specific resources and talents, flexible skills are crucial in today's intensely competitive business environment (Bagnoli & Megali, 2011). However, it's critical to keep in mind that emotional intelligence and organizational processes are processes that require time to develop and fully integrate into a business. They are used to reorganize the company's resource allocation, which could entail getting rid of outdated inventory or creatively combining resources (Analoui & Samour, 2012). Therefore, banks must enhance their dynamic capacities to apply them for accomplishing long-term goals, since they view them as vital path defined through their past actions and asset stock. Because of this, organizations should work to strengthen their dynamic capacities, as they are viewed as crucial route shaped by banks' historical operations and asset stock, in order to use them to achieve long-term goals.

Eleven factors that influence how a strategy is executed and how it turns out were identified by Okumus (2001) and are frequently covered by different study frameworks. When creating a strategy, several elements must be considered, such as the operational strategy, leadership, structure of organization, interaction individuals control, the outcome, and the surrounding uncertainty. Using these components, he developed a new framework for strategy implementation, which he divided into four main categories: strategic substance, strategic context, operational procedure, and outcome.

The strategic management and organizational performance hypothesis was found to be supported by recent, significant research on strategic management conducted in Nigeria by Nmadu (2007). For example, the research showed that an SBE's company financial performance generally rises as the degree of strategic management practice increases. Higher the overall level of strategic management practices, the better SBEs perform financially in terms of earnings per share, profit before tax, return on capital employed, net asset, current working capital ratio, growth in relative market share, continuous addition of new product lines, and total deposits. Performance tended to rise dramatically as degree of strategic management rose for all of the financial performance metrics that were used.

Veskaisri et al. (2007) found that a business cannot compete effectively unless it has set clear business strategies. The management must scan the environment in which they operate and align their business strategies in a manner that it anticipates and mitigate risks. Managers must take a systematic and flexible approach to management in order to be protected from market uncertainties and achieve firm objectives.

A study was undertaken by Taiwo and Idunnu (2010) to investigate the impact of strategic planning on the performance and survival of firms. The planning-performance link within the company and the impact of strategic planning on First Bank of Nigeria were evaluated by the study. The results showed that planning improved a firm's performance, which eventually affects the firm's ability to survive.

Hitt, Ireland, Sirmon and Trahms (2011) indicated that for firms facing political and societal predicaments, the real solution to better performance lies in strategic management. In their interrogations, Lawal et. al. (2012) similarly demonstrated that strategic management not only improved performance, but also enables the organization to cope with various societal and political needs. Similarly, Muogbo (2013) demonstrated that firms which had implemented strategic management practices, not only indicated high competitiveness, but also showed better growth and development. Njanja (2009) and Otieno (2013) are of the same view that strategic management can improve performance, competitive edge of organizations and survival to a great level.

Muogbo (2013) investigated the effect of strategic management on the growth and success of businesses. Sixty-three employees from 21 different firms across three different senatorial districts were questioned. Descriptive statistics were employed to accomplish the study's four objectives, and Chi-square test was used to evaluate three hypotheses. Organizational productivity, employee performance, and competitiveness were all

positively impacted by strategic management. Despite being very uncommon among industrial enterprises, it was also found to help the structural development of businesses.

The relationship between strategic management and business success was investigated by Mohamud et al. (2015). The main goal was to show how strategic management may enhance corporate results. The spearman correlation statistical method was employed to evaluate the data, and the study combined descriptive and correlational research approaches to determine the nature of the correlations. Results of study point to statistically significant and favorable association between organizational performance and strategic management.

Waweru and Omwenga (2015) looked into the relationship between corporate strategy and the performance of private construction enterprises in Kenya. The 68 individuals were chosen by the researchers using a simple random selection procedure, and the primary data was collected using pre-made questionnaires. Survey items in the study were dichotomous, multiple-choice, open-ended, and closed-ended. Furthermore, Likert scale questions were used to get quantitative but computationally subjective results. The data for the analysis came from both primary and secondary sources. Following data collection, SPSS was used for data analysis. Results indicate, all three construction companies had used strategic management techniques that increased production.

The impact of strategic management methods on the functioning of public health institutions in Kenya's Mandera County was examined by Issack and Muathe (2017). Research design method used in study was mixed. Data analysis methods used in study included regression analysis and correlation. Results showed a favorable and substantial relationship between the performance of public health organizations in Mandera County and environmental analysis, strategy creation, strategy application, strategy assessment, and strategy execution. Correlation study revealed a substantial and positive relationship between the performance of public health organizations in Mandera County and environmental analysis, strategy creation, strategy execution, and strategy evaluation.

Agwu (2018) looked into how SMEs in Nigeria were adopting strategic management approaches and how this was improving their market shares, customer bases, and overall business success. Standardized questionnaires were used to collect data from 120 SMEs' owners in Lagos State, Nigeria. The collected data was examined using descriptive statistics and regression analysis. According to the survey, the competitive advantage and business strategy of small and medium-sized businesses (SMEs) are responsible for their increased market shares and clientele. The results did, however, indicate that organizational structure positively affects SMEs' transaction volumes, but not in a statistically significant way.

The links between strategic planning, strategic manoeuvrability, and business performance were examined by Kornelius et al. (2021). 337 companies were chosen at random from an Indonesian oil and gas vendor database by the research using simple random sampling. The partial least square structural equation results showed that strategic planning improved the performance of the business. Moderating effect of strategic manoeuvrability on relationship between corporate performance and strategic planning was also found to be positively correlated by the study.

Comparably, Chepkemioi (2021) investigated how strategic planning affected the operations of Kenyan fleet management firms for passenger vehicles. 228 respondents from Nairobi fleet management companies including senior managers, middle-level managers, supervisors, finance managers, and administrators—were chosen for the study using a stratified sampling design. The degree of association between independent and dependent variables was ascertained using linear regression analysis. Findings demonstrated a substantial and favorable relationship between fleet management firm performance and strategic planning.

The implementation of strategic management in banks as a means of enhancing performance has received significant attention in the literature. Nevertheless, there are still gaps in the knowledge about how strategic management affects performance in the banking industry, notwithstanding what has been published about it. Some authors have emphasized this, saying that there is no clear-cut correlation between the success of banks and the strategic management process. The hypothesis that the performance of Nepali banks is correlated with strategic management methods is still unproven.

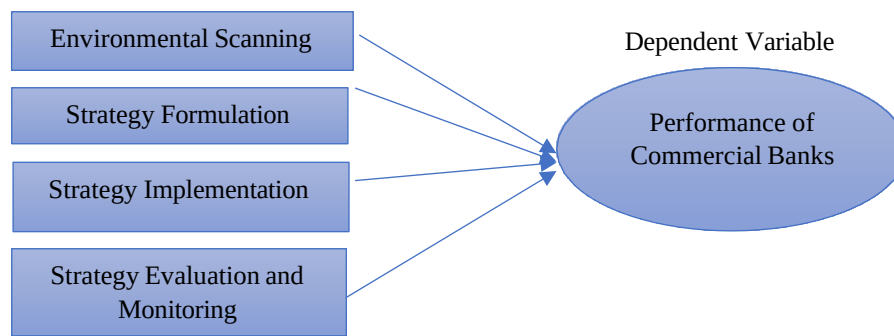
Conceptual Framework of the Study

Four independent variables i.e., environmental scanning, strategy formulation, strategy implementation, and strategy evaluation, make up suggested conceptual framework for this study, which is related to strategic management techniques. The banking industry's organizational performance is expected to be impacted by the four strategic management approaches.

Figure 1: Conceptual Framework

Independent variables

Dependent Variable



Hypothesis Formulation

H1: The performance of Nepalese commercial banks is significantly and favorably impacted by environment analysis.

H2: Strategy formulation significantly influences the performance of Nepalese commercial banks.

H3: Strategy implementation has a significant and positive influence on the performance Nepalese commercial banks.

H4: Strategy evaluation and monitoring significantly and positively impact the performance of Nepalese commercial banks.

Research Methodology

Research Design

The current study is descriptive and causal comparative in nature which is based on primary data collected.

Sampling and Data Collection

Primary data was collected using a Likert-type five-point scale, where 1 represents strongly disagree and 5 represents strongly agree (Likert, 1932). This method is employed because it quickly and cheaply collects enormous volumes of data from a sizable population. The research population includes all the active commercial banks operating in Nepal. The sampling procedure is followed through random sampling technique through which a total of 10 Nepalese commercial banks are selected for the study. The target respondents were then chosen using a purposive selection technique. Bank managers, project managers' "coordinators," and administration officers were the research's target respondents. Of the 237 questionnaires distributed, 216 usable questionnaires were returned.

Data Analysis

Data from the questionnaire was carefully entered into a computer data sheet using SPSS software. Descriptive and inferential analysis was carried out using these instruments. In a similar vein, additional software, such as Excel, was also used to examine and report the results. For inferential analysis, one-way ANOVA tests, primarily chi-square tests, have been utilised for hypothesis testing. Similarly, frequency tables and centre tendency have been employed in descriptive analysis.

Results and Analysis

In the present section the data analysis for several strategic management variables and performance of commercial banks is shown. Data analysis was carried through SPSS.

Relationship between strategic management variables and commercial banks performance.

Table 1: Mean scores, Standard deviations and Correlations of the sample along all Strategic Management variables

	Mean	S.D.	PCB	SEC	SI	SF	ES
PCB	4.1455	0.66335	1				

Cont.

SEC	4.1364	0.57256	.705**	1			
SI	3.9182	0.65578	.641**	.661**	1		
SF	3.6411	0.60690	.646**	.638**	.750**	1	
ES	4.3621	0.51376	.654**	.515**	.570**	.753**	1

** Correlations are significant at the 0.01 level (2-tailed)

From above table Nepalese commercial banks performance affected by strategic management practices is studied. The mean scores shows that all strategic management variables are moderately high important to determine the firm's performance in all dimensions.

The mean scores of environmental scanning dimension are showing above average results (i.e., ES=4.3621). The mean scores of all the items on strategy formulation dimension are showing average (i.e., SF=3.6411). The strategy implementation dimension reveals mean scores above average (i.e., SI=3.9182). The above average mean scores are examined in the strategy evaluation and control dimension (i.e., SEC=4.1364). The mean scores for performance of commercial banks dimension are found to be also above average (i.e., PCB=4.1455). It was found that correlation among the research variables is found to be positive and high. It means all independent variables relate well with the dependent variable taken in the study. Hence it is inferred there is significant association in commercial banks performance and strategic management practices followed.

Influence of Independent strategic management variables on commercial banks performance

Table 2 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression 1	18.740	4	6.346	45.007	.000 ^b
Residual	16.992	212	.180		
Total	35.732	216			

a. Dependent Variable: PCB

b. Predictors: (Constant), ES, SF, SI, SEC

The above table provides the value of F i.e., 45.007 which is significant. It means a significant model has emerged from regression analysis.

Table 3 Regression Coefficient Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.724 ^a	.685	.647	.40038

a. Predictors: (Constant), ES, SF, SI, SEC

From table 3 the R² value i.e., 0.685 predicts the variation in dependent variable due to independent variables. The value of R² shows that 68.5% variation in dependent variable i.e., performance of commercial banks, is explained by independent variables i.e., environmental scanning, strategy formulation, strategy implementation and strategy evaluation and control taken under study. Rest 31.5% variation in dependent variables will be due to other factors outside the model. This infers there is moderately high influence of independent variables on dependent variable.

Table 4 Multiple Regression						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.612	.401		1.459	.148
	ES	.306	.087	.283	3.654	.000
	SF	.349	.085	.370	4.562	.000
	SI	.232	.067	.265	3.245	.001
	SEC	.323	.063	.376	3.265	.001

a. Dependent Variable: PCB

The above table shows the influence of 'environmental scanning' on 'performance of commercial banks' is significant with value of t-statistic of 3.654 hence, the alternative hypothesis H1: The performance of Nepalese commercial banks is significantly and favorably impacted by environment analysis.

T value for the variable 'strategy formulation' is positive and significant i.e., 4.562, therefore we can say that 'strategy formulation' significantly impact 'performance of commercial banks'. So, hypothesis H2: Strategy formulation significantly influences the performance of Nepalese commercial banks is accepted.

It has been found that t-statistic for variable 'strategy implementation' is positive and significant. Hence, we can say that 'strategy implementation' influences 'performance of commercial banks' positively and significantly. Therefore, we accept hypothesis H3: Strategy implementation has a significant and positive influence on the performance Nepalese commercial banks.

The t-value of variable 'strategy evaluation and control' is also positive and significant i.e., 3.265 hence, we infer that performance of commercial banks is influenced by strategy evaluation and control. Therefore, we accept hypothesis H4: Strategy evaluation and monitoring significantly and positively impact the performance of Nepalese commercial banks.

Discussion

The goal of the current study was to determine how strategic management approaches relate to and affect Nepalese commercial banks' performance. Several research approaches i.e., descriptive statistics, correlations, regression were applied to develop association between several independent variables along dimension of strategic management practices and dependent variable of Nepalese commercial bank performance.

As per the findings and results of the current study it is inferred that strategic management practices are important for the improvement of commercial bank's performance in Nepal. The research results demonstrates that strategic management practices have positive impact not only on financial performance but on non-financial performance of these organizations (Aboramadan and Borgonovi, 2016). Strategic management is the long-term competitive plans of any organisation. It gives competitive advantage to the organisations and if the practices of strategic management are followed by firms consistently it can provide sustainable growth to the companies. Nepalese banking sector is facing the challenges to accomplish the sustainable development goals, in this context it becomes imperative to apply the approaches of strategic management by the firms.

The current study shows that practices of strategic management are significant for the improvement of banking sector performance but still there are variations in the implementation of various approaches in practice. Strategic management practices in Nepalese banks differs from the theoretical approaches practiced by the western countries. Strategic management is understood by managers to involve creating long-term plans and sharing them with different organizational departments and units. They put more of a focus on tracking and developing yearly strategic plans through participation. Plans for strategy are created in order to obtain a competitive edge and satisfy clients. Managers don't appear to know how to stand out from the competition and actually differentiate their goods and services, though. Our results so suggest that Nepalese banking managers have not specifically considered how they should pursue unique differentiation strategies to establish and sustain competitive advantages.

Our results also show that strategic management in Nepal is largely reactive and short-term oriented, with a focus on adapting to changes in the environment and competition. The unstable environment in Nepal, which makes it exceedingly challenging for managers to do long-term forecasts and establish future plans, may be the cause. The development and execution of long-term goals appear to be hampered by internal resource limits and frequent changes in governmental legislation. Managers' ability to conduct a sufficient and correct situational analysis is further hampered by Nepal's dearth of trustworthy, timely, and comprehensive business information.

As highlighted by Mosley et al. (2012), the data imply that these behaviors are essential to banks' financial performance. The findings also indicated that improved "program performance," or non-financial success, can be attained using strategic management techniques. The findings also support the hypothesis put forth by Letts et al. (1999) between program performance with managerial effectiveness.

Conclusion

By addressing a research gap on association between strategic management and bank performance, an area where fewer well-defined relationships exist, study makes a significant contribution to the empirical body of knowledge about the banking sector. The findings point to a significant correlation between strategic management techniques and the financial and non-financial success of Nepal's commercial banks. Thus, these findings demonstrate unequivocally the need for strategic management techniques in order to improve banks' performance. Secondly, the study surpasses the traditional approach of observing performance solely based on financing accessibility. Present research has an advantage over many other studies that only looked at relationship between use of formal planning as well as financial performance determined by income generation or funding availability, thereby missing other crucial components of commercial banks' financial performance like efficiency and transparency. Moreover, by incorporating both non-financial and financial performance measures—which are thought to be absolutely necessary to investigate such a link—this research provides a more nuanced view of this relationship. Lastly, earlier research focused solely on the application of planning, neglecting other critical components of an all-encompassing strategic management strategy, like implementation and assessment.

Implications

This study emphasizes how strategic management affects performance of commercial banks in Nepal. Study found that banks will perform better financially in terms of raising capital and using it effectively if they perform a thorough analysis of their current state, considering opportunities, threats, weaknesses, strengths, stakeholders, and community needs; defining their strategic alternatives in terms of mission, goals, and strategies; carrying out their plans and strategies while closely observing the key drivers of strategy implementation; and finally tracking and evaluating their strategies and progress. Furthermore, it is evident that banks that employ stronger strategic management techniques successfully complete their projects and provide their services. In light of the findings, we recommend that the banking industry implement the following strategic management techniques in order to attain improved performance: A review of the banks' current service, beneficiary, and stakeholder environments, external environmental analysis: assessing prospects and risks in relation to donors, rivals, sociopolitical and economic impacts, and stakeholder analysis, analysis of internal environment: determining internal strengths and weaknesses, creating short- and long- term goals that are time-based, realistic, quantifiable, and achievable, outlining the goals and tactics of several strategic options, consistently evaluating the mission statement, aims, and objectives in light of modifications to the workplace, considering that the leadership, corporate culture, and structure are important factors that influence how a strategy is implemented, creating a observation framework.

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Cloud Computing and Data Security Challenges: A Nepal Case

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Abstract

When it comes to storing and accessing data, cloud computing provides an alternative option for users of computers and mobile devices. Nepal has a lot of problems with cloud computing and protecting data. Data security in the cloud and cloud computing are topics the author is investigating. The investigation is carried out using the content analysis method. According to the research, cloud computing is crucial for the storage, regulation, and accessibility of data in Nepal. Additionally, Nepal is a developing nation. The data security issue is real because it has lacked the necessary technological know-how, financial resources, human resources with the necessary skills, and a large digital divide. Security in the cloud is mostly concerned with storage, virtualization, and networks. Users and providers of cloud services are primarily concerned in virtualization, which enables numerous users to share a single physical server. Data transmitted by remote virtual equipment is a prime target for assaults on cloud networks. Security, storage, data center operations, pricing, service level agreement, location, integrity, access, segregation, breaches, and confidentiality are just a few of the cloud computing issues that Nepal is clearly encountering. Nepal, like many other developing nations, should begin to make use of its own servers, satellites, and data centers or banks for communication and storage.

Keywords

Cloud computing, data security challenges, security model, vulnerabilities, e-government.

Introduction

Hosting massive computer systems and services in the cloud is a rapidly expanding and widely used computing paradigm [19]. Cloud computing was ranked #1 among the top ten most significant technologies by Gartner [20]. It is altering the manner in which infrastructures modify the modern computer era and is changing the operational expenditures of information and communication technology (ICT). In addition to changing the way we store and process data, cloud computing has greatly reduced the start-up costs for new businesses [17]. Cloud computing has several applications; traditional mass storage media such as floppy discs, hard drives, CDs, and USBs are no longer popular. Both large corporations and individuals use it as a medium for exchanging files and data. Thanks to these essential elements, sharing files and resources is now quick and straightforward. People might keep sensitive information safe by using the internet and software that allows them to enter virtual spaces. Enterprises are able to get their applications up and running faster, with more flexibility and less maintenance, which helps IT groups faster regulate resources to meet unpredictable and unsteady demand [20], [3], [13]. This, in turn, allows firms to avoid or minimize up-front IT infrastructure prices. As a result of service-oriented architecture, involuntary and utility computing, and the broad use of hardware virtualization, cloud computing has grown, allowing for the deployment of inexpensive processors, storage devices, and high-capacity networks [5]. We need to protect data since it is our most valuable asset [17]. No need to lug along bulky storage media like CDs, memory cards, hard drives, floppy discs, etc. Data saved in the cloud allows us easy file retrieval from any location in the globe. Due to the limited storage capacity of hard discs, floppy discs, CDs, and USB drives, cloud computing has become more popular. When using cloud computing, users are given 5 GB of free space. They should just purchase more room when they need it.

The scientific and business communities are beginning to recognise the rising significance of cloud computing. connection to a shared pool of programmable computer resources may be had anywhere with sufficient, on-demand network connection. This is known as cloud computing. It would seem that cloud computing is both a distribution structural architecture and a computational paradigm. Its primary objective is to provide a net computing service that is safe, quick, and appropriate for storing and processing data, with all computer resources seen as services and provided over the internet [3], [21]. Accelerating development work, facilitating collaboration, scalability, availability, and adaptability to demand changes are all made possible by the cloud. It offers the chance to save money by making computing more efficient and streamlined. The number ten. Cloud computing, including its storage, communication, and security features, has grown substantially in recent years. Data security in the cloud still presents a number of challenging and demanding computational issues [4]. IT is evolving into a global cloud, with storage and processing resources embedded more and more to fulfil the needs of new applications [16].

Virtualization enables a fresh strategy, which is in line with the ever-evolving state of computer and networking technologies. [8]. In order to reimagine its use and management, cloud computing promises better cost efficiency, faster innovation, shorter time-to-market, and, therefore, the capacity to grow applications on-demand [29]. It is useful for accommodating the ever-changing needs of worldwide service platforms and the rising tide of open innovation [28]. Data as a Service (DaaS), Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) are the four cornerstones of cloud computing [4]. Data security in the cloud is the focus of this research. Information safety in the cloud is defined in depth in this article. Using Nepal as an example, the post will go into additional detail on how to make data safe in the cloud. Cloud computing service models, cloud computing kinds, cloud computing data security concerns, cloud computing data security problems, and cloud computing vulnerabilities are all covered in this piece of literature.

Literature Review

Historically, the term "cloud" has been used to represent the internet. Professor John McCarthy first proposed the idea that computer time-sharing technology would pave the way to a better future in 1961. In the late '60s, this concept exploded in popularity. It soon became apparent that the then-current state of information technology could not support such an artistic movement computer paradigm. This concept was considered dated by the mid-1970s. The concept of cloud computing first surfaced in the computer community around this period [13]. The ever-increasing computing demands encountered by scientific researchers in the 1960s gave rise to the idea of using and sharing data and computers as a utility, which has its roots in the advent of the internet. Utilities computing, on-demand platform, and platform as a service are among of the terms used to describe this platform [18]. computer in the cloud refers to the on-demand provisioning of computer resources and services by means of the internet. The characteristics of cloud computing, as stated by Gartner Group [30], include being service-based, scalable and elastic, shared, and metered by usage, and using Internet technology. The benefits of cloud computing include its scalability, ease of deployment, cost-effectiveness, reduced capital investment, constant delivery of cutting-edge technology, and promotion and facilitation of the use of industry-standard technologies [7], [30].

The National Institute of Standards and Technology (NIST) has produced a popular one that describes cloud computing. "Cloud computing is a model for enabling ubiquitous, convenient, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" [20]. Although many deployment patterns are distinct, they are all still categorized as cloud computing. many cloud computing methodologies [14] here: A private cloud is one in which just one company owns or leases the necessary hardware and software to run its cloud operations. The term "community cloud" refers to an online environment where several organisations pool resources in order to address common issues. An organisation that offers cloud services to the public or a big industry group owns the cloud infrastructure in a public cloud. In a hybrid cloud, data and applications may be moved from one cloud to another using standardized or proprietary technologies. Each cloud in the architecture can be either an internal, community, or public cloud, but they are all still separate and distinct.

Section A. Models for Cloud Computing Services One way to categories cloud computing services is by the service model they employ, as stated in the NIST [20] definition. There are three distinct models for cloud computing services. Here they are: 1. SaaS for Infrastructure This model's services make it possible for cloud users to communicate with hardware resources directly. The capacity to supply storage, processing power, and network resources is made available to the consumer. The onus for providing the operating systems and application software needed to run on the hardware resources also falls on the consumer. Therefore, while the user does not have direct control over the cloud's fundamental resources, it does have some say over the safety of its operating system and its applications, but not its network [20]. 2 PaaS stands for "platform as a service." The platform as a service (PaaS) paradigm ensures that users have access to development resources such as libraries, services, and tools. The user is able to build cloud services within the constraints of the given environment. The user under this service model is in charge of the apps and services it generates, but not the software or hardware that powers them. 3. SaaS—Software as a Service Software as a service (SaaS) models allow cloud users to get software as needed. Although it provides the necessary functionality, it greatly reduces the amount of work that the user has to put into maintaining the resources. Users have the least level of control with this model. There is no command over the program, platform, or infrastructure, but it does allow users to tailor the product to their needs. These service types are recognized as cloud capabilities by the ISO standard ISO/IEC 1728. Communications as a Service (CaaS), Compute as a Service (CompaaS), Data Storage as a Service (DSaaS), Infrastructure as a Service (IaaS), Network as a Service (NaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) are the seven types of cloud services that are defined by it [17].

B. Protecting Data and Addressing Security Concerns in the Cloud —One novel approach to sharing resources is cloud computing. Cloud computing is already a common part of many people's everyday life [25]. Nowadays,

the safety of user data is an issue for any technological system. When software as a service (SaaS) customers are dependent on their suppliers to ensure adequate security, it poses a serious problem [24], [26], [27]. The primary goal of security is to prevent unauthorized individuals from gaining access, to restrict authorized users to seeing and editing just the material that pertains to their job function, and to prevent resource demands [25]. The primary worry of committing a company's vital data to cloud platforms that are geographically scattered and not directly controlled by that company is security. Storing and protecting data in order to enable recovery in the event of a disaster is a major undertaking [26]. The focus has shifted to cloud computing settings, and the process for ensuring data security is described. The primary focus is on the best practices for safeguarding cloud resources in SaaS, PaaS, and IaaS frameworks and offerings. Security recommendations for those offering their services the number 23. Organisational data is frequently processed and stored in the cloud in unencrypted while using SaaS. Data security in the cloud is the responsibility of the SaaS provider. While it's in the cloud getting processed and saved [15]. Users of cloud computing nowadays are searching for new ways to extend their on-premises infrastructure; they simply cannot afford to take any chances with the safety of their data and applications. When it comes to cloud computing, data security is the biggest concern [12]. Cloud companies continue to rely on third-party service providers for additional services, such backup. [24].

C. Threats to Data Privacy in the Cloud

1. Safety, it's no secret that security concerns have been a major roadblock for cloud computing. Security issues have arisen as a result of cloud computing's multitenancy approach and its shared computing resources [31].
2. Keeping Virtual machine data has various problems. Data storage reliability is one such issue. A potential security issue arises from the necessity of storing virtual computers in a physical infrastructure.
3. Function of the Data Centre In the event of data transport delays or natural disasters, businesses utilizing cloud computing must ensure that customer data remains intact. Data storage and access become problematic when incorrect data management occurs. Providers of cloud services are legally liable for any data lost as a result of a disaster.
4. A Model for Costing Data transmission costs will increase, but infrastructure costs may be drastically cut by moving to the cloud. Considering that many clouds frequently employ their own unique protocols and interfaces, the expense of integrating data might be considerable. To do this, they must use cloud provider-specific protocols when interacting with other clouds. Not only may data splitting and mixing result in significant additional financial costs, but it can also have a devastating effect on the performance of the system [1].
5. Method of Charging The expenses associated with this include reworking the program from the ground up to accommodate several tenants, improving performance and security for users to use the system at once, and coping with the complications that arise as a result of all of the aforementioned modifications.
6. Agreement on Service Levels After moving their critical business processes to the cloud, customers still have a responsibility to monitor the resources' availability, performance, dependability, and quality, even though they do not have direct control over them. Put simply, customers should insist on service delivery assurances from vendors. Also, each cloud services (IaaS, PaaS, SaaS, and DaaS) will have unique SLA meta requirements that they must describe.
7. Things to move Information technology systems that handle peripheral duties, such IT administration and personal apps, are the most easily migrated. When compared to SaaS, organizations' use of IaaS is more conventional. This is due in part to the fact that core operations are typically retained in-house and peripheral tasks are outsourced to the cloud.
8. Place The data in cloud computing is spread out over many different locations, making it impossible to pinpoint exactly where the data is stored. The regulations controlling the data might also change when the statistics are transferred to certain regions. As a result, cloud computing's compliance and statistical privacy regulations may be problematic. Customers should be informed about the location of their data by the service provider.
8. Honesty In order to maintain security, the system must restrict data changes to authorized users only. To prevent data loss in a cloud-based environment, data integrity must be effectively maintained. Ideally, all cloud computing transactions would adhere to ACID standards in order to maintain the integrity of statistics. Transaction management is a common source of problems for most online products due to the utilisation of HTTP offerings. Neither transactions nor transit assurance are provided by HTTP providers anymore. The problem can be resolved by implementing API- level transaction control.
10. Entry Security policies for data are the most common type of data access. According to the company's security regulations, personnel will be granted access to the data portion. Even if two employees were working there, they would not have access to the same data. Encryption and key management systems guarantee that only authorized users may access the data. Several systems ensure that only authorized parties receive the key. Strict adherence to data security policies is necessary to protect data from unauthorized users. It is essential to grant privileged user access since all cloud users have access over the internet. To prevent security threats, users might employ data encryption and protection techniques.
- Eleven. Privacy Users of cloud services save information (including data, movies, etc.) on remote servers. It can be saved with one or more cloud service providers. Ensuring data confidentiality is a crucial need when storing data on a distant server. Users should be aware of what data is kept in the cloud and how to access it in order to keep data comprehension and classification discreet.
12. Violations Concerns about data breaches are another critical area of cloud security. Because the cloud stores massive amounts of data from many users, it is possible for a malevolent user to get access to the cloud and launch a high-value attack on the whole cloud ecosystem. Accidental gearbox problems or insider assaults are two potential causes of

a breach. Thirteen. Separation Cloud computing is characterized by its multi-tenancy feature. There is a risk of data infiltration due to multi-tenancy, which permits data storage by several users on cloud servers. Injecting client code or using any program might compromise data. Therefore, data must be stored independently of the rest of the customer's information. Tests like SQL injection, data validation, and insecure storage can identify or locate vulnerabilities with data segregation. Cloud Computing Security Flaws While much of our attention is focused on security holes in technology, every company has other potential weak spots. Here are a few of these weaknesses: Poor recruiting methods and a lack of background checks on staff members [6] it's possible that some cloud service providers don't check their workers' backgrounds. The data stored in the cloud is often accessible to private users (like administrators) without limits. Virtually anyone with an active credit card and an email address may sign up for a cloud account, and many providers don't even bother to look into their customers' environments before they approve them [6]. One area where information security is lacking is in the area of security education for the general public [22]. Although this is true in any institution, it is more effective in the cloud because to the large number of individuals who network with it, including suppliers, end-users, cloud providers, third-party providers, and Organisational customers. Technologies including web services, web browsers, and virtualization have all played a role in the development of cloud environments, and they have been known as cloud computing. Consequently, the cloud is susceptible to any security flaw in these technologies, and such flaws can have a major effect on the safety of data stored in the cloud [11].

Discussion

Virtualized data centers that provide cloud computing services are highly optimized and make available software, hardware, and data resources on demand. However, there are significant concerns over the security of data and information stored in the cloud. The evolution of cloud computing has coincided with the proliferation of cloud systems and the introduction of novel ideas. For instance, building and deploying on two competing cloud services, like Amazon Elastic Compute Cloud (EC2) and Google App Engine (GCP), can result in highly accessible cloud apps. Users of cloud computing have access to a vast array of resources and services for data storage and processing. Cloud computing offers several advantages, but it also has certain drawbacks. Data owners are understandably worried about the safety of their data when considering a move to the cloud. As a result of the new attack vector, most of these cloud- specific concerns occur. For quite some time, people have relied on encryption and decryption methods to protect sensitive information. When correctly managed, a firewall and digital signature can further safeguard data stored in the cloud. Data security policy, legislation, and future plans are also priorities for Nepal's government. It is imperative that the government initiates the development of the country's data bank and promptly implements an integrated data storage system for all relevant stakeholders. Hacking, high jacking, cracking, cyber attract, and threats are on the rise. The preceding is all data-centric.

Conclusion

Nowadays, cloud computing is an essential aspect of the computer industry. Customers of these cloud services are not privy to the physical location of the servers or data storage facilities, but rather receive IT support over the internet. Customers of cloud services are often in the dark about the origin and method of service delivery. At this time, it is critical that the nations pledge to keep the cloud secure. Protected cloud computing environments ensure the safety of data stored in the cloud. Software as a service (SaaS), platform as a service (PaaS), and infrastructure as a service (IaaS) are three paradigms that can work for Nepal's data protection needs in the cloud. Security, storage, data center operations, pricing, service level agreements, location, integrity, access, segregation, breaches, and confidentiality are just a few of the cloud computing issues that Nepal is clearly encountering. According to the research, the three main areas of cloud computing security are storage, virtualization, and networks. Users and suppliers of cloud services are primarily concerned in virtualization, which enables several users to use a single physical server. Various forms of technological virtualization can present difficulties. Attacks on virtual networks often occur during communications with distant virtual equipment. They are aiming for data security. As one of the world's emerging nations, Nepal has to start making use of its own servers and satellites for data centers and connectivity.

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Impact of Credit Risk Management on Profitability of Commercial Banks in Nepal

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Abstract

The research aims to assess commercial bank credit risk and profitability, analyze the link between credit risk and financial performance of sampled banks, and assess the influence of credit risk on financial performance. Descriptive, correlational, causal comparative study. Secondary data come from the sample bank. Three Nepalese commercial banks are sampled. Profitability, credit risk, liquidity, capital sufficiency, interest spread, and base rate are study factors. Financial and statistical analysis are based on objective achievement and raw facts. Financial analysis uses ratios and descriptive statistics, correlation, and regression. Using SPSS and Excel for analysis. Positive but not significant relationships exist between profitability, credit risk, and liquidity. The capital adequacy ratio and profitability are negative and insignificant. Profitability is positively correlated with interest spread. Base rate negatively impacts profitability and is considerable. Credit risk hurts profitability but not much. The liquidity ratio and capital sufficiency positively affect profitability but not significantly. Positive interest spread and negative base rate affect bank profitability. With a R square value of 0.783, the study found that independent factors explain 78.3% of the variation in the dependent variable and other variables 21.7%. The results indicated that ISR and BR significantly affect commercial bank ROE in Nepal, but CR, LR, and CAR do not.

Keywords

ROE, non-performing loan, CAR, LR, Interest Spread Rate and Base Rate

Introduction

In order to create a favorable credit risk atmosphere, the credit risk board of directors should implement a robust credit-giving cycle and maintain an effective credit organization with thorough monitoring, management, and enough control over credit risk. In order to improve the foundation's overall presentation and seriousness, banks should find out techniques that focus on reducing their openness to accept danger. In addition, before extending credit to customers, banks should establish a thorough credit risk management system, which should include the regular evaluation of financial stability. The focus should be on credit risk, but we should also aim to develop procedures that bolster the banks' image and make them seem more serious. In addition, financial institutions should continuously enhance the efficacy of their credit investigation and advance administration in order to safeguard their resources as much as possible. The source of this advice is Khanal and Sapkota (2023). Dissecting the impact of bank crediting on advancement becomes crucial in evaluating the money linked transmission method. The analysis concludes that drawn-out bank boosting counsel for expansion are responsible for the beneficial correlation between bank crediting and development in Nepal. Conversely, an alarming effect of advance charges on progress is seen in the summary. Consequently, the state bank should take the lead in controlling expansion and preventing banks from lending money to useless and risky ventures (Timalsina Dhungana, 2017).

Focusing on the information age, this study seeks to identify the factors that, in turn, affect the efficiency with which the banking sector saves money using a credit risk strategy. This research differs from previous ones in a number of ways, including the following: period choice, bank choice, aim choice, examination technique choice, and factor choice. In this review, we will try to bridge the gap between those that focus on the specific point over a long period of time and those that concentrate on the components of credit risk and how they affect productivity.

Literature Review

By 2023, Khanal and Sapkota With relation to Nepal, credit risk the board and its influence on commercial banks' exhibition. Learn how credit risk affects the monetary exhibition of Nepalese commercial banks. In this study, the Pooled Normal Least Square assessor is used to analyze modified board information from ten commercial banks from 2012 to 2021. The study found that CDR affects ROA, whereas Vehicle, NPLR, and BS made a little but

favorable difference. Alternatively, MQR note has a significant impact on ROA. These results demonstrate that the financial presentation of Nepal's commercial banks is substantially impacted by credit risk management.

(Butola, Dube, & Jain, 2022)'s Did research for a study that looked at how credit risk management affected the bottom lines of Indian banks. The major objective of this research is to discover a statistical relationship between CRM and profitability in Indian banks. The secondary data was analyzed using panel data regression. 38 scheduled commercial banks in India contributed the data between 2005 and 2019. In this study, ROA is seen as a measure of profitability and a dependent variable. On the other hand, CRM is determined by a number of independent variables, which include the following: credit-to-deposit ratio (CDR), net interest margin (NIM), operating profits to total assets (OPA), capital adequacy ratio (CAR), provision coverage ratio (PCR), and net non-performing assets to net advances (NNPA). Statistical analysis shows that ROA is positively associated with CDR, OPA, and CAR, and negatively associated with NIM, NNPA, and PCR; nevertheless, all of these variables show a statistically significant connection with ROA except for PCR. "Credit Hazard" was the primary focus of Aduda and Obondy (2021). "The Board and Proficiency of Reserve Funds and Credit Helpful Social Orders: A Survey of Writing" aims to conduct a literature review on the topic of credit risk among executives and their impact on effectiveness, as well as to identify any gaps in knowledge regarding the relationship between credit risk and financial execution based on the specific research that was conducted. Regardless, no concrete data regarding the correlation between credit risk among executives and SACCO productivity is available. Not only has previous research been inconsistent on the nature of the relationship between the two, but it has also often ignored efficacy in favor of monetary success. The analysts' differing conclusions can be due to systemic variations or differences in how the evaluation elements were operationalized. Relevant types may stand in for the problematic consequences, given that the majority of the research has been on commercial banks in various economies. The correlation between SACCO output and credit risk board should be further investigated by looking for the hidden factors. Banu, Sayaduzzaman, and Sil, published in 2021 Investigated the relationship between credit risk management indicators and profitability attributes using data collected from Bangladesh's state-owned commercial banks. This study primarily aims to determine the effect of credit risk management indicators on the profitability characteristics of commercial banks in Bangladesh that are controlled by the state. For this study, the researcher looked at the audited annual reports of four different banks between 2012 and 2016. In order to reach the end result The study's objectives informed the use of analysis of variance (ANOVA), multiple regression model (MRM), and correlation matrix (CM). Although the sample banks' profitability attributes varied little over the research period, there was considerable (and non-significant) change in the measures of credit risk management, and there was a link between them. Furthermore, the study's profitability metrics, including return on equity and return on assets, as well as the sample banks' net profit percentage, are unaffected by the numerous credit risk management indicators, including loan and advance, classified and unclassified loans, leverage ratios, bad debt, default ratios, cost per loan asset, and cost to income ratios. The study concludes that in order to effectively manage credit risk and meet the demands of loan applicants, the banking industry's management should emphasize the development of a smart policy and lending standards.

"The Effect of credit risk the executives on the monetary execution of business banks in Nepal" was the subject of the article Poudel (2020) examined. This research aims to delve into the many facets of credit risk management and the implications they have on the primary worries of financial institutions. Default rate, cost per credit resource, and capital sufficiency proportion were the accompanying limits examined in the study. The financial records of thirty-one institutions were examined over an extensive period (2001-2011). Default rate, cost of per credit resource, and capital sufficiency percentage were compared to the productivity proportion after data was broken down using engaging, relationship, and relapse tactics. Even if the default rate is the greatest indicator of a bank's financial health, these factors have a negative impact on it, according to the assessment. The goal is to encourage financial institutions to not only strengthen themselves against credit risk, but also to develop and implement strategies that will increase their profits.

Credit Risk Management and the Profitability of Nepalese Joint Venture Commercial Banks was studied by Shrestha, B. (2018). Regardless of its type, credit risk management is an essential component of financial organizations. We selected investment and commercial banks in Nepal to examine the correlation between credit risk management and profitability in order to get a better picture of the country's banking system as a whole. The study's descriptive and casual research designs were useful in determining the strength of the causal association between the variables under investigation. Quantitative data was gathered using a regression model, while qualitative data was gathered through structured interviews with bank management. This study's regression model results corroborated previous findings that credit risk had no effect on the profitability of Nepalese joint venture banks. This study compares and contrasts joint venture banks in Nepal based on metrics such as credit-to-deposit ratio, non-performing credit-to-total credit ratio, return on assets (ROA), and credit risk management. It draws on data from NABIL, NIBL, SCBI, EBL, NSBI, and HBL. Secondary data derived entirely from joint venture commercial banks' annual reports was utilized for this investigation. As a sample, this study included six joint venture banks. The results of the bank's operations during 2012–2016 constitute the basis of this analysis.

Similarly, Chhetri (2018) looked into how credit risk executives affected the financial performance of commercial banks in Nepal. The study bolstered the case for Nepalese commercial banks to follow the prudent praise risk management practices of their chiefs, strengthen the viability of their credit assessment and advance organization, and sever non-performing loans in order to recover assets and mitigate negative effects on financial performance. This selected company controls an account with a time reach and exploration system comparable

to Nepal, but no scientists have investigated the recognized risk method for it. Past dismissals of speculative, quantifiable, and monetary instruments are all part of this research. Accordingly, the purpose of this article is to seek out the main indicators that could significantly affect the functioning of Nepalese commercial banks. The experimental audit has failed to provide up-to-date information, such as that found in this analysis, as the research, papers, and diaries used for evaluation are from different years. To help experts and students gain a deeper understanding of a certain topic, this review often provides in-depth research on the topic.

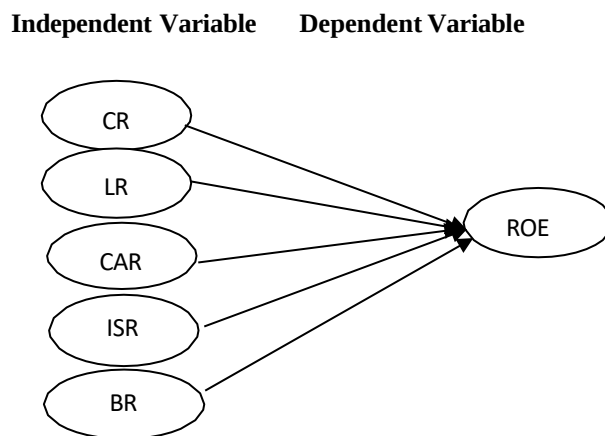
Research Methodology

Research Designs

This study applies a causal comparative and exploration technique those integrates clear, relationship, & fundamental similar procedures to discourse concerns concerning Credit chance & bank execution in Nepal. *Population and Sample*- To inspect the job of various gamble the executives' factors on the monetary execution of banks, this study contains an example of three business banks of Nepal whose separate information were gathered for the time of 2013/14 to 2022/23. "The example has been chosen through an irregular testing strategy out of the all-out populace. *Methods Analysis*- To achieve the review's goals, an assortment of monetary, factual, and it were utilized to account instruments. The information investigation will be predictable with the current information designs. Utilizing the accessible devices and assets, the review applies scientific measurable methodology like Karl Pearson's coefficient of connection and t-test.

Conceptual Framework

Figure1: Conceptual Framework



Hypothesis formulation

H1: There is significant relationship between credit risk and ROE H2: There is significant relationship between liquid risk and ROE
H3: There is significant relationship between capital adequacy ratio and ROE H4: There is significant relationship between interest spread ratio and ROE H5: There is significant relationship between base rate and ROE

Definitions of the Variables

Dependent Variables-The following Dependent Variables has been using in this study:

Return on Equity (ROE)- Return on equity (ROE) fills in as a measurement to assess the benefit of value subsidizes put resources into a bank, uncovering the benefit procured each unit of contributed capitals. This action is exceptionally huge as it mirrors the efficiency of the proprietorship or chance capital used inside the banks, as featured through Getahun (2015). ROE, a monetary proportion applied to evaluate the benefit and productivity of different organizations, including bank, is determined via separating a bank overall gain with it normal investors' value. ROE is significant on the grounds that it fills in as an imperative sign for financial backers and partners assessing a bank's capability to procure gets back from investor speculations. Banks frequently look for a higher ROE, which demonstrates more noteworthy benefit creation each unit of investor proprietorship. This is basic toward perceive those ROE can shift altogether amongst bank because of fluctuations in business structures, Risk reports, & current marketplace condition.

Independent Variables-The following Independent Variables have been used in the study:

Credit Risk Identification- Recognizing Credit risk regularly implies surveying 3 significant parts: functional gamble, market hazard, and moral gamble. Functional gamble relates to the potential for misfortunes coming about because of defective inside methodology, faculty issues, and outer occasions.

Liquidity- In the financial setting, liquidity alludes to a bank's ability to meet transient responsibilities or commitments on time. Liquidity is a significant component for banks to consider, as it can cause bank disappointment. Administrative organizations now and again stress how pivotal the liquidity of the executives is. Since they find it challenging to fulfill investor requests, banks that are encountering a liquidity emergency could become the focus of a bank run.

Capital Adequacy Ratio (CAR)- The Capital Sufficiency Proportion remains picked so a critical sign of a bank monetary potency, especially according to viewpoint of administrative specialists. It incorporates different kinds of financial capital, with a fundamental highlight on financial backer worth, which is known for its consistency and liquidity. Sets aside cash with a high capital adequacy extent are most likely going to be useful.

Interest Spread Rates (ISR)- The premium Spread Rate in banks tends to differentiation concerning the funding cost at whose bank loosen up credits to debtors & the rates at whose they pay benefactors. This Spread fill in as a general income for bank, getting the benefit from crediting & getting development. For the most part, banks make cash by charging more significant supporting costs on advances and credit things than on stores.

Base Rate (BR)- Monetary policies two-fold affects credit risk, during advance beginning as well as when financing costs are raised over the credit's term. Here, low financing costs fuel bank risk-taking way of behaving, bringing about the issuance of new advances with expanded credit risk. At the same time, decreased financing costs lessen the ongoing acknowledge risk associated for bank credits.

Table 1. Descriptives Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation	CV (in %)
Profitability	30	6.35	32.98	18.42	6.99	37.94
Credit risk	30	0.10	2.43	0.66	0.63	0.95
Liquidity Ratio	30	21.51	42.69	29.70	6.079	20.46
Capital Adequacy Ratio	30	11.91	15.92	13.47	0.990	7.3
Interest Spread Rate	30	3.18	5.71	4.52	0.67	14.82
Base Rate	30	4.17	10.74	7.74	1.68	21.7
Valid N (list wise)	30					

Source: Appendix

Table 1. show expressive estimations of investigation factors. The investigation factors are benefit, credit risk, liquidity ratio, capital adequacy ratio, interest spread rate, base rate. The data are accumulated from the yearly report of the different model bank yearly report and all of bank has 10 discernment or in outright 30 insights are the investigation insights. Every one of the 30 insights are used for calculation of the illuminating estimations known as mean, standard deviation, coefficient of assortment, least, and most noteworthy. In the tables, the base, most limit, mean, S.D., & coefficients of assortment of advantage is 6.35, 32.98, 18.42, 6.99, & 37.94 independently. Credit risk is one of the independent elements of the investigation least, most noteworthy, mean, standard deviation, & coefficients of assortment, which are 0.10, 2.43, 0.66, 0.63, and 0.95 independently. The Liquidity Extent is furthermore the free element of the assessment least, most noteworthy, mean, S.D. & coefficients of assortment are 21.51, 42.69, 29.70, 6.079 & 20.46 exclusively. The Capital Adequacy Extent in like manner the free factors of the assessment least, most limit, mean, standard deviation and coefficient of assortment are 11.91, 15.92, 13.47, 0.990, & 7.3 exclusively. The Exceptional Spread Rate is furthermore the independent variable of the investigation which is least, most noteworthy, mean, standard deviation and coefficient of assortment 3.18, 5.71, 4.52, 0.67, & 14.82 independently. The Base Rate is also the free component of the investigation and least, most limit, mean, standard deviation and coefficient of still up in the air, they are 4.17, 10.74, 7.74, 1.68, & 21.7 exclusively. The assessment showing that all of the elements have an opening among least and the best is very and considering mean & S.D. is have all the earmarks of being outstandingly level up which address stream position of the investigation factors is an incredibly unstable nature of the data.

Correlation Analysis

Table 2. Co-relation of the Variables

Variables		Profitability	Credit Liquidity Risk Ratio	Capital Adequacy Ratio	Interest Spread Rate	Base Rate
Profitability	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	30				

Credit risk	Pearson Correlation	.095	1				
	Sig. (2-tailed)	.616					
	N	30	30				
Liquidity Ratio	Pearson Correlation	.005	.038	1			
	Sig. (2-tailed)	.978	.841				
	N	30	30	30			
Capital Adequacy Ratio	Pearson Correlation	-.025	-.418*	-.201	1		
	Sig. (2-tailed)	.895	.022	.286			
	N	30	30	30	30		
Interest Spread Rate	Pearson Correlation	.791**	.110	-.301	.146	1	
	Sig. (2-tailed)	.000	.563	.107	.441		
	N	30	30	30	30	30	
Base Rate	Pearson Correlation	-.536**	-.100	-.153	.416*	-.177	1
	Sig. (2-tailed)	.002	.597	.419	.022	.349	
	N	30	30	30	30	30	30

** . Co-relation is significant at 0.01 level (2tailed).

*. Co-relation is significant at 0.05 level (2tailed).

Table 2 shows the association between the free and subordinate elements. In this assessment the dependent variable is the Advantage assessed by return on esteem and the free factors are credit risk assessed by non-performing propels, liquidity extent, capital adequacy extent, premium spread rate, and base rate. Objective two of the investigation is to analyze the association among free and not entirely settled in this relationship table. The association among efficiency and credit risk is a positive and low level of relationship similarly which in not a gigantic relationship. The association regard is 0.095 which tends to the low certain relationship regard. The basic worth is 0.616 which is more than 0.05 so the relationship isn't colossal. The hypothesis isn't right. The association between the advantage and Liquidity Extent is positive and a low-level relationship moreover which not a basic relationship is. The relationship regard is 0.005 which tends to the low certain association regard. The basic worth is 0.978 which is more than 0.05 so the relationship isn't immense. The hypothesis isn't right. The association between the efficiency and capital adequacy Extent is negative and has a low level of relationship in like manner which is most certainly not a basic relationship. The association regard is 0.025 which addresses the low lamentable relationship regard. The enormous worth is 0.895 which is more than 0.05 so the relationship isn't basic. The hypothesis isn't right. The association among advantage and Premium Spread Rate is a positive and evident level relationship yet not perfectly and besides which immaterial relationship. The relationship regard is 0.791 which addresses a high certain association regard. The basic worth is 0.000 which is under 0.01 so the relationship is tremendous or called 1% level of significance. The hypothesis is substantial. The association between the advantage and Base Rate is a negative and moderate level of relationship yet not a perfectly and besides which in a basic relationship. The connections regard is 0.536 which tends to the high terrible association regard. The immense worth is 0.002 which is under 0.01 so the relationship is basic or called 1% level of significance. The hypothesis is legitimate.

Regression Analysis

This third level headed of exploration is to look at effect of autonomous factors on reliant factors of the examination. The relapse depends on numerous relapse condition. The numerous relapse condition is $ROE = \beta_0 + \beta_1 \times NPL + \beta_2 \times LR + \beta_3 \times CAR + \beta_4 \times ISR + \beta_5 \times BR + e$. The model synopsis, ANOVA, and Coefficient is determined.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of The Estimate
1	.906	.802	.783	3.26

a. Predictors: (Constant), base rate, credit risk, liquidity ratio, interest spread rate, capital adequacy ratio

Table 4 ANOVA of Variables

Model	Sum of Squares Ss	D.F.	Mean Square	F	Sig.
1 Regression	1163.462	5	232.692	21.886	.000 ^b
Residual	255.165	24	10.632		
Total	1418.627	29			

a. dependent variable: profitability

b. predictors: (Consistent), base Rate, credit risk, liquidity ratio, interest spread rate, Capital adequacy ratio.

Table 3 show model outline of 30 perceptions of 3 business bank in Nepal and defendant of each banks have 10 perceptions. Here $R^2=0.82$ implies 80 percent of complete varieties in benefit is made sense of ward factors and free factor for example base rate, credit risk, liquidity ratio, interest spread rate, Capital Ampleness Proportion however 18 percent absolute minor departure from productivity is made sense of by different elements which are excluded from our exploration. Table 4 shows the ANOVA of three business bank of 30 perceptions. Here subordinate variable benefit defines an indicator and free factor base rate, credit risk, liquidity ratio, interest spread Rate, capital adequacy ratio. Here relapse is critical on the grounds that huge worth is 0.000 which is under 5%. It means the relapse major areas of strength for is strong regression.

Table 5 Coefficients of Variable

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Std Error	Beta		
1 (Constant)	-17.340	11.221		-1.545	.135
Credit risk	-.120	1.082	-.011	-.111	.913
Liquidity Ratio	.217	.107	.189	2.020	.055
Capital Adequacy ratio	.430	.779	0.61	.551	.586
Interest Spread Rate	8.032	1.021	.770	7.865	.000
Base Rate	-1.642	.419	-.397	-3.921	.001

a. dependent variable: profitability

Table 15 shows the coefficient of business bank. The coefficient of different three business bank total 30 respondents of all of 10. Here subordinate variable Efficiency called marker and independent variable Base Rate, Credit Possibility, Liquidity Extent, Premium Spread Rate, capital Adequacy Extent. Here coefficient table shows the solitary variable assortment to the dependent variable, their precision, immense level. The impact of the Credit opportunity to the Efficiency is negative which shows by the beta worth of negative 0.12. The beta worth shows 1% change in to Credit risk than antagonistically 0.12 rate change in to benefit of the bank. The standard mix-up resolved is outstandingly high for instance 1.082 which mean low level of precision of decided regard. The immense worth is more than 0.05 so the impact isn't basic for instance 0.913. The impact of the Liquidity Extent to the Advantage is positive which shows by the beta worth of positive 0.217. The beta worth shows 1% change in to Liquidity Extent than positive 0.217 rate change in to efficiency of the bank. The standard batch decided is particularly low for instance 0.107 which mean raised level of accuracy of decided regard. The colossal worth is more than 0.05 so the impact isn't basic for instance 0.055. The impact of the Capital Adequacy Extent to the Advantage is positive which shows by the beta worth of positive 0.43. The beta worth shows 1% change in to Capital Adequacy Extent than positive 0.43 rate change in to benefit of the bank. The standard screw up resolved is incredibly low for instance 0.779 which mean raised level of accuracy of decided regard. The enormous worth is more than 0.05 so the impact isn't basic for instance 0.586. The impact of the Top notch Spread rate to the Advantage is positive which shows by the beta worth of positive 8.032. The beta worth shows 1% change in to Income Spread rate than positive 8.032 rate change in to benefit of the bank. The standard bumble decided is incredibly high for instance 0.1.021 which mean low level of accuracy of decided regard. The colossal worth is under 0.05 so the impact is basic for instance 0.00. The impact of the Base rate to the Advantage is negative which shows by the beta worth of negative 1.642. The beta worth shows 1% change in to Base rate than negative 8.032 rate change in to efficiency of the bank.” The standard slip-up resolved is very low for instance 0.419 which mean low level of accuracy of decided regard. The immense worth is under 0.05 so the impact is basic for instance 0.001.

Conclusion

The primary objective of the exploration is to assess the current condition of credit risk and advantages associated with commercial banks. The analysis reveals that the components exhibit a significant range between the minimum and maximum values, and the standard deviation appears to be notably large, indicating the highly variable character of the data in the current study. Considering all aspects, the momentum position of the examination components is characterized by its very variable nature. The second objective of the investigation is to analyze the relationship between productivity and credit risk; profitability and liquidity are positive but not significant. The capital adequacy ratio and productivity are negative but not crucial. The premium spread rate and benefit exhibit a significant and positive correlation. The base rate has a detrimental and significantly adverse correlation with benefit. The correlation between premium spread rate and benefit is positive and substantial, but the association between base rate and productivity is negative. The third purpose of the evaluation is to examine the influence of credit risk on the financial performance of the evaluated institutions. Credit risk has been shown to affect productivity. The liquidity ratio and capital sufficiency influence productivity. The premium spread rate is positive, while the base rate is negative, impacting the bank's profitability. The favorable premium spread rate and adverse base rate influence the bank's profitability.

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The primary objective of the exploration is to assess the current condition of credit risk and advantages associated with commercial banks. The analysis reveals that the components exhibit a significant range between the minimum and maximum values, and the standard deviation appears to be notably large, indicating the highly variable character of the data in the current study. Considering all aspects, the momentum position of the examination components is characterized by its very variable nature. The second objective of the investigation is to analyze the relationship between productivity and credit risk; profitability and liquidity are positive but not significant. The capital adequacy ratio and productivity are negative but not crucial. The premium spread rate and benefit exhibit a significant and positive correlation. The base rate has a detrimental and significantly adverse correlation with benefit. The correlation between premium spread rate and benefit is positive and substantial, but the association between base rate and productivity is negative. The third purpose of the evaluation is to examine the influence of credit risk on the financial performance of the evaluated institutions. Credit risk has been shown to affect productivity. The liquidity ratio and capital sufficiency influence productivity. The premium spread rate is positive, while the base rate is negative, impacting the bank's profitability. The favorable premium spread rate and adverse base rate influence the bank's profitability.

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Perceptions Towards Behavioral Finance Among Investors in Banking Industry: Evidence from Nepal Bank Limited

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Abstract

The purpose of this article is to investigate the attitudes that investors in the banking industry have towards behavioural finance for the purpose of gathering evidence from Nepal Bank Limited. In collaboration with Nepal Bank Limited, the purpose of this study is to investigate the implications of behavioural biases on investment decisions in the banking business. In the context of rational investment decision making on the stock market, the investigation of cognitive biases and emotional biases is measured. After careful consideration, the ontological research philosophy that employs interpretivism research philosophy has been chosen. The researcher has been hired with a semi-structured interview with three investors in the banking business with reference to the Nepal Bank Limited. The data analysis has been done qualitatively using theme analysis. This article presents the findings of the interview. All of the codes were arranged into categories, and themes were discovered. According to the findings of the study, the most common types of behavioural biases that investors in the banking business exhibit are cognitive biases and emotional biases. The evidence for this was obtained from Nepal Bank Limited. Both fundamental and technical analysis were utilised to determine how the outcomes of the study influenced the NBL stock market. In doing so, it brought to light arbitrage possibilities that arise from the psychological and behavioural flaws of investors. These biases include representativeness, availability biases, optimism, overconfidence, and herding behaviour. Because of these biases, individual investors in Nepal Bank Limited were impacted in both their opinions and their behaviour. When it comes to the emotional biases, investors are impacted by psychological and mental accounting, ambiguity aversion, and self-control when it comes to making investment decisions in the banking business, as evidenced by Nepal Bank Limited (NBL). The focus of this study is on individual investors; however, it is possible that future research paths may concentrate on institutional investors in the banking industry, supported by evidence from Nepal Bank Limited.

Keywords

Banking industry, behavioral biases, behavioral finance, individual investors, Nepal Bank Limited.

Introduction

The field of behavioural finance is extremely important because it examines the actions of individual investors in the banking industry and draws attention to the psychological biases that exist. The integration of perception with market efficiency involves tackling inefficiencies that are brought about by irrational behaviour from consumers. As a result, perception is a process that humans go through in order to organise and interpret the sensory impressions they get in order to provide meaning to their surroundings. There is a possibility that our perceptions are not at all consistent with the actual reality. Behavioural finance is concerned with perception since the behaviour of investors is dependent on their perspective of what reality is, rather than on reality itself (Robbins et al., 2018). The process by which an individual searches for the most notable clarification of sensory information in order to arrive at a conclusion based on their degree of competence and previous experience is referred to as sensory clarification. Around the world, the 1990s saw the beginning of the development of a new area that is today known as behavioural finance. However, according to Ricciardi and Simon (2000), the origins of behavioural finance may be traced back more than 150 years. In 1912, Selden defined the area of psychology as the application of psychology directly to the stock market. This field was known as psychology of the stock market. The emotional and psychological elements that influence traders and investors in the financial markets have an impact on their behaviour.

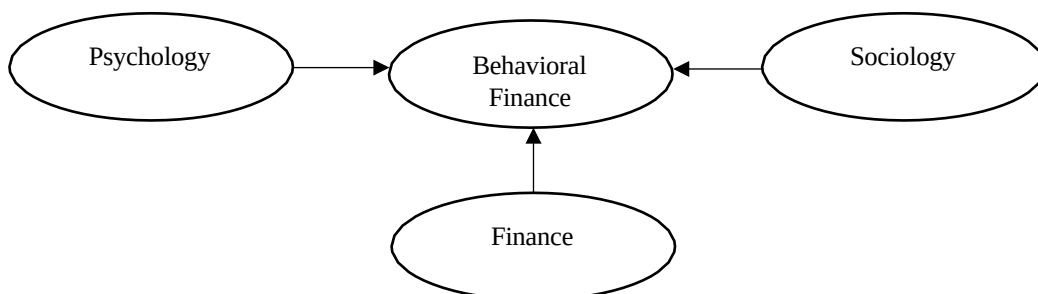
When we talk about behavioural finance, we are referring to the process of explaining and gaining a better knowledge of the reasoning patterns of investors, which includes the emotional processes and the degree to which they impact the decision-making process. The purpose of this article is to provide an explanation of the what, why, and how of finance and investment from a human lens. Behavioural finance, for example, is an attempt to understand financial markets and provides explanations for several abnormalities in the stock market. This field of study investigates the psychological and social aspects that influence the decision-making process of investors about their financial investments. According to Chaudhary (2013), this provides an explanation for why investors do not always execute the judgements that are anticipated of them and why markets do not consistently act in the manner that is anticipated of them. The field of behavioural finance investigates the influence that psychological

factors have on the actions of market players and the results of those actions, with a particular emphasis on the behaviour of individual investors and the decisions they make. In addition to this, it investigates the manner in which investors understand and act upon certain information, as well as the sorts of effects that these findings have on the investors' views and prejudices. The year 2019 (Antony). According to Hirsheifer (2015), the term "behavioural finance" describes the application of psychology to the field of finance. There is a connection between an investor's psychology and a concept of behaviour. Investors have a difficult time being rational throughout their life, and oftentimes their decisions are swayed by their feelings. As a consequence of this, an investor could not choose to invest in the stock market by concentrating exclusively on the qualities of the firm, such as its fundamentals and the market environment (Tejahwini & Cirappa, 2022). When it comes to the stock market, the actual players are investors.

When it comes to the financial market, individual investors are likely to be less knowledgeable, more biased, and more prone to engage in common noisy trading (Kyle, 1985; Black, 1986). The purpose of this study is to analyse the categorisation of behavioural biases in investment decisions and to evaluate the perspectives that investors in the banking sector have regarding behavioural finance. Regulatory bodies and policymakers in the stock market can benefit from this study by gaining a better understanding of the behavioural biases that influence investing decisions. According to Statman et al. (2008), when it comes to investments, investors make decisions based on their feelings, emotions, and sentiments, which play a significant role in the decision-making process during the investing process. As a result, psychological biases have a role in the decision-making process of individual investors about their investments. The results demonstrate that the behaviour of small investors in terms of their investments is impacted by a variety of factors, which are the ultimate drivers of the success of the market. According to Shabgou and Mousavi (2016), the decisions that investors make in the stock market have a substantial impact on the direction that the market trend takes, which in turn has an effect on the economy. The term "bank" originates from the Italian word "BANCO," which literally translates to "bench." Beginning in the early years, individuals in Italy conducted their commercial transactions on benches located in the market square. Banks are the financial institutions that offer a wide range of financial services to their customers. Money is the subject of this. The cash that is saved by customers is collected by the bank, which then lends it out to customers. The funds are collected by banks through the acceptance of deposits, the borrowing of cash, and the issuance of stock. Each of the following categories of financial institutions may be found in Nepal: Commercial Banks, Development Banks, Finance Companies, and Micro-Credit Development Banks. The structure and composition of assets and liabilities can vary dramatically from one bank to another within the banking sector (Saunders & Cornett, 2012). This is true for banking institutions that have varying asset amounts. In the world of finance, commercial banks are the most important intermediaries, and their primary responsibility is to facilitate the movement of monetary resources from savers to consumers. The first commercial bank to be created was Nepal Bank Limited, which was established on November 15th, 1957. The Commercial Bank Act of 2031 B.S. (1974 A.D.) defines a commercial bank as a financial institution that engaged in activities such as the exchange of money, the receipt of deposits, the provision of loans, and the execution of commercial transactions.

A relatively new area, behavioural finance tries to blend behavioural and cognitive psychology theory with conceptual economic and finance in order to give reasons for why investors make irrational financial decisions (Chaudhary, 2013). Behavioural finance is a very young field. Research is conducted to investigate the ways in which sociology and psychology influence financial investors and, ultimately, the securities market. "Kishore (2006) states the field of behavioral finance has evolved in order to attempt to better understand and explain how emotions and cognitive errors influence investors and the decision-making process. The behavioral finance is combining with psychology, sociology and finance.

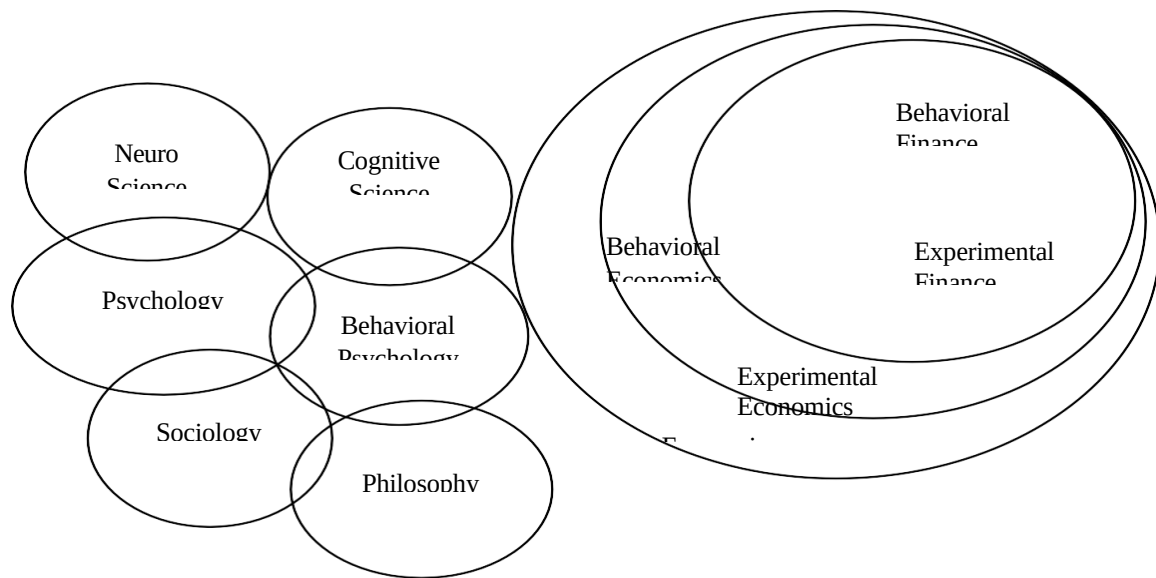
Figure 1 Foundations of Behavioral Finance



Source: Chaudhary (2013)

Behavioral finance integrates principles from psychology, sociology, and philosophy into the realm of finance, examining how human behavior influences financial decisions. Psychology contributes theories on cognitive biases and emotional responses, such as loss aversion and overconfidence. Sociology provides insights into how social dynamics and investor sentiment. Philosophy offers frameworks for understanding risk uncertainty, and ethical considerations in investment decision making. The fundamental field of science in connection with

Figure 2 The Fundamental Field of Science in Connection with Behavioral Finance



Source: Le Bon, G. (2009)

The main purposes of this study is to explore the components of behavioral biases on investment decision in banking industry and also identify the cognitive biases & emotional biases which are measured on rational investment decision on stock market evidence from Nepal Bank Limited. The rest of this study is divided into five sections. Important literature review is discussed in section II. Section III represents the research methodology adopted for this while data collection is discussed in section IV. Result and Discussions, research gaps are provided in section V conclusions including implications and future research avenues under perceptions towards behavioral finance among investors in Banking Industry: evidence from Nepal Bank Limited.

Literature Review

The traditional theories focus a widely accepted approach of “fully rational agent” where decision making is based solely on available data and mathematically proven concepts. Behavioral finance is a relatively new school of thought that deals with the influence of psychology on the behavior of financial practitioners and its subsequent impact on stock markets (Sewell, 2007). People in standard finance are rational. People in behavioral finance are normal. is during this time that the concept of utility was introduced which measured the satisfaction of individuals by consuming a good or a service (Bernoulli, 1738). For instance, these assumptions become the basis of the traditional financial framework that equilibrium solutions by maximizing marginal utilities of individual’s subject to situational constraints (Pompian, 2011).

Table 1. Traditional Financial Theories

Author	Year	Findings
Joha Stuart Mill	1844	Introduced the concept of economic man
Bernoulli	1738 ,1954	Expected utility theory
Von Neumann and Morgenstern	1944	Expected utility theory
Harry Markowitz	1952	Markowitz portfolio theory
Treynor, Sharpe and Lintner	1962,1964,1965	Capital asset pricing model
Jan Mossin	1966	
Eugene Fama	1970	Efficient market hypothesis

Source: Kapoor & Prosad (2015)

Veni and Kandregula (2020) emphasized modern portfolio theory and efficient market hypothesis, it explores the evolution of modern behavioral finance theories from standard finance framework. Behavioral finance is financial theory which has risen since 1980s. This involves the substitution of traditional finance theories with more realistic behavioral theories like the prospect theory (Kahneman & Tversky ,1979) under it. Some principles of behavioral biases including the heuristic factors, prospect theory and underlying psychology and their effect on financial

system and investment decision makings. Many of studies have confirmed that human beings are perfectly irrational in their complex, and behavioral finance studies how cognitive, emotional and psychological decision making. Behavioral finance helps to find the difference between expectations of efficient, rational investor behavior and actual behavior (Veni & Kandregula, 2020). The behavioral finance theories are presented in Table 2.

Table 2. Behavioral Finance Theories

Author	Year	Theory /Concept/Model
Herbert Simon	1955	Models of bounded rationality
Festinger, Riccken and Schachter	1956	Theory of cognitive dissonance
Tversky and Kahneman	1973,1974	Introduced heuristic biases; availability, representativeness, anchoring and adjustment
Kahneman and Tversky	1979	The prospect theory, introduced loss aversion bias
Tversky and Kahneman	1981	Introduced Framing bias
Richard Thaler	1985	Introduced mental accounting bias
De Bondt and Thaler	1985	Theory of overreaction in stock markets
Barberis, Shleifer and Vishny	1998	Investor sentiment model for under reaction and overreaction of stock prices
Meir Statman	1999	Behavioral asset pricing theory and behavioral portfolio theory
Andrei Shleifer	2000	Linkage of behavioral finance with efficient market hypothesis to find that stock markets are inefficient.
Barberis, Huang and Santos	2001	Incorporation of prospect theory in asset prices.
Grinblatt and Keloharju	2001	Importance of behavioral finance. Emphasis on departure from “homo economicus” or traditional paradigm to more realistic paradigm.
Barberis and Thaler	2003	Survey of behavioral finance
Coval and Shumway	2006	Effect of behavioral biases on stock prices. The price reversal for biased investors is quicker than unbiased investors.

Source: Kapoor & Prosad (2015)

The field of behavioral finance delves into the myriad ways in which psychological biases influence investment decision making. Pompian (2006) delineates cognitive biases such as overconfidence, representativeness, anchoring, and cognitive dissonance, alongside emotional biases including endowment bias, loss aversion, optimism, and status quo. Kunwar (2021) underscores the global impact of market anomalies and irrational investor behavior; particularly pronounced in smaller, less efficient markets like Nepal, herding heuristics, prospects, market factors, and herding effects are prevalent among individual investors. Mortezaei et al. (2016) highlight aim of behavioral finance to mitigate the influence of psychological variables in financial market dynamics, with a focus on cognitive parameters. Subramaniam et al. (2017) emphasizes the role of both traditional and behavioral finance in explaining investment decisions attributing irrationality primarily to psychological factors. Reyes et al. (2019) view behavioral finance through the lens of cognitive constructs.

Vaidu (2021) explore Nepalese investors decision making processes within the secondary market, revealing the influence of behavioral biases. Dhungana et al. (2022) explores the line between irrational financial decisions and cognitive biases like availability, overconfidence, and herd instinct the overconfidence bias exerting the greatest impact. Sapkota and Chalise (2023) find significant behavioral influence on equity investment decisions, echoing Pandit (2018) findings on behavioral biases among Nepalese investors. Sapkota (2022) asserts that market anomalies drive inefficient markets, with herding, loss aversion, overconfidence and risk propensity shaping stock investment decisions. Sinha (2015) underscores the noise and limitations in stock markets attributed to psychological biases while Kahneman and Tversky (1979) pioneered in the study of behavioral biases impact on financial markets. Kapoor and Prosad (2017) chart the evolution of behavioral finance focusing on investors psychological influences and Hyland et al. (2022) emphasize the role of human biases in investment irrationalities. Kahneman (2011) characterizes human thing as intuitive and heavily influenced by associative triggers, underlining the importance of understanding psychological effects, in decision making.” Thus, behavioral finance emerges as a critical discipline in unraveling the complexities of investment behavior.

Research Methodology

The ontological research philosophy, which employs interpretivism, has been accepted based on a single reality paradigm. Because it seeks to comprehend the subjective sensations and interpretations that investors assign to

behavioural finance ideas. In this study, the researcher performed a semi-structured interview with three banking sector investors to gather evidence from Nepal Bank Limited, and data was analysed qualitatively using theme analysis. Among these, the study's ontological perspective was relativism, which recognised that how individuals / investors see the nature of reality cannot be the same for everyone. The epistemological viewpoint adopted was based on subjective and contextual reality. since a result, the study relied heavily on the interpretative paradigm, since investors interpret occurrences from many angles in order to grasp facts and explain stock market investing to individual investors.

Under banking industry, with reference to Nepal Bank Limited (NBL) in Pokhara. The researcher interviewed three investors who had invested in the stock market as well as NBL. One of them works in banking at NBL (as a branch manager), one teaches at the university level (at higher education institutions), and the other is a businessman. The NBL was chosen because of its easy access to research and the presence of government banks in Nepal's banking market. In terms of number of participants, just three investors were chosen since 'less is more' and can assist create significant information depending on the richness of the semi-structured interview, research objectives, research questions, and method of data analysis and interpretation (deMarais, 2004). The three investors included a male with a Master of Business Studies (MBS) from Tribhuvan University who is currently employed by NBL as a branch manager, one as a teaching professional at TU with MBA personnel management degrees from the Faculty of Management (FOM), and the third as a businessman and investor with SLC. They had expertise and experience in the research issue. As a result, deliberate sampling was utilised since it is commonly used in qualitative research to discover and address behavioural finance biases. Using this approach, knowledge, feelings, perception, and experienced participants were found and chosen for the study's goal. During the exploratory procedure, the researcher met with three investors in one day. To answer the study questions, the researcher developed strong listening skills so that meaning could be extracted readily from the participants during a semi-structured interview as audio recorded on the stock market. The researcher began the interview by asking open-ended questions on the workers' and businessmen's codes of behaviour. The interview for the branch manager of NBL in Pokhara was conducted during office hours and lasted thirty-two minutes. Off-hours for a Lecturer of Prithvi Narayan Campus, Pokhara at their own house for thirty-one minutes, and the third as a businessman who has ran a company in Pokhara Trade Mall at seven p.m. for thirty-eight minutes on the research issue. To get detailed responses to the study topics, the researcher asked open-ended questions beginning with an introduction to each participant and followed by 'why', 'how', 'what', and 'when if'.

Result and Discussion

In order to conduct a qualitative analysis of the replies and data obtained from the semi- structured interview, a number of different codes were developed. All of the codes were arranged into categories, and themes were discovered. According to the findings of the study, the most common types of behavioural biases that investors in the banking industry exhibit are cognitive biases like awareness, ambiguity aversion/familiarity bias, availability bias, representative bias, mental accounting, gambler's fallacy, and emotional biases like optimism, herding behaviour, emotional factors, perceived and control / self-control, and loss aversion/regret aversion bias. The study was conducted with reference to Nepal Bank Limited.

Cognitive Biases

Various investing decision-making behaviours, as studied in psychological research, are referred to as biases. All decision-making is susceptible to these biases, but investment and financial matters are especially vulnerable. Behavioural biases have a part in investing decision making, which is a part of behavioural finance. Cognitive biases and emotional biases are the two main types of behavioural biases described by Pompian (2006). Systematic patterns of irrationality in assessment and decision-making are known as cognitive biases. Cognitive biases identified by Pompian (2006) include the following: availability, framing, overconfidence, cognitive dissonance, hindsight bias, psychological accounting, anchoring bias, ambiguity aversion, conservatism, regency bias, and illusion of control.

What we mean by "awareness" is how people in the banking business see NBL when they buy and sell shares. While investing in NBL shares, all participants emphasised the need of being aware of the potential for profit or loss. When I was a businessman, there were a lot of non-performing loans (NPLs) and the bank was losing money. By growing its investments in public welfare and improving its dividend, NBL assures its investors. He was well-versed in the company's ins and outs as a branch manager, so he didn't invest carelessly. Perhaps the government owns NBL shares, but he doesn't think he made a mistake buying in them. He claimed to have been an investor in the primary and secondary markets of the Nepal Stock Market since 1998, while working as a professor at TU. The stock market demanded a minimal initial investment, whereas other businesses required a large one. One illogical inclination is the familiarity bias, also known as ambiguity aversion, which leads people to choose the known over the unknown or missing information. As a general rule, people would rather take calculated risks with known outcomes than with uncertain ones. A lecturer from TU did not exhibit ambiguity aversion bias, while a businessman and a branch manager did. Whereas a businessman stated that investment areas are distinct and depend on government policy, you, as the branch manager of NBL, are familiar with the stock/share market and have acquaintances in the firm who are also familiar with it. An example of availability bias would be when individual investors only consider the most current information when making investing decisions. There is

insufficient knowledge about the stock market for a businessman. This report examines NBL's current employee, the company's state, its primary promoters, financial performance, and future prospects. According to him, that division should be in charge of making such data public. Working with NBL ensures that he is always well-informed about the stock market. Similarly, I was ignorant as a TU lecturer; I had to go out to a broker online and invest based on their advice, and I still get confused about the stock market and whether or not the quarterly report is good. When people make investment decisions and categories new information based on their own preconceived notions or experiences, this is called representative bias. Gains and losses are noticeable when working for NBL. Members of the public with bias while trading stocks. Just how the stock market is affected by the entire financial condition, a businessman has stated that there's no need to be pessimistic. The term "psychological accounting" refers to the way in which individual investors mentally categories and store data pertaining to certain occurrences, including as profits and losses. Investors may have differing opinions on occasion, but they should always be on the same page in theory. As shareholders in Nepal Bank Limited, all of the participants agreed that keeping track of the market's ups and downs helped them feel more secure in their NBL shares. Individual individuals sometimes have a propensity to exaggerate their talents when it comes to investing. What this means is that investors put a lot of faith in their abilities and expertise to get the job done. This level of self-assurance is understandable, but it is more common among entrepreneurs. Because of NBL's performance and dividend, all participants are hoping that the value will improve one day. Manager of an NBL branch, more self-assured while representing the bank than when interacting with customers. When people make their investing decisions based on what they think the market will do in the future, they are committing the gambler's fallacy. He played for a while in this manner because, as an NBL employee, he thought the stock market was like gambling: you play to win, not lose. As a businessman, he also knows that the sharing market is only speculation and that the truth is different; he bases his speculations on the NBL network.

Emotional Biases

The term "emotional bias" describes the tendency for people to let their feelings cloud their judgement and cause them to act irrationally. A result of this is a skewed way of thinking and making decisions influenced by emotions. Since emotional biases stem from subjective experiences, they might be more challenging to alter. Distraction occurs when people let their feelings guide their reasoning rather than logical consideration of the facts. Behavioural variables of investors in banking business with relation to NBL. Emotional elements, optimism, herding behaviour, and loss aversion/regret aversion were discovered by the researcher.

When investors are too optimistic, they tend to overestimate or underestimate the hazardous assets predicted mean returns. When making a decision, optimistic investors solely consider positive news. Expectations for returns, tolerance for returns, and perceptions of risk are the three factors that drive optimism and pessimism, according to Hoffman and Post (2011). People have higher faith in NBL shares because, from a businessman's perspective, the government guarantees that they are safer than competing shares. He predicted that the NBL share market will continue to rise in value since the company had sufficient assets, easy access to cheap funding, and the potential for both capital and dividend gains. He felt comfortable about it and understood that investors want a quick return. Next, NBL should move forward according to the government's limitations. In general, the NBL stock market is a safer bet. A dedicated NBL employee who believes in the power of discipline and the promise of a prosperous future for NBL stock. Furthermore, he invested in the secondary market, issued shares to students, and felt both hopeful and calm about the future of NBL as a market instrument. He is a lecturer at TU. When several investors act in unison, even when they are all purchasing or selling the same stocks at the same time, this phenomenon is known as herding. Investors that follow the herd tend to mimic the actions of other investors. According to a businessman, you should monitor the NBL share price often. If you're the branch manager of NBL, you know that herd mentality impacts the bank's investments and, by extension, macroeconomic indicators. Feelings of gaining the rights to execute the work of broker/herding behavioural, according to a TU lecturer, are similar. In order to prevent feeling remorse after a loss, investors practice loss aversion (Kahneman & Tversky, 1979). The amount of risk aversion shifts as a result of shifts in the market. During bull markets, investors are more likely to avoid losing money than during down markets. According to the branch manager, there is a larger incentive to consistently invest more and earn more. A businessman's emotional analysis also revealed that many investors had lost money. The certainty effect, the fear of loss or uncertainty, and the home money effect are all examples of emotional elements. In addition to past, present, and future emotions, it also incorporates mood and sentiments. According to this NBL employee, investors are influenced by their emotions when it comes to political instability. Furthermore, the actions of other people have little impact on a businessman. Since he was an expert, he advised that people study the market thoroughly before investing. Where one feels they are in charge, or the illusion of control, are concepts related to perceived and self-control. The stock market for NBL should see more investment, according to a businessman. Brokers, according to NBL's branch managers, frequently exert influence over businesses and deceive their investors; still, the latter should exercise caution.

The function of investors is critical, while that of brokers is secondary. In the teaching profession, emotional biases can have a significant impact on the stock market. Examining how investors' and stock markets' mental processes impact their decisions is the focus of behavioural finance. Technical and fundamental analysis are the two main tools that investors use when analysing investments. The mental processes that underlie the decision to purchase or sell Nepal Bank Limited (NBL) shares in the banking sector are the foundation of market behaviour.

Intersecting real-world scenarios with more conventional financial theories, behavioural finance fills in the gaps. Behavioural finance posits that actual investors are susceptible to psychological biases; nonetheless, this is of little interest to traditional theories of finance. Fundamental and technical analysis, as well as the arbitrage opportunity presented by investors' beliefs (such as availability biases, optimism, overconfidence, and herding behaviour tendency), impacted the NBL stock market, according to the study's findings. While making investment decisions in the banking industry, investors are impacted by psychological/mental accounting, ambiguity aversion, and self-control, in relation to Nepal Bank Limited (NBL). This study lends credence to the claims made by Alsabban and Alarfaj (2020) that financial professionals, in accordance with prospect theory, breach anticipated utility maximization. Nepal Bank Limited (NBL) data does not back up the claim that behavioural finance takes into account the cognitive and emotional biases, emotions, and psychology of individual investors as potential causes of poor investment decisions (Sapkota, 2022). Investors' irrational behaviour is the subject of prospect theory, which is described by Kahneman and Tversky (1979) as the process by which investors weigh the likelihood of a profit or loss. This is borne out by the results of this study. One way an individual investor plans for the future is by thinking about how they would react. This study lends credence to regret aversion theory and its potential application to NBL stock market investor psychology. According to the theory of cognitive dissonance (Morton, 1993), investors experience feelings of internal conflict and anxiety when confronted with contradictory ideas. This feeling is shared by NBL investors, who view the banking sector through the lens of behavioural biases.

According to Kunwar (2021), the stock market has been affected by market anomalies and the irrational behaviour of investors. With a focus on Nepal Bank Limited, this study examined the impact of investor biases and behavioural determinants on banking sector investment decisions. The findings of this study provide credence to the idea that NBL investors are acting irrationally. The study's findings pertain to cognitive biases such as optimism, ambiguity aversion, representativeness, overestimation, herding effect, gambler's fallacy, and psychological/mental accounting. The research on this subject provides credence to the claims made by Morteza et al. (2016), who centered their study on the psychological aspects influencing the financial markets. In Pokhara, Dhungana et al. (2022) studied the impact of cognitive biases on investing decisions. These biases included overconfidence, herding behaviour, availability bias, and regret aversion. The heuristics theory employed in the Nepalese stock market is backed by research that examined the perspectives of banking sector investors with regard to NBL, with the exception of anchoring biases (Pandit, 2018).

Conclusions and Implications

This study reveals that certain psychological biases have a significant impact in the decision-making process about investments. The study came to the conclusion that the most common types of behavioural biases that investors in the banking business exhibit are cognitive biases and emotional biases. This was done with reference to Nepal Bank Limited. As a result of the findings of the study, the NBL stock market was influenced by fundamental and technical analysis, as well as by the psychological biases of investors. These biases included beliefs such as representativeness, availability, optimism, overconfidence, and herding behaviour, as well as emotional biases such as mental accounting, ambiguity aversion, and self-control. The study was conducted with reference to Nepal Bank Limited. The results of this study have a number of repercussions for stakeholders, including investors, brokers, and the government, who are working to encourage involvement in the stock market. When it comes to investment decision making, this study is especially important for stock market regulators and policymakers since it helps them better understand the behavioural biases and psychological elements that influence investing choices. The focus of this study is on individual investors; however, it is possible that future research would concentrate on institutional investors in the banking industry, with a particular emphasis on Nepal Bank International.

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Evolution of HR Analytics in India - a Detailed Analysis

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Abstract

The technological domains and trends of artificial intelligence (AI), robotics, business intelligence, big data and analytics, edge computing, hyper automation, Block chain, Democratization, Human Augmentation, and Multi experience are enabling mankind to innovate and create superhuman capabilities. This leaves human resources (HR) to fight the battle of replacing people-literate technology with people-literate people. With the developing trends, the propensity for analytics and intricate algorithms created a breakthrough into a creative zone that extended a manageable workforce. The purpose of this study is to review the earlier studies conducted based on evolution and emergence of HR analytics. It tries to investigate through prior works done on business analytics, big data, business intelligence and on HR Analytics as well as literature concerning innovation and adoption of various models, tools and techniques.

Keywords

HR Analytics, artificial intelligence, business intelligence, block chain, human augmentation

Introduction

Human Resources (HR) are important asset of the organization in any domain. In addition to information, it contributes ability and technical skills, which are critical for any company to succeed over the long term. Evaluating human capital its quality, position, and future prospects has never been easy for organizations. Historically, the HR assessment was completed by hand, which added a great deal of subjectivity. But as technology has advanced, the application of complex data mining analytics techniques to HR data has given analytics an entirely novel shape called as HR-analytics. These days, HR-analytics has emerged as a new frontier in enhancing and then utilizing HR for organizational benefits. Big Data is a transformed technology that offers a comprehensive method for deriving useful insights from vast amounts of real, authentic, high-velocity, and valuable data (ALMUTAIRI, 2020)(Ramstad, 2007). Due to the concept's increasing popularity, businesses are using everyday real-world information flows to boost performance standards and increase operational visibility (Houghton, 2015). The businesses endorsing big data indicated a shift in the direction of analytics to improve decision-making across a range of departments, including human resources (Staiger, 1997). HR analytics are sometimes referred to as data matrices, statistical tools for data visualization, and decision-making tools (Ramstad, 2007). Subsequent studies have identified a synthesized and systematic approach to HR analytics that goes beyond HR matrices (Boudreau, 2017) (Fink, 2017). This approach calls for a more focused approach to generate meaningful insights and be crucial to the execution of strategy (Fink, 2017), thereby redefining HR analytics from a new and wider angle (Rajesh, 2018). HR Analytics are now achievable for practically all organizations thanks to the increased accessibility of HR data through innovative methods of data gathering and analysis combined with new technical breakthroughs. With the study of workforce data, the growth curves rose sharply, improving the organization's HR operations in recruitment, career development, knowledge management, and task quality (Carson, 2011) (Hawkes, 2017) (Levenson, Harnessing the power of HR analytics, 2005) (Vorley, 2016). The tech-ecosystem has made a significant contribution by turning the vast amounts of intricate and ubiquitous data created by blogs, tweets, data warehouses, and social networks into useful information that organizations can employ to reshape themselves and by establishing analytics as the cornerstone of transformational roles. Managers' expression of the need for fact-based understanding and a move beyond intuitive abilities laid the groundwork for the development of descriptive analytics and diagnostic analytics. The goal of combining organizational data with external data to analyses it broadens the scope of analytics, giving rise to the term "Big Data" and Analytics 2.0, which became well-known thanks to the "Open source community" strong support. This helped to pave the way for the emergence of positions in the data- forecasting industry such as Hadoop administrators, business intelligence developers, and big data engineers. Data Science is now a single discipline of research and experimentation with full attention to predictive analytics and prescriptive analytics, thanks to the large IT companies' time and energy put in the unification of statistics, machine learning, and data analysis. The advancements in chatbots, smart replies, and neural machine

translations have heavily relied on data mining methods, business intelligence software, and intricate algorithms derived from machine learning. The modern IT era brings with it new viewpoints on work and culture, associations with technology, frameworks for infrastructure, and workstation guidelines (Gupta M. S., 2021). All of these factors cause HR to transition from routine tasks to strategic business partners, paving the way for analytics. However, the new framework has presented HRs with new challenges, including the true value of employees, organizational guidance systems, virtual workplace technologies, and digital ethics (Muthusamy, 2017) (Rajasshrie Pillai, 2020). This study looked at the analytics tools and approaches that HR departments have recently adopted and how such tools and techniques affect their work and decision-making when it comes to supporting their organizations as strategic business partners.

The emergence of HR analytics

Early 1900s

Modern human resource management practices have their roots in the early development of personnel management. It signaled a change in labor management philosophy from the conventional, paternalistic approach to one that is more methodical, scientific, and people-centered (Fayol, 1916) (Mayo, 1933) (Taylor, 1911) (FOLLET, 1918). Organizations' HR strategies and policies are still shaped by the values and procedures developed during this time around. Parallel concept and innovation of various models were taking place to support the emergence of technological and analytical aspects. Administrative innovations, according to (Daft L. R., 1978) are related to the organizational structure and involve acceptance from the bottom up. On the other hand, adoptions concerning HR and administrative procedures are generally implemented in a top-down manner.

Mid 1950-2000

"An idea, practice, or object that is perceived as new by an individual or other unit of adoption" is the definition of innovation (Rogers, 1995). The majority of breakthroughs studied in terms of dissemination, according to (QUINLAN, 1983) have been in the field of technology. Using the theory of reasoned action (TRA), (Davis F. D., 1989) created a model that examined perceived utility and perceived ease of use. This approach is commonly referred to as the technology acceptance model (TAM). Numerous theoretical models that have undergone empirical testing have been developed to predict an individual's degree of innovation adoption. The theories of planned behavior (TPB (Ajzen, 1991)), perceived characteristics of innovating (PCI; (Benbasat, 1991), diffusion of innovation (DOI) for individuals (QUINLAN, 1983), TAM (Davis F. D., 1989), TRA (Ajzen, 1985), and unified theory of acceptance and use of technology (UTAUT; (Davis V. V., User Acceptance of Information Technology: Toward a Unified View, 2003)).

Era of 2000-2010

According to Marquez (2007), HR executives often feel at ease when talking about forecasting and budgets, but they become uncomfortable when talking about correlations, predictive analytics, or any kind of analytical testing. The HR industry will advance and become a true strategic business partner with the use of HRA. Compared to only HR measurements, the application of HRA is thought to offer a more comprehensive and valuable perspective on data and can offer a study of the company as a whole (Levenson, Harnessing the power of HR analytics, 2005) (Fitz-enz, 2010). The strategic relevance of HR measurements in tying HR practices to business outcomes and boosting organizational performance was highlighted in research by (Brian E. Becker, 2001). Organizations can now manage and monitor HR indicators in real-time thanks to the introduction of HR information systems (HRIS) and enterprise resource planning (ERP) systems, which further eased the collecting and analysis of HR data. Research by (M Armstrong, 2005) and (C Koch, 2000) emphasize how technology is advancing HR analytics and metrics. For instance, these measures will improve HR's capacity to determine where it would be most advantageous to devote the resources required to either prevent or minimize turnover in addition to knowing the turnover rate (Neumann, 2008).

The period of development and acceptance of HR analytics 2010-till date.

When businesses realized they needed to measure and assess the efficiency of their HR procedures, HR metrics began to take shape in the middle of the 20th century. During this time, metrics and key performance indicators (KPIs) were developed to evaluate several aspects of the workforce, such as absenteeism, turnover rates, and employee productivity. (Mohrman, 2013) is one of the foundational publications which emphasizes the significance of HR metrics in coordinating HR practices with organizational goals and enhancing decision-making. The increased awareness of HR as a strategic role and the necessity of data-driven approaches to HR management are highlighted by (Gale, 2014). The need for more advanced HR measures increased as businesses came under more pressure to prove the return on their HR investments and as competition among them

increased. Studies conducted by (Bersin, 2013) and (CIPD, 2016) demonstrate the increasing significance of HR metrics in guiding strategic workforce choices and cultivating an analytics-driven culture in businesses.

The shift to HR analytics is a step towards evidence-based HR practices, in which data, not gut feeling or customary wisdom, guides decisions (Boudreau, 2017). Predictive analytics is being used by organizations more and more to predict labor trends in the future and spot areas for development (Davenport, 2006). Organizations can now gather, analyze, and visualize HR data more efficiently because of technological innovations like cloud computing and big data analytics (Carson, 2011) (Kabra, 2016). Strategic workforce planning has been made easier by HR analytics, which offer insights into talent gaps, succession planning, and staff optimization (Gupta A. D., HR - A STRATEGIC PARTNER: Evolution in the adoption of Human Capital Management systems, 2015). Organizations can enhance their hiring and selection procedures, which will enhance talent matching and lower attrition, by utilizing data analytics (Bersin, 2013). Through focused interventions, HR analytics has allowed organizations to monitor and enhance employee engagement and retention (Craig, 2019). HR analytics are being used by organizations more and more to monitor diversity and inclusion KPIs and pinpoint areas in need of development (CIPD, 2016). The implementation of agile HR strategies has been made easier by HR analytics, enabling businesses to quickly adjust to shifting market conditions and business requirements (Deloitte, 2020). The ethical aspects of HR analytics, such as data protection, openness, and justice, are receiving more attention (García-Izquierdo, 2022). Despite the enormous promise of HR analytics, organizations still struggle with issues of data quality, integration, and skills shortages (Bersin, 2013).

HR Information Systems (HRIS) and Integration of Machine Learning and AI in HR

HRIS which includes software and systems intended to centralize employee data and expedite HR procedures, has developed into a vital resource for contemporary HR administration. The transition towards Software-as-a-Service (SaaS) HRIS models is highlighted by research by (Brewster, 2016), which gives organizations access to scalable, reasonably priced HR technology solutions. HRIS functionality has been completely transformed by the integration of machine learning (ML) and artificial intelligence (AI) technology. Research by (Boudreau, 2017) highlight how AI-powered HRIS may improve decision-making through predictive analytics, automate repetitive HR operations, and improve employee experiences by providing individualized recommendations and insights. The increasing use of mobile HRIS solutions for self-service functions, like obtaining pay stubs, requesting time off, and updating personal information, is highlighted by research by O'Kane et al. (2019). Furthermore, improvements in HRIS compliance and data protection features have been fueled by the focus on data privacy and security. Research by (Yonggui Guo, 2019) and (Nyathani, 2023) emphasize how crucial data encryption techniques and GDPR compliance are to the development and application of HRIS. Over the past fifteen years, the amalgamation of artificial intelligence (AI) and machine learning (ML) technologies has transformed human resource management (HR), enabling institutions to extract significant insights from their data and arrive at better educated judgements. HR procedures, including hiring and talent management as well as employee engagement and retention, have changed as a result of the confluence of automation and advanced analytics.

Predictive analytics (Dayarathna, 2021) models may now more accurately predict future employment trends because of the integration of ML and AI (Bersin, 2013). Recruitment efficiency is increased and prejudice is decreased through the use of machine learning (ML) algorithms to automate the screening and selection of candidates (Davenport, 2006). In order to forecast future employee performance and pinpoint areas for development, machine learning algorithms can evaluate past performance data (Boudreau, 2017). Bots that Chat for HR Services: AI-driven chatbots are being used to automate repetitive HR processes, respond to employee inquiries, and offer 24/7 HR support (Panetta, 2019). Prediction of Employee Attrition: AI systems are able to identify attrition risk and apply focused retention efforts by analyzing trends in employee data (Nancy Cohen, 2019).

Evolution and advancement towards recent trends of HR Analytics Tools and Techniques: Driving Data-Driven HR Management

The HR landscape has changed over the past 15 years as a result of the development of HR analytics tools and methodologies, which allow businesses to use data-driven insights to improve workforce management strategies and foster organizational success. Driven by technical developments and an increasing emphasis on evidence-based HR decision-making, HR analytics has moved significantly from simple reporting and descriptive analytics to sophisticated predictive modelling and AI-driven solutions. Predictive analytics has emerged as a major trend in HR analytics, allowing businesses to anticipate labor trends and take proactive measures (Bersin, 2013). Thanks to the integration of ML and AI technologies, HR analytics applications now support sentiment analysis, natural language processing, and advanced predictive modelling (Boudreau, 2017). With the advent of sophisticated data visualization technologies, HR professionals can now effectively communicate complicated insights and promote data-driven decision-making (Bersin, 2013). Employers can increase employee engagement and retention by using

employee experience platforms, which combine data from many HR systems to give a comprehensive picture of the employee lifecycle (Deloitte, 2020). Through the application of social network analysis methodologies to HR analytics, organizations have been able to promote collaboration, improve information sharing, and identify influential individuals (Rob Cross, 2002). Unstructured data, including employee feedback and social media posts, is analyzed by text mining and sentiment analysis methods to reveal employee sentiment and satisfaction levels (Maturi, 2018). The ethical aspects of HR analytics, such as data protection, openness, and justice, are receiving more attention (García-Izquierdo, 2022). Organizations can monitor their progress towards diversity targets and pinpoint areas for development by utilizing HR analytics solutions that now incorporate diversity and inclusion data (CIPD, 2016) (Firdose, 2022). In summary, the development of HR analytics tools and methodologies has revolutionized HR management practices, empowering businesses to use data-driven insights to maximize worker productivity, improve employee happiness, and propel business success in the digital era

Recent tools for analytics used by HR

HR underwent a smooth transition, moving from organizing papers to using HRIS, producing reports, and now providing dashboards and analyses for decision-making. According to statistics, Power BI is used more frequently than other tools. Other tools that need the usage of Excel or commercial software include R, Tableau, Python, Visier, and others. With the release of Gartner's Magic Quadrant for Business Intelligence (Panetta, 2019), Microsoft Power BI became well-known. This tool makes it easy for HR professionals, who frequently struggle with technology, to access and perform aggregations and visualizations. HR professionals find it easy to use the user-friendly interface, which allows them to share data quickly and collaboratively. This can be used to map skills and capabilities or to understand the working culture of people with varying ages, experiences, and genders.

R software

R has grown in popularity as an open sources programming language that was originally written mostly in C. Fortran for statistical computing and has been widely used by statisticians and data miners for data analysis. HR departments across different companies are currently using R (I Setiawan, 2020) extensively to analyze employee data sets and generate both descriptive and predictive analyses using different packages. Recently, GG plot and R Churn analytics have been widely utilized to take forecasts and make judgements on employee turnover with ease through graphs. It is becoming more and more popular among HR professionals because it makes it easier for them to create interactive online applications, dashboards, reports, and statistical computations quickly (Global, 2019). This allows HR professionals to visualize data even if they are not computer scientists.

Tableau

The next most popular analytical tool is Tableau, which is comparable to Power BI but has more useful capabilities and can connect to a wide range of data sources, including SQL databases, SPSS files, and any data collection with any set of data that can be evaluated live on a platform. HR professionals all over the world found it easy to use and create interactive dashboards and stories from the data thanks to its user-interactive features and drag-and-drop interface, but because it is not free and requires good investment, questions about affordability are frequently raised. HR professionals acknowledged their fear of data (McBassi, 2011). Many have access to "One Organization and One Report," which enables them to find answers rather than becoming bogged down by the numbers (Schmidt, 2016). With Tableau, users can generate dynamic and interactive reports and dashboards for data visualization. Tableau is a tool that HR professionals can use to visualize performance indicators, workforce trends, and metrics.

Python

The next easiest to learn language is Python, which is frequently used in place of R. Python is a popular programming language for HR analytics and other data analysis applications. Python is most renowned for two products: Spyder (Scientific Python Development Editor), which aids HR in data exploration, in-depth engagement, and improved data visualization, and PyCharm, which helps HR manage everyday regular tasks and concentrate on bigger things. Overall, HR professionals worldwide report feeling at ease with its interactive console, fantastic libraries, and supportive community (Sommer, 2016). Python (Mohammed, 2019) is a popular programming language for HR analytics. For applications involving data processing, analysis, and machine learning, it provides libraries like Pandas, NumPy, and Scikit-learn. (Global, 2019) Visier The usage of Visier (Sommer, 2016) as a user-interactive platform for data aggregations that addresses a variety of workforce challenges, such as talent management and making decisions on employee retention, and integrates readily to other HR systems, making it one HR BI tool. Although it is quite comparable to Tableau, its value as workforce analytics that can be put to use is greater. Its productivity forecasts and performance analysis are its strongest points. With the help of the cloud-based HR analytics platform Visier (AlMobark, 2023) (Mohammed, 2019), businesses can

examine employee data, find patterns, and make informed decisions. Workforce planning, benchmarking, and predictive analytics are some of the functions it provides.

Techniques best adapted by HRs

Whether small, medium, or huge in size, organizations are fully aware of the power of people data. It has been noted and acknowledged that stakeholder and HR communication is increasingly crucial and covers real-time reporting with impact, correlations, charts, and diagrams. HR professionals must use the latest analytics approaches in order to offer solutions and fulfil the position of Strategic Business Partner. Which worker is up for a challenge or fresh learning based on historical performance data? How might employee turnover and business ability generated from the data sets affect retention in the upcoming quarter? How can the greatest talent be chosen using resume analysis? (Yamin, 2019). These kinds of inquiries are common for HR professionals, and they even put them to the test as potential strategic business partners. In these cases, regression analysis, association analysis, sentiment analysis, decision tree, machine learning allows for the ability to learn from data without explicitly requiring programming knowledge and makes decisions depending on the training data. It has been most useful recently for determining the likelihood of an event, comprehending trends (Yadav, 2020), engagement opportunities, and, most recently, helping HR professionals identify between spam and non-spam emails that aid in HR professionals finding the appropriate information.

Analysis of Regression

Regression analysis (Leo Breiman, 2017) (Friedman, 2009) describes how the independent variable varies over the dependent i.e. modelling the relationship between one or more independent variables (predictors) and a dependent variable (outcome) is done statistically using regression analysis. It is frequently applied to forecasting and prediction activities. Regression analysis (Leo Breiman, 2017) is still a useful tool for HR professionals to use when making even minor decisions because it may have a significant impact on workforce management, employee trust, and cost sheets (Carson, 2011). HR professionals became interested in this because it reduces aggravation and produces workable, high-quality solutions, such as assigning staff to projects without increasing costs, managing talent and then keeping them on board, or involving staff members through "artificial creative" activities like puns and jokes (Gong, 2006).

Association Study

By restricting the algorithm and developing patterns, it assists HRs in establishing associations among massive amounts of data and mitigating noise in the data. By applying association rules in mining, such as those found in Wecka and its Apriori Algorithm, practitioners are able to identify intriguing relationships between the different variables in the data (Elragal, 2016). HR may find it useful to discover that while training costs more, performance rises in situations where employees are valued as assets rather than liabilities, transformation is a planned process even in the actual world, and other such situations.

Machine Learning

A branch of artificial intelligence known as "machine learning" (Bishop, 2006) (Williams, 2006) is concerned with creating algorithms that let computers analyze, interpret, and make decisions based on data. Creating models that can generalize patterns from observed data and apply them to new, unseen data is the main objective of machine learning (Murphy, 2012). Supervised learning, unsupervised learning, semi-supervised learning, and reinforcement learning are the four main categories into which machine learning approaches can be divided.

Sentiment Analysis

Sentiment analysis (Lee, 2008) (Maturi, 2018) is a natural language processing (NLP) approach that is used to examine and evaluate the sentiment or emotion portrayed in textual data. It is often referred to as opinion mining. Determining whether a text conveys a favorable, negative, or neutral sentiment towards a specific issue or topic is the aim of sentiment analysis. Artificial Intelligence and Machine Learning contributed significantly to the analysis of opinion (Yamin, IT applications in healthcare management: a survey, 2018).

It somewhat aids HR in ascertaining the opinions of workers regarding projects, change, innovation, policies, working conditions, direct managers, tasks allocated, or any other work-related matter. HR professionals frequently utilize RapidMiner to gauge employee sentiment whether favorable or negative and make the case for the best course of action. The whole set of data is categorized into positive, neutral, and negative sentiments or opinions, and is then modelled unlabeled to encompass the full range of emotions and assist users in making decisions (Punamkumar Hinge Harshal Salunkhe, 2023).

Decision tree

A sort of classification analysis called a **decision tree** is utilized to construct the tree model in order to calculate the gain ratio. Basically, it requires just data sets with correctly identified variables to indicate the decision-making aspects that may be discounted without increasing costs (Elragal, 2016). Networking skills address a wide range of issues, including finding training associations, assessing the effectiveness of different software programs, and finding talent to pitch for a firm (Rizvi, 2017) (Rahul, 2017). HR benefits from analytics since it can lower hiring costs, connect costs, keep up with global trends, and maintain its position as a powerful strategist (Eric, 2021).

Table 1 Timeline for HR analytics

S.N.	Timeline	Author and year	Adoption Theory or Innovation of Model	Tools and techniques used or introduced
1.	Early 1900-1950			
2	1950-2000	(QUINLAN, 1983) (Ajzen, 1985) (Daft, 1978) (Fornell, 1981) (Davis F. D., 1989) (Morris, 1996)	Theory of Reasoned Action (TRA) Diffusion of Innovation (DOI) Theory of Planned Behavior (TPB) Perceived Characteristics of Innovating (PCI) Technology Acceptance Model (TAM) Unified Theory of Acceptance and Use of Technology (UTAUT)	
3	2000-2010	(Fitz-Enz, 2010) (Wilson, 2001) (Schillewaert, 2002) (Levenson, 2005) (Friedman, 2009) (Gong, 2006) (Bishop, 2006) (Williams, 2006) (Lee, 2008)		Regression Analysis Machine Learning Sentiment Analysis
4	2010-2020	(Gale, 2014) (Giuffrida, 2013) (Schönberger, 2013) (Talukder, 2012) (Panetta, 2019) (Global, 2019) (I Setiawan, 2020) (Schmidt, 2016) (McBassi, 2011) (Mohammed, 2019) (Sommer, 2016) (Carson, 2011) (Leo Breiman, 2017) (Elragal, 2016) (Murphy, 2012) (Maturi, 2018) (Rizvi, 2017) (Rahul, 2017) (Deloitte, 2020)		R Power BI Tableau Python Visier Regression Analysis Association Study Machine Learning Sentiment Analysis Decision Tree Analysis
5	2020-2024	(Punamkumar Hinge Harshal Salunkhe, 2023) (Eric, 2021)		Sentiment Analysis Decision Tree Analysis

Impact of HR analytics on HR practices

The efforts of HR professionals are praiseworthy, and their willingness to adapt to changing technological landscapes is revolutionizing the way analytics findings are produced. Several companies, including Google, Accenture, Shell, Nestle, Deloitte, IBM, and SwedBank, have effectively implemented HR analytics and achieved

substantial financial gains. If businesses put more effort into training HR staff to incorporate new technology, increase their career growth scale, and help them understand their new jobs, these effects might have a greater multiplicity. HR professionals face several fundamental challenges (HR analytics conceptualization and adoption: key issues), including the need for clarification on how to connect their structured data with big data (Craig, 2019), the implementation of HR analytics physically challenging (Rao, 2013) lack of a change management strategy, an insufficient support staff, and the requirement for an AI-enabled system to support analytics for them.

Table 2 Impact of HR analytics on HR practices in tabular form.

Sr.no	HR functions	Tool or software	Impact of HR analytics
1	Recruitment	Social networking analysis, IBM'S Watson HireVue—AI driven tool	Most of HRs accepted that HR Analytics has changed the working of HR towards the recruitment process in terms of posting jobs, looking for talented candidate and approaching them IBM'S Watson Facebook, Tweeter, Instagram and other Social media sites will be used to post a job and hire a talented person HireVue—AI driven tool Video interviewing software which will analyze candidate language, personality and expressions (Hawkes, 2017) (Shapiro, 2010)
2.	Training and learning	Python, R, Tableau e-Learning—social sites, mobile devices, machine learning	The training modules are well organized as per the need. Outdated stuff is replaced with new techniques with new methods. Direct conversation with mentor made a heart out interaction. This contributed towards clarity and much better Performances e-Learning—social sites, mobile devices, machine learning Helps in comparing the learner's performance, understand diverse learning styles and preferences. Giving utilization of predictive analysis and multi-source knowledge mapping which will recommend and provide feedback with intervention of mentor based on employee performance. (SGuha, 2017)
3.	Employee engagement	Machine learning	Communicating even with non-desk employee effectively, support and train when needed and track the individual employee participation with insights. (SEN, 2020) (Bishop, 2006)
4.	Career development	Python, machine learning, sensitivity analysis, social media	HRs accepted that they are able to plan jobs in much better way after clear analysis on projects, needs, growth prospects, opportunities and threats. Analytics is making a way out. Leaders with proactive insight can foster talent for new opportunities and train and support career growth (Kabra, 2016)
5.	Employee retention	Tableau Sage people, Sage HR	HRs reported that the retention rate showed a positive trend as they are able to work better on their policies, procedures, and employee safety and satisfaction Analytics highlights the critical factors, expectations and skills which helps the managers to positively allocate duties (Craig, 2019)
6.	Employee performance	R, Python, Tableau, Visier	Give insight in trends, predictions and low time. It is helping managers and employee themselves to track their performances and compare with the standards. It improves the reliability and no scope of biasness. Most HRs has accepted that through analytics a steep rise in performance is marked as they are able to make performances reasonable than intuitive.

Analytics implication on role of HR and decision making

The battle over HR analytics raged, encompassing dashboards, HRISs, excel sheets, and software (McBassi, 2011). Not only was the What, Why, When, and Where of analytics difficult for HR professionals, but employee engagement also needs careful thought (McMurrer, 2010). HR professionals are now more inclined to enter the analytics field and experience the data-to-insight journey because to the analytics community's support, awareness, and acceptance (garg, 2015). HR professionals found comfort in descriptive analytics while using Excel, but predictive analytics caused a stir and allowed HR professionals to discover and engage with themselves (Kabra, 2016).

The most widely publicized success occurred during the hiring process when analytics took a sharp turn and established a path towards becoming a business partner (Hawkes, 2017). Through the creation of a strong emotional connection, network, and ROI, big data and analytics transformed the way that HR approached Performance, Capability, Capacity, and Retention (Rainer Strack, 2014). An increase in operational performance is made possible by network analysis, which was especially contributed to and argued for by the talent community with functional clarity and role description (maurer, 2019). Sentiment analysis circulating from networks to workers aided in improved decision-making during transition, the launch of new initiatives, and worker commitment (Deloitte, 2020). Analytics has demonstrated its value during the COVID-19 crisis, when the globe is experiencing crises in the areas of health, the economy, and education. The new revolution in human resources (Khalil M Dirani Mehrangiz Abadi Bhagyashree Barhate Amin Alizadeh Rosemary Capuchino Garza, 2020) has been set off by the global crisis and is gravitating towards greater technical developments and virtual systems. Employee performance and turnover are significantly impacted by technical development (Froese, 2016). Numerous analyses demonstrate that despite this, workers and organizations who are receptive to technological advancement are well-positioned to survive and thrive. More people are accepting Flock and Pukka Team as virtual workspaces; gamification, artificial intelligence, and machine learning are utilized for data visualization, employee engagement, and the mental and physical wellness of employees; R and Python are in demand due to their user-friendly interfaces and strong community support.

Conclusion

Companies are incorporating big data into everyday operations and encouraging innovative methods to support improved decision-making. Sentiment analysis, network analysis, and machine learning have significantly improved business and staff management. For HR, having access to such a vast dataset and the ability to derive insights was a dream come true because they thought it required technical expertise to report and present. HR professionals must take the time to learn how analytics operate and organize (Gnanzou, 2015) the way they record their daily data. The team must become more transparent, establish a connection with the analytics community, and keep up with emerging knowledge. Spending time understanding technologies such as analytics enables them to make better decisions than just institutions. The management of personnel via virtual platforms has replaced traditional hierarchies in HR positions over time. With the right big data approach HR operations are poised to grow exponentially and make a greater contribution to the organization as a whole. However, for HR analytics to have the greatest possible impact, some elements must be correctly executed. These include determining the appropriate goal and timing of interventions, implementing suitable analytics techniques, collaborating on interventions, and expanding HR as a point of intervention. As was previously said HR professionals are using analytics to not only describe or diagnose problems, but also forecast, prescribe, and mitigate certain major setbacks. This is enabling them to adopt a new vision of a technologically savvy workforce that can even operate remotely, as evidenced by COVID-19. Ultimately, the growing utilization of analytics by HR is impacting organizations by improving decision-making and exceeding expectations. Software developers can also help by creating tools that automatically propose data when it is supplied or by creating straightforward analytics software with a drag-and-drop capability for many non-tech users.

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Green Practices on Bank's Environmental Performance

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Abstract

The study examines the adoption of green banking practices among commercial banks in Chitwan and its impact on environmental performance. The researcher aims to assess the green banking practices employed by commercial banks, examining the relationship between these practices and bank performance, and analyse the impact of green banking on the perceived performance of commercial banks. The study employs an analytical research design to analyze the variables associated with green banking practices. The population comprises bankers from financial institutions across Chitwan, with a sample of 189 respondents selected through purposive sampling. Statistical tools were used to analyze the relationships between independent variables (employee-related practices, daily operation practices, customer-related practices, and bank policy-related practices) and the dependent variable (bank's environmental performance). The results showed that commercial banks in Chitwan generally have a positive view of their sustainability practices, with bank policy-related practices showing the highest positive perception among employees. The study also found a positive correlation between green banking practices and environmental performance, with bank policy-related practices having the strongest relationship and customer-related practices the weakest. The study underscores the importance of strategic policy implementation and employee involvement in promoting sustainability within the banking sector.

Keywords

Bank's environmental performance, employee related practices, daily operation practices, customer related practices and bank's policy related practice.

Introduction

Green banking is a relatively new concept in Nepal, many banks and bankers are not fully aware of its importance. Despite major provisions, many financial institutions have less consideration for green banking policies, leading to lower execution and implementation. This may be due to unawareness or costly services. Green banks are often new and face challenges during recessions. They require experienced staff to provide proper services to customers, including loan officers with additional experience in dealing with green businesses. Banks involved in projects that damage the environment may lose their reputations. While some environmental management systems can reduce costs or raise bond values, lending to clients impacted by pollution, environmental regulations, and increased emission standards creates credit risks. Customers may not pay due to unexpected capital investments, market share decline, and third-party claims. Green banking requires expensive technology, renewable, and recycling methods, and employee training. Green banking surveys are an effective tool to identify financial performance in Nepal. However, many banks are unaware or pretend to be unaware of green banking practices and sustainability. Research question of the study are as follows:

- What is the relationship between green banking and performance of commercial banks in Chitwan?
- How does green banking impact on perceived performance of commercial banks in Chitwan?

Literature Review

Green banking is an additional method by which financial institutions can demonstrate their dedication to addressing environmental concerns and demonstrating their commitment to corporate social responsibility. The purpose of this essay is to investigate the overall structure of bankers as well as the factors that determine how they assess the success of green banking. Sustainable banking has become a central focus as financial institutions increasingly adopt green practices to reduce their environmental impact. According to Fatemi and Kaiser (2015), green banking practices, such as financing renewable energy projects, reducing paper use, and optimizing energy efficiency in bank branches, are vital for improving banks' environmental performance. Measuring the success of these practices often involves evaluating reductions in carbon emissions, energy consumption, and waste generation, which are considered key indicators of environmental performance in banking. Additionally, integrating green strategies into the business model can create long-term financial benefits, as banks position themselves as socially responsible entities.

Environmental Management Systems (EMS) are widely adopted in banks to formalize their commitment to sustainability. According to Mollah and Lipy (2018), EMS frameworks such as ISO 14001 help banks manage and mitigate their environmental impacts. The effectiveness of these systems can be assessed through environmental audits, which monitor factors such as resource usage (energy, water) and emissions. Furthermore, banks with strong EMS tend to report better environmental performance and demonstrate transparency in their environmental initiatives, which enhances their public image and customer trust. The relationship between green banking practices and financial performance has been widely debated. A study by Orlitzky et al. (2003) suggested that banks that implement green practices, such as eco-friendly financing and reducing carbon footprints, tend to experience improved financial performance. The measurement of these practices on banks' environmental performance involves tracking key indicators like carbon emission reductions, energy consumption, and eco-friendly investments. The study also emphasized that banks need to integrate green initiatives within their corporate strategy to enhance both environmental and financial outcomes.

Carbon disclosure is a growing trend in the financial sector as banks adopt transparent measures to report their environmental impact. According to Hassan and Leung (2019), the assessment of green practices in banking institutions often relies on carbon disclosure metrics that measure a bank's carbon footprint. This involves reporting on direct emissions from operations as well as emissions from financed activities, such as loans to carbon-intensive industries. Banks that actively measure and disclose their carbon emissions demonstrate leadership in environmental performance, which is often linked to better market performance and stakeholder confidence. Green finance, including the financing of renewable energy and environmentally sustainable projects, has been identified as a key driver of environmental performance in banks. A study by Weber (2010) explored how green finance initiatives, such as green bonds and sustainability-linked loans, contribute to reducing environmental impacts by supporting eco-friendly projects. The measurement of these initiatives' impact on a bank's environmental performance includes assessing the scale of financed green projects, the environmental outcomes (e.g., emissions reductions), and the alignment with international environmental standards.

Shaumya and Arulrajah (2017) concluded that implementation of environmentally responsible banking practices, which include minimizing the use of paper, enhancing energy efficiency, and actively managing environmental risks, resulted in the preservation of the environment and a smaller ecological footprint. In addition, these techniques enhanced the performance of financial institutions by bringing them into alignment with environmental sustainability objectives, increasing operational efficiencies, and enhancing the reputation of the corporation.

Zheng et al. (2021) found that roughly 95% of bankers in Bangladesh consider green financing to be a vital component in the creation of banking strategy for both the short term and the long term. As a result, this research contributes to the existing body of knowledge concerning the growth of green finance and the sustainability performance of banks and other financial institutions in developing economies such as Bangladesh. Consequently, significant management policy consequences are investigated and debated.

Rehman, et al. (2021) concluded that findings indicate that the adoption of environmentally responsible banking practices is significantly impacted by policy, day-to-day operations, and investments on the part of organizations. The framework that was presented for the study can be adopted by interested parties in order to gain access to and identify the factors that can support a fair level of environmentally responsible banking practices in the country.

Chen *et al.* (2022), found that the staff, daily operations, and policy-related GB practices of banks have significant beneficial effects on green financing. This is in contrast to the customer-related GB practice of banks, which did not show statistical significance. In addition, the funding of environmentally friendly projects performed by banks demonstrated a significant and favorable impact on the environmental performance of banks. In addition, it was noted that the daily operations of banks and the policies related to GB practices had substantial effects on the environmental performances of banks. This was in contrast to the practices connected to GB that were made by banks regarding their employees and customers. In light of this, the discussion focuses on the significant policy implications and potential avenues for future study in the relevant area.

Taneja and Özen (2023) concluded that environmental policies and initiatives had a significant impact on the environmental performance of the bank. Based on the findings of the study, it was suggested that financial institutions should make an effort to promote environmentally sustainable technology. This would be of great significance in terms of enhancing the performance of banks and enhancing their reputation among clients. Gulzar, et al. (2024) found the shed light on a variety of facets of green banking, including employee-related practices, operational processes, customer engagement, and policy adherence. These findings also make a significant contribution to the development of green financing, which ultimately results in substantial positive benefits. In addition to this, the research highlights the significant and favorable impact that green financing has on the environmental performance of banks.

Khan et al. (2024) According to the findings of the study, the employees-related practices (ERPs), daily operations-related practices (DORPs), customers-related practices (CRPs), and policy-related practices (PRPs) of banks have a significant and beneficial impact on the reputation of the bank. In addition, it is also found that environmental consciousness has a strong moderating effect on the correlations between ERPs, DORPs, CRPs, and PRPs, as well as the reputation of banks. It is possible that the study may raise understanding and enlighten regulators and bank management to transition their operations to green banking practices in a sustainable manner.

Research Methodology

An analytical research design is used to examine and evaluate data in order to comprehend relationships among various variables. The population of the study consists of all of the bankers, or the employees who are involved in banking and financial institutions located throughout the Chitwan. This research is based on primary source of data. The primary data is collected through structured questionnaire from respondents. Among the total population 189 bankers are chosen as a sample by using purposive sampling method. Correlation analysis was used to reveal the slope of the relationship and to forecast outcomes and characterize the nature of a relationship. Multiple regression was used to examine the effects of independent factors on the dependent variable.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

$$BEP = a + \beta_1 * ERP + \beta_2 * DOP + \beta_3 * CRP + \beta_4 * BPR$$

Where,

a = Constant (Intercept) β = Coefficient

BEP = Bank's Environmental Performance

= Daily Operation Practices

Bank's Policy Related Practice

ERP = Employee Related Practices DOP

CRP= Customer Related Practices BPR=

Results and Findings

Correlation analysis is a statistical method that is utilized to determine the strength of the relationship between two variables as well as the direction of that relationship.

Table 1 Correlation Analysis

		Bank Environmental Performance	Employee Related Practices	Daily Operation Practices	Customer related Practices	Bank Policy Related Practices
Bank Environmental Performance	Pearson Correlation	1	.384**	.400**	.193**	.477**
	Sig. (2-tailed)		0.000	0.000	0.008	0.000
Employee Related Practices	Pearson Correlation		1	.510**	.202**	.358**
	Sig. (2-tailed)			0.000	0.005	0.000
Daily Operation Practices	Pearson Correlation			1	.228**	.406**
	Sig. (2-tailed)				0.002	0.000
Customer related Practices	Pearson Correlation				1	.231**
	Sig. (2-tailed)					0.001
Bank Policy Related Practices	Pearson Correlation					1
	Sig. (2-tailed)					0.000

** . Correlation is significant at the 0.01 level (2-tailed).

(Source: SPSS Output)

This table shows the correlation coefficients and significance levels between different practices related to the bank's environmental performance and other aspects. The Pearson correlation coefficient is 0.384, which is statistically significant ($p = 0.000$). This indicates a moderate positive relationship, suggesting that better employee-related practices are associated with better environmental performance. The Pearson correlation coefficient is 0.400, also statistically significant ($p = 0.000$). This shows a moderate positive relationship, implying that improvements in daily operation practices are linked with better environmental performance. The Pearson correlation coefficient is 0.193, significant at the 0.008 level. This indicates a weak positive relationship, suggesting a less pronounced but still positive association between customer-related practices and environmental performance. The Pearson correlation coefficient is 0.477, statistically significant ($p = 0.000$). This reflects a moderate to strong positive relationship, indicating that stronger bank policy-related practices are associated with better environmental

In summary, "Bank Environmental Performance" is positively correlated with all other variables, with the strongest relationship observed with "Bank Policy Related Practices" and the weakest with "Customer Related Practices."

Regression analysis of Independent Variable and Banks environmental performance

Table 2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.549 ^a	0.301	0.286	1.016939765567720
a. Predictors: (Constant), Bank Policy Related Practices, Customer related Practices, Employee Related Practices, Daily Operation Practices				

Source: SPSS Output

Table 2 shows the R value is 0.549, indicating a moderate to strong correlation. The R^2 is 0.301, meaning that approximately 30.1% of the variance in bank environmental performance is explained by these predictors. The adjusted R^2 is 0.286, and the standard error of the estimate is 1.017, reflecting the overall accuracy of the model's predictions.

Table 3 Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.999	4	20.500	19.823	.000 ^b
	Residual	190.287	184	1.034		
	Total	272.286	188			
a. Dependent Variable: Bank Environmental Performance						
b. Predictors: (Constant), Bank Policy Related Practices, Customer related Practices, Employee Related Practices, Daily Operation Practices						

Source: SPSS Output

Table 3 shows the regression sum of squares is 81.999, with a mean square of 20.500, resulting in an F-value of 19.823, which is statistically significant ($p = 0.000$). This indicates that the combined predictors significantly explain the variance in bank environmental performance. The residual sum of squares is 190.287, showing the variance not accounted for by the model. The significant F-value demonstrates that the model effectively captures the impact of the predictors on environmental performance.

Table 4 Coefficient for predicting Bank Environmental Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.052	0.459		0.113	0.910
	Employee Related Practices	0.174	0.076	0.169	2.303	0.022
	Daily Operation Practices	0.233	0.105	0.167	2.223	0.027
	Customer related Practices	0.049	0.075	0.042	0.655	0.513
	Bank Policy Related Practices	0.467	0.096	0.339	4.887	0.000
a. Dependent Variable: Bank Environmental Performance						

Source: SPSS Output

The table presents the regression coefficients for predicting "Bank Environmental Performance" using four predictors: "Employee Related Practices," "Daily Operation Practices," "Customer Related Practices," and "Bank Policy Related Practices."

Employee Related Practices: The standardized coefficient (Beta) is 0.169, and the t- value is 2.303, which is statistically significant ($p = 0.022$). This suggests that employee-related practices positively influence environmental performance, with each unit increase in these practices associated with a 0.174 unit increase in environmental performance.

Daily Operation Practices: The standardized coefficient (Beta) is 0.167, and the t- value is 2.223, significant at $p = 0.027$. This indicates that daily operation practices also positively affect environmental performance, with each unit increase contributing 0.233 units to environmental performance.

Customer Related Practices: The standardized coefficient (Beta) is 0.042, and the t-value is 0.655, which is not statistically significant ($p = 0.513$). This implies that customer-related practices have a negligible effect on environmental performance in this model. *Bank Policy Related Practices:* The standardized coefficient (Beta) is 0.339, and the t-value is 4.887, highly significant ($p = 0.000$). This shows a strong positive effect, with each unit increase in bank policy-related practices leading to a 0.467 unit increase in environmental performance. In summary, "Bank Policy Related Practices" has the most substantial positive impact on environmental performance, followed by "Daily Operation Practices" and "Employee Related Practices," while "Customer Related Practices" does not significantly influence environmental performance in this model. Bank Environmental Performance" is positively correlated with all other variables, with the strongest relationship observed with "Bank Policy Related Practices" and the weakest with "Customer Related Practices." Regression analysis shows Bank Policy Related Practices" has the most substantial positive impact on environmental performance, followed by "Daily Operation Practices" and "Employee Related Practices," while "Customer Related Practices" does not significantly influence environmental performance in this model.

Discussion and Conclusion

Zhang et al. (2022) found that green banking activities positively influence green financing and environmental performance, with green financing mediating this relationship. The findings support this, showing high mean scores for policy-related and operational practices, consistent with Zhang et al.'s conclusions about their positive impact. However, customer-related practices had a lower mean score and less influence, reflecting Zhang et al.'s identified challenges, such as low customer awareness, aligning with their observations of the obstacles in green banking development. Wang (2022) explored the connections between environmental performance, green financing, and green innovation, revealing mixed impacts. The findings, showing strong policy-related practices positively impacting environmental performance, align with Wang's idea of green financing's complex effects. However, the findings suggest a more straightforward positive impact of green banking practices than Wang's mixed results, indicating that while green finance influences innovation, its impact on performance varies, highlighting a nuanced relationship between these variables in the reviewed study. Ambrose (2022) examined how environmentally responsible financing affects financial performance but identified gaps in the literature. The findings focus on sustainability practices' impacts on environmental performance rather than financial outcomes. This creates a gap, as the review does not address financial performance or the specific gaps identified by Ambrose. The results emphasize the effectiveness of policy-related and operational practices in environmental performance, suggesting further research is needed to connect these practices with financial performance outcomes, aligning with Ambrose's call for additional exploration. Chen et al. (2022) found that policy-related and operational green banking practices significantly impact environmental performance, consistent with the findings that show high mean scores for these practices. The findings align with Chen et al.'s results, reinforcing the effectiveness of strong policy frameworks in improving environmental outcomes. Both studies indicate that while policy and operational practices are crucial, customer-related practices have less impact, highlighting a common theme in emphasizing the importance of robust internal mediator. The findings show positive perceptions of sustainability practices, especially policy-related ones, which aligns with Niazi et al.'s emphasis on effective management and innovation. However, the findings did not specifically address GHRM or GI's direct effects, indicating a need for further research into these factors to fully align with Niazi et al.'s insights on green practices and leadership.

During the course of the research, correlation analysis was utilized to ascertain the strength and direction of the relationships that existed between the independent variables (bank policy-related practices, employee-related practices, daily operation practices, and customer-related practices) and the dependent variable (bank's environmental performance). All green banking practices have been found to have a positive correlation with environmental performance, with the stronger correlation being observed for practices related to bank policy. The fact that green practices are indeed linked to improved environmental performance in the banking sector.

The study concluded its next objective by examining how green banking impacts commercial banks in Chitwan. The results of the regression analysis indicate that the practices related to bank policy have the most significant positive impact on environmental performance. This is followed by practices related to daily operations and practices related to employees. On the other hand, practices that are related to customers do not have a significant impact on environmental performance in this model. In general, the study offers empirical evidence that substantiates the positive impact that green banking practices have on the environmental performance of banks, thereby accomplishing all of the research objectives.

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Affect Heuristic and Influence of 'Name' in Investment Decisions of Nepalese Investors

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Abstract

The study aims to investigate the presence of affect heuristics in investment decisions and analyze the influence of company and financial tool names in investment decisions. The framework of the Affect Heuristic Model was adapted to measure perceived risk and perceived benefit. Besides the impact of fluency, association and familiar names were tested to discover the level of perceived risk and perceived benefit during the investment decision. The research was conducted among 150 investors who invest in the Nepal Stock Exchange through an online form. The study indicates that Nepalese investors tend to rely on heuristic shortcuts, such as fluency, familiarity, and association, when assessing investment opportunities. They are notably influenced by affect 'name' heuristics, shaping their perceptions of benefits. Moreover, their perception of risk and benefit is more influenced by trends and superficial factors like glitz than past performance and corporate character. Local companies and well-known brands are favored due to the familiarity heuristic.

Keywords

Affect heuristic, name, behavioral finance, investment decision, Nepalese investor.

Introduction

One fundamental assumption of mainstream finance is that investors are rational and make investment decisions that maximize value based on available information. Hence, information processing holds critical importance in shaping investment decisions. However, the literature on behavioral finance suggests that investors do not consistently exhibit rational behavior due to inherent biases, information gaps, and emotional influences during decision-making. The marketing discipline has done extensive research on how the "name" of a product or service can affect consumer buying behavior and brand value. In real-life scenarios, the name significantly impacts acceptability and value development (Green & James, 2013). Thus, this study aims to investigate the name's influence on investment decisions. Cooper et al. (2000) studied on 95 companies adopting dot-com names between 1998 and 1988 found that these companies experienced significant and positive abnormal returns due to investor mania, indicating that a company's association with a specific field contributes to value addition.

This paper adopts the framework from the "Affect Heuristic" model related to behavioral finance and analyzes the influence of company names in investment decisions. Factors like perceived risk and perceived benefit are measured that impact the decision of investors during investment decisions through 150 responses collected from an online Google form.

The presence of affect heuristic bias and the impact of fluency, association, and familiar names were tested to discover the perceived risk and perceived benefit level. The study reveals that Nepalese investors' investment decisions are influenced by affect heuristic bias, with the type of name affecting the scale of perceived risk and benefit.

Review of Literature

Behavioral Finance

Conventional finance theories assume rational investment decisions, but behavioral finance reveals that a significant minority of investors are subject to behavioral biases. Cognitive biases, influenced by personal preferences and experiences, lead to less rational decisions. Behavioral finance examines cognitive limitations and heuristics' impact on decision-making and how these biases diverge for poor decisions. It helps recognize and prevent mistakes, highlighting the importance of understanding and addressing these biases in financial decision-making (Bhattacharya, 2012; Waweru et al., 2008; Byrne & Brooks, 2008; Slovic et al., 1977; Lovallo & Sibony, 2010).

The Efficient Market Hypothesis outlines how people make investment decisions, but behavioral finance examines how people behave in the market (Peters, 1996). According to (Shefrin, 2002), behavioral finance is

important for recognizing one's own and others' mistakes, understanding those mistakes, and making efforts to prevent doing them. Behavioral finance studies the influence of psychology on the behavior of investors. It explores investors' cognitive biases' impact on financial decisions (Fieger, 2017).

Affect Heuristic

Heuristics are general guidelines that people follow in difficult and ambiguous situations. When there is a shortage of time, these heuristics aid in decision-making (Waweru et al., 2008). Consequently, people could choose an illogical, simpler, and more successful method of decision-making (Tin & Hii, 2020), which may lead to biases like overconfidence, mental accounting, representativeness and framing (Ritter, 2003). Similarly, Ngoc (2013) concluded that individual investors' decisions at Vietnamese securities companies are influenced by behavioral factors. Research of (Aziz & Khan, 2016; Kengatharan & Kengatharan, 2014; Rajeshwaran, 2020) found the impact of heuristic factors in investment decisions.

Dangol and Manandhar (2020) found that all heuristic biases significantly impact investing decisions, with overconfidence bias having the greatest impact. Additionally, the locus of control was found to have a moderating influence on anchoring and adjustment bias, but not on representativeness or availability bias. Gnawali (2021) discovered that investment decisions are highly influenced by psychological elements, social interaction, regulatory regulations, and corporate image.

Decision-makers use heuristics in uncertain situations, such as the affect heuristic, which involves assessing the dangers or advantages of something without considering its consequences. The interaction of emotion and cognition is a common subject in academic research (Lovallo & Sibony, 2010). The term "affect" describes the character of 'goodness' or 'badness' that is felt as a state of mind that distinguishes between a stimulus that is positive or negative. Individual risk perception is significantly influenced by affective responses (Slovic et al., 2002).

Alhakami & Slovic (1994) found that an individual's perception of risk and benefit of using pesticides is inversely related to their positive and negative affect. Human responses to risk are categorized into two fundamental modes: feelings and analysis. Firstly, "risk as feeling" refers to individuals' instinctive and intuitive reactions to danger. Secondly, "risk as analysis" is the application of logic, reason, and scientific analysis in risk assessment and management. The "affect heuristic" refers to the tendency of risk as feelings (Slovic & Peters, 2006). Affect's role in decision-making is gaining recognition, but its limited role may hinder thorough evaluation of options, as noted by Shafir et al. (1993). Zajonc (1980) advocates the strong role of affect in decision making. According to him, all perceptions contain some level of affect. "We do not just see a house; we see a handsome, ugly, or pretentious house."

Name

Stereotyping occurs when people add traits to an individual based on their name, such as origin, religion, race, ethnicity, or culture. This can be spontaneous and unconsciously activated (Kunda, 2002). Research by Kumar et al. (2012) found that after 9/11, negative stereotyping against South Asian and Middle Eastern individuals led to a decline in fund flow.

According to Lobão et al. (2017), a market portfolio produces higher returns than a recognition heuristic portfolio. On the other hand, there is little evidence based on Google Trends data to suggest that a company's monthly search volume increases may cause abnormal returns in the subsequent month.

The search for the right corporate name is crucial for a company's identity and initial point of contact with stakeholders (Koku, 1997; Tadelis, 1999). Globalization and competitiveness have increased business requirements, limiting the availability of perfect names. This has led to a rise in corporate name consultants and online platforms like 'Name This'. The name issue is more than just an intellectual exercise in business and marketing, as seen with Chevrolet's Nova in Spain (Kotler, 1994; Limbach & Goettner, 2011).

Name and Fluency

Easy-to-pronounce names are associated with good brand recognition, according to Bao et al. (2008). Easy-to-process names, or fluent names, have been associated with increased ownership, better liquidity, and greater business values. Short, uncomplicated words are digested more frequently and cause a good emotional state, as demonstrated by Oppenheimer (2006). Participants in a financial survey by Alter & Oppenheimer (2006) showed that fictitious companies with more fluid names will yield higher future returns.

Research has indicated that processing fluency in simple writing is associated with several favorable attributes. Evaluations of truth, confidence, frequency, notoriety, and even liking are all improved by fluency (Reber & Schwarz, 1999; Norwick & Epley, 2003; Tversky & Kahneman, 1973; Jacoby et al., 1989; Reber et al., 1998).

Name and Association

Spence (1973) defined name changes as communication devices for corporate management to share information with stakeholders, either about business changes or secret management's future success, as per Karpoff & Rankine

(1994). Research suggests that changing a company's name can be seen as an investment in intangible assets like reputation, as the name is considered a powerful symbol of historical performance and company attributes (Tadelis, 1999; Einwiller & Will, 2002).

Sobel (2000) studied US manias in the 1850s and 1960s, focusing on railroad, mining, and scientific stocks. Cooper et al. (2000, 2005) suggested that the rise in dotcom business value indicates market irrationality, and that changing business names to internet-related 'dotcom' names leads to a favorable stock price reaction and increasing fund flow.

Name and Familiarity

Zajonc (1968) found that the more often a neutral stimulus is exposed, the more one grows to like it. He suggested that people prefer familiar, previously encountered stimuli to novel ones. People perceive disfluently processed stimuli as more dangerous than fluently processed stimuli, according to Song & Schwarz (2009). They concluded that perceptions of the novelty or familiarity of a stimulus can act as a cue when judging risk.

Research Methodology

Research Design

This study aims to determine the impact of a financial tool or company name's name on investment decisions. The analysis of this research is based on the questionnaire survey through primary data collection. The study is carried out using the Affect heuristic model prescribed by Finucane. The "Affect Heuristic" model is constructed to test perceived risk and perceived benefit using a 5-point Likert Scale.

Population and Sample

Responses were collected through an online Google form. A total of 150 responses were collected from different investment forums, website platforms, and social media groups, particularly Facebook groups created for discussions on the Nepalese capital market.

Instrument Used

The questionnaire is divided into three sections. The first section contains the respondent profile, and the second and third sections have the test of affect heuristic, test of fluency, test of association, and test of familiarity for perceived risk and benefit. The second and third sections measure the independent, dependent, and confounding variables. All the behavioral responses were measured using a 5-point Likert scale that explains the perceived risk and benefit level.

Scales in case of perceived risk:

- 1- Not at all risky
- 2- Little risky
- 3- Somewhat risky
- 4- Much risky
- 5- Extreme risky

Scales in case of perceived benefit:

- 1- Very bad
- 2- Bad
- 3- Fair
- 4- Good
- 5- Excellent

Further, data collected from the Google form was edited in Microsoft Excel and SPSS for processing. The mean score of the responses is tagged as Impression and categorized into two segments for analysis. Similarly, a correlation coefficient analysis has been applied to see the connection between opinions forwarded on perceived risk and perceived benefits.

Analysis Framework

This research is built around whether the name affects investment decisions based on affect heuristic and shaped by name fluency, association, and familiarity. The outline of behavioral heuristics, literature in the context of name, and literature of behavioral finance provide perspectives on the influence during investment decisions.

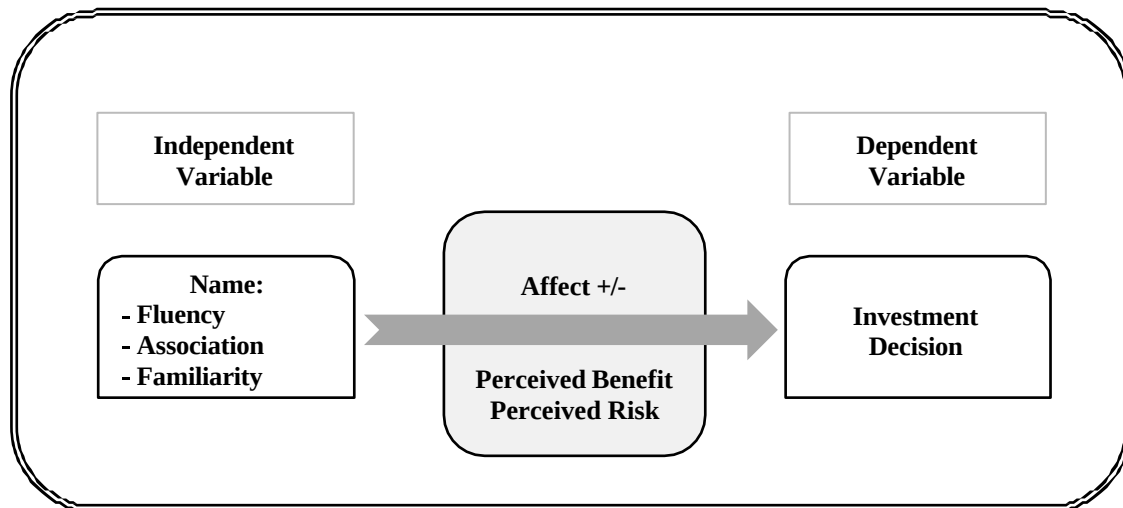
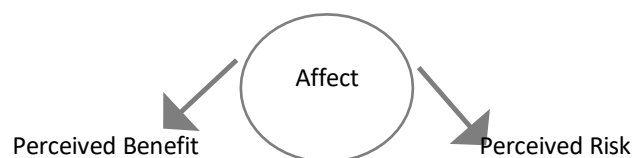


Figure 1: Framework of Affect Model (Finucane et al., 2000)

In Figure 1, the company's name and investment tools have been coined as independent variables. The name has been further classified into fluency, association, and familiarity. Here, fluency refers to short, easy-to-pronounce words linked with positive dimensions during investment decisions (Alter & Oppenheimer, 2006; Bao et al., 2008; Reber & Schwarz, 1999). Name can be associated with a new glamor industry with growth potential by changing the name related to that industry (Sobel, 2000), connecting investment tools with the current hot investment style (Cooper et al., 2005). Familiarity is related to company or investment tools that are recognized through different advertisements and news (Goetzmann & Peles, 1997), companies with known headquarters or geographical proximity (Coval & Moskowitz, 1999; Frieder & Subrahmanyam, 2004; Grullon et al., 2002; Huberman, 2001).

The affect heuristic, which involves evaluating goodness or badness, experience, and setting boundaries for positive or negative stimulus quality, plays a crucial role in investment decisions, as it is automatic and quick (Slovic & Peters, 2006).

Figure 2: Model of Affect Heuristic (Finucane et al., 2000)



Keller et al. (2006) found that affect significantly influences risk perception and may increase risk availability. Finucane et al. (2000) found an inverse relationship between perceived risks and benefits. Slovic and Peters (2006) found that states' affect influences risk perception, with benefits information influencing risk perception. High use indicates low risk, and vice versa.

Results and Discussions

This part deals with the results from the interpretation of the responses forwarded by the sampled respondents
Respondents' Profile

The table below illustrates the respondents' profile:

Table 1 Respondents' Profile

Gender	Frequency	Age Group	Frequency	Investment Experience	Frequency
Male	136 (90.7)	Below 25	27 (18.0)	Up to 2 years	48 (32.0)
Female	14(9.3)	25-35	101 (67.3)	2-5 years	60 (40.0)
		35-45	21 (14.0)	5-10 years	35 (23.3)
		45 and above	1 (0.7)	10 years and above	7 (4.7)
Total	150 (100.0)				

Source: Online Survey, 2024 (Value in parentheses is percent)

Most investors are male, comprising 90.7 percent of the total, while females make up 9.3 percent. The largest age group of investors falls between 25 and 35 years old, constituting 67.3 percent of the total. The least represented age group is those aged 45 and above, accounting for only 0.7 percent. Most investors have 2-5 years of investment experience, making up 40.0 percent of the total. The least common category is investors with 10 years or more of experience, comprising 4.7 percent.

Perceived Risk and Perceived Benefit under Affect 'Name' Heuristics

The table below shows how the Nepalese investors perceive risk and benefit under affect 'name' heuristics:

Table 2 Opinion on Perceived Risk and Perceived Benefit under Affect 'Name' Heuristics

Items	Perceived Risk				Perceived Benefit			
	Mean	Std. D	Skew	Kurt	Mean	Std. D	Skew	Kurt
Investment in financial tools (Stock, Bond, Insurance, Fund, and Savings Scheme) your friend/boss recently invested.	2.7	0.9	+0.4	-0.1	3.1	0.8	0.0	+1.2
Make decision whether to buy or sell stock of company with good news in the media.	2.6	0.8	+0.8	0.0	3.1	0.8	-0.2	+0.3
Some informative news about company, saving a/c, insurance schemes and funds will lead you to conclude about their character (goodness or badness).	2.3	0.9	+0.8	+0.5	3.5	0.8	-0.9	+0.8
Admitting your pick of stocks are different from those of a friend.	2.7	1.0	+0.2	-0.6	3.0	0.8	-0.1	+0.5
You decided to choose unpopular stock for investment.	3.1	1.2	-0.1	-1.0	2.6	1.0	0.5	-0.4
Overall Average	2.7				3.1			

Source: Online Survey, 2024

Table 2 shows that the Nepalese investors have been generating better perceived benefit under affect 'Name' heuristics behavior. Heuristics are mental shortcuts or rules of thumb that people often use to make decisions quickly and efficiently, although they may not always lead to optimal outcomes. Here, the term, 'Name' is used to address company name, individual associated with the listed company or, branding name that is linked with the company image. The result from Table 1 shows that the Nepalese investors are trying to get benefit from the 'Name' attributes under the heuristics approach while trading at the stock market.

Generally, in context to Nepalese investors, scenarios with positive news or informative content about investments tend to have higher perceived benefits compared to scenarios involving unpopular or different investment choices.

Perceived Risk and Perceived Benefit under Fluency of 'Name'

The table below shows how the Nepalese investors perceive risk and benefit under fluency of 'Name':

Table 3 Opinion on Perceived Risk and Perceived Benefit under Fluency of 'Name'

Items	Perceived Risk				Perceived Benefit			
	Mean	Std. D	Skew	Kurt	Mean	Std. D	Skew	Kurt
Company with easy to pronounce name may also have sound financial conditions.	2.8	1.3	+0.4	-0.9	2.7	0.9	-0.4	-0.1
Company with shorter names might get the recognition from investor.	2.9	1.1	+0.4	-0.4	2.7	0.9	-0.2	-0.6
Follow stock ticker with easy language construction for investment.	2.9	1.0	-0.2	-0.2	2.9	1.0	-0.5	-0.7
Overall Average	2.9				2.8			

Source: Online Survey, 2024

The fluency of a 'Name' can significantly influence investor decisions by shaping perceptions of risk, attractiveness, and potential returns associated with specific investment options. However, it's essential for investors to supplement heuristic decision-making with thorough analysis and consideration of objective factors

Overall, the data in Table 3 suggests that Nepalese investors generally perceive moderate levels of risk and benefit associated with companies' name characteristics, such as ease of pronunciation or length. While these factors may influence investor perceptions to some extent, they likely represent just one aspect of the broader decision-making process in the stock market. Other factors such as financial performance, market trends, and industry dynamics are likely to play significant roles in investment decisions as well. Nevertheless, Table 2 shows that the Nepalese investors had a higher perceived risk than perceived benefits from the fluency of 'Name' for the listed companies.

Perceived Risk and Perceived Benefit under 'Association'

The table below shows how the Nepalese investors perceive risk and benefit under 'Association':

Table 4 Opinion on Perceived Risk and Perceived Benefit under 'Association'

Items	Perceived Risk				Perceived Benefits			
	Mean	Std. D	Skew	Kurt	Mean	Std. D	Skew	Kurt
Company name can represent past performance and corporate characters.	2.6	1.1	+0.1	-0.7	2.7	0.9	+0.6	-0.2
Investing in mutual funds whose title reflects recent hot investment styles.	2.2	1.0	+0.9	+0.5	3.4	0.8	-0.7	+0.2
Choose stock that is associated with industry that has glamour and growth with positive price reaction.	2.3	1.0	+0.7	+0.2	3.4	0.8	-0.5	+0.5
Overall Average	2.4				3.2			

Source: Online Survey, 2024

Heuristic behavior often involves simplifying complex decisions by focusing on a few key factors. Investors may rely on the association of company names with perceived risk and benefits as a simple heuristic for decision-making, especially when faced with a large number of investment options or limited time and resources for analysis. Overall, heuristic behavior in investment decisions related to the association of company names with perceived risk and benefits can lead to simplified judgments and biases. While heuristics can be useful for making quick decisions, they may also result in suboptimal outcomes if investors overlook important information or fail to consider a broader range of factors influencing investment performance. Table 4 illustrates that the overall average perceived risk across all scenarios is moderate, with a mean of 2.4. The overall average perceived benefit is higher at 3.2, indicating that investors generally perceive more benefits than risks in the scenarios presented. In summary, the data suggests that Nepalese investors perceive varying levels of risk and benefit associated with different investment options based on the characteristics of company names and industry associations. Trends and glamour seem to influence perceived benefits more strongly than past performance and corporate character.

Perceived Risk and Perceived Benefit under 'Familiarity'

The table below shows how the Nepalese investors perceive risk and benefit under 'Familiarity':

Table 5 Opinion on Perceived Risk and Perceived Benefit under 'Familiarity'

Items	Perceived Risk				Perceived Benefits			
	Mean	Std. D	Skew	Kurt	Mean	Std. D	Skew	Kurt
'Company Name' with meaningful local or international names (Nepalese or English word) can be easily recognizable than company with complex and meaningless names.	2.4	0.9	+0.7	+0.7	3.0	0.8	-0.5	+0.7
Investing in the company with visible brands i.e. Company which appears in different media frequently through advertisement, analysis and for social causes.	2.6	0.8	0.0	-0.5	2.8	0.9	+0.4	-0.5

Considering companies with geographical proximity, known headquarters from your place for investment.	2.4	1.0	+0.8	+0.5	3.0	0.8	-0.3	+0.5
Overall Average	2.5				3.0			

Source: Online Survey, 2024

Familiarity behavior of an investor is a powerful factor in heuristic behavior among investors, influencing their judgments, perceptions, and decision-making processes in the financial markets. While familiarity can provide a sense of comfort and confidence, it can also lead to biases and oversights if investors rely too heavily on familiar information without considering alternative perspectives or new developments.

Table 5 illustrates that the overall average perceived risk across all scenarios is moderate, with a mean of 2.5. The overall average perceived benefit is higher at 3.0, indicating that Nepalese investors generally perceive more benefits than risks in the scenarios presented. In summary, Nepalese investors perceive varying levels of risk and benefit associated with different characteristics of companies and investment strategies. Familiarity, brand recognition, and geographic proximity play significant roles in shaping these perceptions, with Nepalese investors generally viewing recognizable brands and local businesses more favorably.

Correlation Matrix

A correlation matrix is a table that displays the correlation coefficients between variables in a dataset, represented by distinct rows and columns. These coefficients quantify the linear relationship between two variables in intensity and direction. The table below shows the correlation coefficients among the variables used in the paper:

Table 6 Correlation Matrix

Var	FPB	FPR	FluPB	FPR	APR	APB	ANHR	ANHB
FPB	1							
FPR	-0.144 (0.079)	1						
FluPB	+0.322** (0.000)	-0.105 (0.203)	1					
FPR	+0.018 (0.830)	+0.422** (0.000)	-0.268** (0.001)	1				
APR	-0.037 (0.654)	+0.534** (0.000)	+0.027 (0.746)	+0.401** (0.000)	1			
APB	+0.466** (0.000)	-0.033 (0.692)	+0.322** (0.000)	-0.102 (0.216)	-0.155 (0.059)	1		
ANHR	+0.133 (0.104)	+0.272** (0.001)	-0.020 (0.805)	+0.284** (0.000)	+0.157 (0.055)	+0.025 (0.762)	1	
ANHB	+0.550** (0.000)	+0.033 (0.687)	+0.228** (0.005)	+0.035 (0.672)	-0.011 (0.895)	+0.478** (0.000)	-0.016 (0.843)	1

** Correlation is significant at the 0.01 level (2-tailed).

Table 6 show a statistically significant low degree of positive correlation (+0.322) between fluency perceived benefit and familiarity perceived benefit under heuristic investment behavior of Nepalese investors, but a statistically significant low degree of negative correlation (-0.268) between fluency perceived benefit and fluency perceived risk. Although, fluency perceived risk is positively (+0.401) associated with association perceived risk, and association perceived risk is positively (+0.534) associated with familiarity perceived risk.

Table 5 also shows a statistically positively correlated between association perceived benefits and familiarity perceived benefits (+0.466) and fluency perceived benefits (+0.322). At the same time, affect name heuristic risk is seen associated positively (+0.272) and with fluency perceived risk (+0.284).

An affect 'name' heuristics benefits is seen statistically significant associated with familiarity perceived benefits (+0.550), fluency perceived benefits (+0.288), and association perceived benefits (+0.478).

Discussion

According to Bank et al. (2011), investors who are typical internet users are likely to look up a company using Google by its "name," rather than using technical stock symbols such as German Securities Identification Code (WKN) or International Securities Identification Number (ISIN). Like this, Nepalese investors are also thought to be concerned about the company's "name" in relation to its track record, corporate culture, and degree of recognition.

Lobão et al. (2017) stated that a recognition heuristic portfolio yields poorer returns than a market portfolio. On the other hand, there is insufficient data to suggest that substantial rises in a company's monthly search volume could result in unusual returns the next month. Similarly, this study found that the Nepalese investors perceived benefits and risks in certain ways with fluency, familiarity, and association with the 'name' of the listed company.

Green and Jame (2013) found a significant impact by the 'name' effect on the acceptability and value development of the listed companies, while the study on Nepalese market did not build a significant impact but associated to perceived benefits.

Conclusion and Implications

This study observes the impact of name elements in investment decisions. The study considers factors like affect heuristic, fluency, association, and familiarity to determine the pact during investment decisions. Overall, findings suggest that Nepalese investors demonstrate certain heuristic tendencies in their decision-making processes. They tend to weigh perceived benefits and risks in certain ways, with fluency, familiarity, and association playing significant roles. Additionally, the influence of affect 'name' heuristics is notable in shaping Nepalese investors' perceptions of benefits.

Nepalese investors' perception of risk and benefit in investment opportunities is influenced more by trends and glitz than past performance and corporate character, based on company names and industry connections. Local companies and well-known brands are typically seen more favorably by Nepalese investors when taking the familiarity heuristic into account.

Overall, by acknowledging and addressing the implications of heuristic tendencies in investment decisions, Nepalese investors can enhance their ability to make rational, well-informed choices aligned with their financial goals and risk preferences. Similarly, Nepalese investors may need to diversify their investment portfolios to mitigate the influence of heuristic biases. Similarly, encouraging a long-term investment perspective can help Nepalese investors avoid being swayed by short-term trends and glitz.

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Study on Role of Government support schemes in the growth of MSMEs in India

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Abstract

This paper aims to explore the trends of budgetary allocation and utilization of MSMEs by Government and to know the various schemes launched by government of India for the growth of MSMEs. Tables and graphical methods have been used to know the trends of budgetary allocation by government for MSMEs. For these annual reports of MSMEs has been used hence, it is based on secondary data. The study finds that the government also allocated sufficient fund for MSME sector which shows increasing trend in the following year and the trend of utilisation was also increasing. The government has implemented several plans to encourage technology upgrades and modernization in infrastructure facilities as well as welfare of artisans and MSME workers. Enhancing the capacity of small and medium-sized businesses can propel economic growth through increased government budgetary allocation and usage for MSMEs. Innovation, increased competitiveness, and the development of jobs can all result from this help. Since MSMEs make up a large portion of the economy, they gain the most from additional finance, which boosts output and opens up new markets. This in turn creates a more dynamic and varied business climate, which benefits the economy as a whole. Comprehending MSME programs guarantees that small and medium-sized businesses may effectively use accessible resources, financial assistance, and support services. MSMEs are now more equipped to expand, develop, and compete in the market thanks to this improved access.

Keywords

MSMEs, innovation, growth, employment and business climate

Introduction

The Micro, Small, and Medium Enterprises (MSME) sector has evolved as a vital and energetic segment of the Indian economy in the past fifty years. It is the second most important industry after agriculture in terms of boosting industrialism and developing significant jobs prospects at moderately less investment levels. MSMEs serve as essential support units to large industries and play a significant role in boosting inclusive industrial development in the nation. With their expanding presence in various sectors, MSMEs are diversifying their offerings to cater to both domestic and international markets' demands. One of the key strengths of the MSME sector is its ability to generate employment at a relatively low capital cost. Unlike large industries, MSMEs often require minimal investment to set up operations, making them accessible to a wide range of entrepreneurs, including those from marginalized communities and rural areas. This has a multiplier effect on the economy, as each job created in the MSME sector has ripple effects on local communities and economies. MSMEs are not only important in their own right but also serve as vital support units to large industries, acting as suppliers of goods and services. This symbiotic relationship between MSMEs and large enterprises contributes to the overall competitiveness and resilience of the industrial ecosystem.

In recent years, MSMEs have been expanding their reach across different parts of the economy, diversifying their product and service offerings to meet the evolving demands of domestic and global markets. This diversification has been facilitated by factors such as technological advancements, government initiatives to promote MSME growth, and increasing access to finance and market linkage

Definition:

Table 1. Micro, Small and Medium Enterprises

Classification	Micro	Small	Medium
Manufacturing & Services	Investment	Investment	Investment
	< Rs. 1 cr.	< Rs. 10 cr.	< Rs. 20 cr.
	Turnover	Turnover	Turnover
	< Rs. 5 cr.	< Rs. 50 cr.	< Rs. 100 cr

Source: Compile by authors

Klonowski D (2016). The study's main focus is on the financial difficulties Poland entrepreneurial firms face. It clarifies why there are still noticeable liquidity shortages for Poland SME sector firms. It provides three policy recommendations—combining a package of cash and expertise, expanding the role of supporting agencies, and conducting research and informal discussions—for bridging liquidity gaps in the SME sector. Khan S (2017) - SMEs are essential to the development of a country. After agriculture, they are the second-biggest employers of labour. Millions of people in India depend on SMEs, which primarily work in the unorganised sector, for their livelihood. Notwithstanding their importance to the economy, SMEs encounter certain obstacles that keep them from realising their full potential. Inadequate financing is one of the main issues SMEs deals with. According to the study's findings, innovation is the secret to success, so banks should offer creative lending options to support SMEs' expansion. Rao, et.al. (2017) – The result of SMEs' restraints is a financing gap. It is mostly made up of supply, knowledge, demand, etc. Therefore, in order to close the financial gap, SMEs should work to increase system transparency and enhance the quality of information that lenders require. Owners of SMEs should improve their financial management abilities. Ndiaye, et.al. (2018) -. In this article, five performance metrics for SMEs are modeled using eighty potential components that come from trade, finance, infrastructure, innovation, technology, regulation, taxation, and labour force. Using data from 266 economies' World Bank enterprise surveys, it applies the general to specific modelling.

Objectives of the Study

- To know the trends of budgetary allocation of MSMEs by Government
- To know the Government schemes on the growth of MSMEs.

Research Methodology

Secondary data has been used from various articles, websites and annual reports published by the ministry of MSMEs". The descriptive methodology has been used in this article. The data explanation relies more on qualitative aspects than quantitative aspects.

Data Analysis

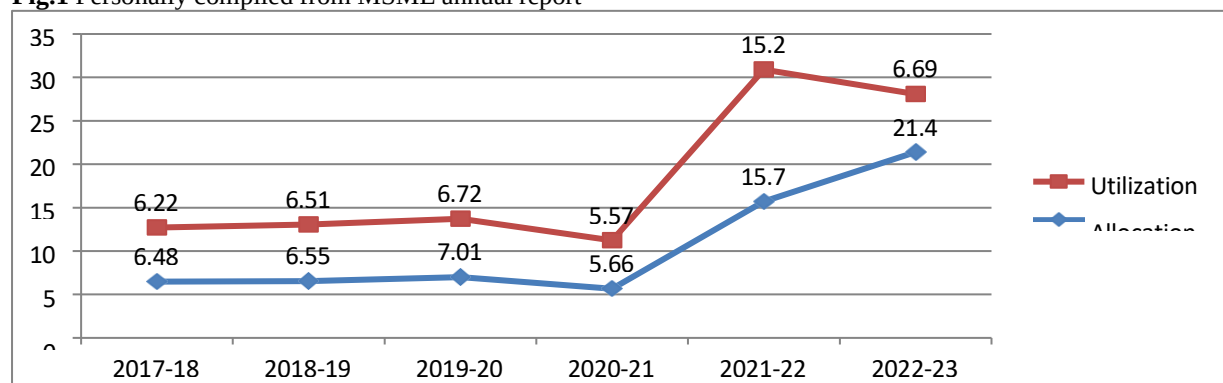
To know the trends of budgetary allocation of MSMEs by Government.

Table 2. trends of budgetary allocation of MSMEs by Government.

Year	Allocation	Utilisation
2017-18	6.48	6.22
2018-19	6.55	6.51
2019-20	7.01	6.72
2020-21	5.66	5.57
2021-22	15.7	15.2
2022-23	21.4	6.69

Source: Secondary Data

Fig.1 Personally compiled from MSME annual report



Sources: Annual report of MSME 2022-23

From the above table and graph, it is clear that the trend of allocation and utilization is increasing only in the year 2020-21 there is dip in the allocation and utilization due to pandemic. In the year 2017-18 the percentage of fund

utilized is 95% of amount allocated, in the year 2018-19 the percentage is 99%, “in the year 2019-20” the percentage is 95.86%, “in the year 2020-21” the percentage is 98.4%, in the year 2021- 22 the percentage is approximately 97% and in the year 2022-23 the fund allocation is higher but the fund utilised is only 31% which is very low compare to last four year.

Schemes for Micro, Small and Medium Enterprises by the ministry of MSME

There are lots of schemes launched by the ministry of MSMEs but here we discussed only the financing schemes launched by the government.

Pradhan Mantri Mudra Yojana

As a non-banking financial company (NBFC), MUDRA supports the expansion of MSMEs by helping banks, microfinance institutions (MFIs), and NBFCs refinance. These entities then lend to micro units that need loans up to Rs. 10 lakhs. These loans are provided by MFIs, NBFCs, Commercial Banks, and Small Finance Banks. Applying can be done online using the Udyam Mitra portal or by going directly to these lenders. Three schemes are available through PMMY: "Shishu," "Kishore," and "Tarun." Each scheme denotes a distinct stage of development and funding need for the micro-units or entrepreneurs. Loan amounts range from Rs. 50,000 to Rs. 5 lakhs for "Shishu," Rs. 50,000 to Rs. 5 lakhs for "Kishore," and Rs. 5 lakhs to Rs. 10 lakhs for "Tarun." These phases also act as benchmarks for the development

Prime minister Employment Generation Programme (PMEGP)

The Prime Minister's Rojgar Yojna (PMRY) and the Rural Employment Generation Programme (REGP) have been combined to form the Prime Minister's Employment Generation Programme (PMEGP) By launching small businesses in the non-farm sector, this initiative seeks to provide traditional craftspeople and unemployed youngsters with opportunities for self-employment. The national nodal agency in charge of carrying out this plan is the “Khadi and Village Industries Commission (KVIC)”. PMEGP is managed by banks, [State Khadi and Village Industries Boards (KVIBs), District Industries Centres (DICs)], and State KVIC Directorates at the state level. Government subsidies are channelled through the KVIC through approved banks, which thereafter deposit the money straight into the bank accounts of the entrepreneurs or beneficiaries. Eligibility – “Applicants must be at least eighteen years old. Applicants must have completed at least eight grades to be considered for projects in the manufacturing sector costing more than Rs. 10 lakhs, and projects in the business or service sector costing more than Rs. 5 lakhs. Under this approach, only new projects are eligible for consideration. Self-help groups, organisations established under the Societies Registration Act of 1860, production-based cooperative societies, and charity trusts are among the eligible entities. PMEGP is not available to units that are currently enrolled in PMRY, REGP, or any other government programme, nor to units that have previously benefited from government subsidies under any programme”.

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)

The “Small Industries Development Bank of India (SIDBI)” and “the Ministry of Micro, Small, and Medium Enterprises” collaborated to create “the Credit Guarantee Fund Trust for Micro and Small Enterprises”. A credit guarantee programme for MSMEs is intended to be implemented by these trusts and the Indian government together provide the scheme's fund. Providing banking assistance to “small and medium-sized businesses” without the need for collateral or guarantees from external parties is the main goal of CGTMSE. There are three different levels of guarantee coverage under this scheme: 50% for retail activities, 75% for other firms, and “85% for micro enterprises (up to Rs 5 lakh)”. Eligibility – This programme is open to both new and established businesses. To apply for help under the programme, qualified candidates should contact banks, financial institutions, and some regional rural banks. Nature of Assistance –A guarantee cover of the approved credit facility amount is provided under the scheme. “The guarantee cover for microenterprises up to Rs 5 lakh is 85%. The guarantee cover is 50% for loans to MSME borrowers for retail trade activities, ranging from Rs 10 lakh to Rs 100 lakh. If there is a default, the trust pays up to 75% of the outstanding balance for credit facilities up to Rs 200 lakh that the lending institution issued”.

Credit Linked Capital Subsidy Scheme (CLCSS)

The Credit Linked Capital Subsidy Scheme (CLCSS)” provides MSMEs with financial assistance for upgrading their technologies. Under this initiative, further investments for technological upgrades which entail adopting cutting-edge or nearly cutting-edge technology up to Rs. 1 crore are eligible for a 15% subsidy. To get the subsidy, qualified applicants should go to one of the twelve banks or organisations. Eligibility: This scheme is open to all MSME units. Nevertheless, units that upgrade with old machinery or replace current technology or equipment with a similar type are not eligible for the subsidy. Assistance Aim: In order to support technology upgrades, the initiative provides MSMEs with an upfront capital subsidy of 15% on the institutional funding they get. With this incentive, the employment of improved and established technology is encouraged in specific subsectors or for products that have received scheme approval. For specific industries, subsectors, or innovations, the program

Equity Infusion for MSMEs through Fund of Funds

MSMEs frequently experience equity issues. Private equity (PE) and venture capital (VC) organisations rarely give growth-stage finance, but they do provide early-stage funding. MSMEs can apply to the Fund of Funds for equity financing in the event that they are viable and have potential for development, which helps to support MSMEs' expansion and speeds up their listing on stock exchanges. Through government engagement, this programme seeks to fulfil the expanding needs of sustainable, high-growth MSMEs and channel various sorts of finance into underserved MSMEs. Eligibility: All MSMEs are eligible to apply through Investor Funds that have been "onboarded and registered with the planned Fund of Funds." Nature of Assistance: To support MSMEs' expansion needs, the "Government of India" will help venture capital and private equity (PE) firms participate in financially feasible MSMEs. The suggested Fund of leveraging rs 50000 cr.

MSME Business Loan for Startups in 59 Minutes

A recent programme by the Indian government aims to provide MSME Business Loans for Startups in 59 minutes. To help MSMEs get loans, a new online platform that completely automates the loan processing processes has been introduced. Loans are processed through this platform in an hour, and after they are accepted, the applicant receives their money in seven or eight working days. The automation and digitization of different company lending processes is the main goal of this programme. Eligibility: Any currently operating company or MSME that is looking for initial approval for a working capital loan or term loan is qualified. The company needs to have a six-month bank statement facility and comply with IT regulations. Businesses with and without a GST registration are both qualified Assistance required – "Business loans with in-principal approvals range from Rs.1 lakh to Rs.5 crores and can be provided with or without collateral. The interest rate starts at 8.5%. Mudra loans with in-principal approvals range from Rs.10,000 to Rs.10 lakh"

Conclusion

The ministry of MSMEs envisions vibrant MSMEs. The government makes initiatives to support the growth and development of the MSME sector. The government has implemented several plans to encourage technology upgrades and modernization in infrastructure facilities as well as welfare of artisans and MSME workers. The government also allocated sufficient fund for MSME sector which shows increasing trend in the following year and the trend of utilisation was also increasing.

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Impact of Working Capital Management on Profitability of Bottler's Nepal (Terai) Limited

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Abstract

Working capital management (WCM) is a key part of figuring out how profitable a business is because it makes sure that present assets and expenses are used efficiently. Effective WCM is important for Bottler's Nepal Terai Limited to keep their cash on hand, make the best use of their goods, and keep track of their receivables and payables. All of these things have a direct effect on their business efficiency and profit margins. How well a company balances its working capital has a big impact on its profitability, which is a key measure of its financial health. The point of this study is to look into how WCM affects earnings at Bottler's Nepal Terai Limited. This will help us understand how good financial management can improve business performance. Nine (9) years of data (from 2015 to 2023) were used for this study. They looked at data from BOTTLER'S NEPAL (TERAI) LIMITED. The data came from yearly reports and was studied with statistical tools like mean, descriptive statistics, Pearson correlation, regression analysis, multicollinearity, and F-test. SPSS 21.0 versions were used to compute and handle all of the data that was gathered. Cash conversion period (CCP), Inventor Conversion period (ICP), Receivable conversion period (RCP), and Payable delayed period (PDP) are the independent factors that make up working capital. Return on assets (ROA) is the dependent variable. The number of R-square is 0.166, which can be seen in the model report. In other words, the four independent factors can explain around 16.6% of the changes in the dependent variable. But these independent factors still can't explain 83.4% of the changes that were looked at in this study. It seems that there is a strong connection between revenue (ROA) and PDP. On the other hand, it is clear that revenue and ICP, RCP, and CCP are not significantly linked.

Keywords

Working Capital Management, ROA, CCP, RCP, PDP, Profitability

Introduction

Companies in highly competitive and fast-paced industries, such as the beverage industry, rely heavily on efficient working capital management (WCM) to ensure their financial success. Optimizing working capital by managing critical factors such as inventories, receivables, and payables is crucial for ensuring smooth operations and optimizing profitability at Bottler's Nepal Terai Limited. Immediate gains in profit margins are a result of effective WCM's preservation of cash, reduction of expenditures, and enhancement of operational performance. This research delves into the important connection between WCM and profitability to assist Bottler's Nepal Terai Limited in enhancing its financial performance amidst evolving market conditions. In today's highly competitive and ever-changing business environment, the research aims to tackle the growing importance of effective financial management. The purpose of this study is to help Bottler's Nepal Terai Limited make data-driven decisions to improve efficiency and performance by shedding light on the impact of WCM on profitability. The study will examine data from 2015 to 2023. Given the difficulties the beverage industry is facing as a result of rising prices, changing demand, and more competition, it is crucial to comprehend this connection. The findings will offer practical recommendations for making the most of working capital, ensuring long-term profitability, and maintaining a competitive edge. Bottlers Nepal (Terai) Limited, a frontrunner in the beverage production industry, has a major impact on the Terai region's economy. The firm has grown from its humble beginnings in 1987 AD to become a dominant player in the beverage industry, thanks to its founders' unwavering commitment to quality. For the larger company Bottlers Nepal Limited, Bottlers Nepal (Terai) Limited is an integral part. It is in charge of all things related to Coca-Cola in Nepal, including processing, production, marketing, distribution, and provision. Manufacturing, selling, and distributing soft drinks are all part of the company's operations. Norms to Nepal, the company sells globally recognized brands of high quality. Coca-Cola, Fanta, and Sprite are just a few of the famous soft drinks that they make. Consistent with their commitment to environmental responsibility, energy savings, and water conservation, they run a slew of advertising campaigns. Significant milestones in Bottlers Nepal (Terai) Limited's history have been accomplished. By introducing the 350 BPM PET line in 2013 AD, the firm was able to greatly increase its manufacturing capacity. Its commitment to technological innovation and meeting evolving consumer expectations was on full display in this move.

In addition, the introduction of the ASSP line in 2019 AD, which has a capacity of 766 BPM, further solidified

the company's dedication to manufacturing process innovation and efficiency. Working capital management refers to the process of overseeing present assets and current liabilities utilizing a combination of short- and long-term loans to finance them (Raheman & Nasr, 2007; Falope & Ajio 2009). Companies invest much in working capital management since, in general, working capital significantly affects profitability. According to Deloof (2003) and Raheman and Nasr (2007), efficient management of working capital is expected. Working capital management, which entails keeping current assets and current liabilities equal, is another way in which firms may increase their earnings. Effective management of working capital helps businesses meet day-to-day commitments and guarantees adequate investment levels. to ensure effective management of working capital. A company can't run well if it doesn't have enough working capital. According to Ahmed et al. (2018), managing working capital entails continuously striving to maintain a balance between current assets and current liabilities.

Working capital management (WCM) is an essential part of every company. Working capital is the money that is needed to pay for existing assets (Deloof, 2003). The day-to-day operations of the business may be sustained with the help of its present assets. Accordingly, WCM denotes managing the present assets of the business that are essential to the effective operation of the corporate structure. A business should maintain an adequate level of current assets as it is difficult to carry out routine business activities with an inadequate investment in current assets (Bhattacharya, 2021). The growth and sustainability of small firms depend on their capacity to effectively manage their working capital (Grablowsky, 1984). A company's performance hinges on its ability to manage its commitments, inventories, and receivables efficiently (Filbeck and Krueger, 2005). As a result, the days in inventory and accounts receivable can be reduced, and the days in the cash conversion cycle is addressed by Teruel and Solano (2007). Thus, to generate the firm's profitability, the cash conversion cycle should be managed appropriately, and accounts payable, inventory, and receivable should be maintained at their optimal level (Lazaridis & Tryfonidis, 2006). The number of working capital days and a company's profitability are inversely related, according to Ganesan (2007). Additionally, it is evident that high Lower profitability is linked to investments in receivables and inventory (Padachi, 2006). Similarly, if a business wants to increase its profits, it should reduce its debt ratio and cash conversion cycle. (Hoang, 2015; Aldubhani et al., 2022; Pouraghajan & Emamgholipourarchi, 2012) because working capital funding would increase with a longer cash conversion cycle. Deloof published in 2003. It is possible to increase the company's profitability by decreasing the time it takes to collect. Reducing the net trade cycle, payment time, and collection duration will help the company become more profitable (Vahid et al., 2012; Bhatia & Srivastava, 2016; Yakubu, Alhassan & Fuseini, 2017). Thus, effective management of working capital can enhance a Kusuma and Dhiyaullatief Bachtiar (2018) discuss the firm's performance. Ghana's economic development has been significantly impacted by the quickly growing industrial sector (Obodai et al., Citation2022). The growth primarily focuses on the substantial contribution manufacturing firms have made to the expansion of Ghana's economy. Given this, research is required to determine the primary factor that will support the expansion, prosperity, and continued existence of Ghanaian manufacturing companies. Following a comprehensive analysis of Ghana's manufacturing companies that are still in business, it was discovered that working capital management is the primary factor that has a major impact on how they operate, along with other external factors like macroeconomic variables, technological innovation, tax reforms and their effects, and governmental regulations. Thus, efficient working capital management will increase a company's ability to continue as a going concern and improve its financial sustainability. Therefore, the primary focus of this study is on the importance of working capital management to the expansion and success of manufacturing companies as a going concern.

Working capital is the difference between current assets and current liabilities. Effective working capital management (WCM) is the cornerstone of any business's financial stability. An excessive amount of working capital indicates that current assets exceed current liabilities, while an inadequate amount of working capital shows that current liabilities exceed current assets (Obadiaru, Oloyede, Omankhanlen, & Asaleye, 2018). Appropriate management of current assets and current liabilities is necessary for effective working capital management, leading to a thriving business (Nwankwo & Osho, 2010). The aim of WCM is to guarantee that businesses can be able to cover their operating expenses and any immediate demands. In this investigation, the WCM Inventory management, cash conversion cycle, and account collection and payment periods are the WCM components taken into consideration in this study. Because they address business policy, these working capital components are taken into consideration. For instance, the business will retain its funds longer if its policy is overly ambiguous (Obadiaru et al., 2018). Policies have an impact on a company's profitability and may result in cash shortages. Furthermore, if the store may have too much inventory due to the company's tight policies. The guideline regarding the account payment period also impacts the cash on hand. The reason for this is that if a business pays its supplier promptly, less money will be available; yet, if the business chooses to postpone payment for longer than the supplier requires, the supplier may elect to cease providing items to the business, which could result in a shortage. The rules regarding the time frame for account collection, The cash conversion cycle, inventory control, and account payment period are all related, and they can all impact the profitability of an organization. Since profitability enables an organization to measure the results of its operations and policies in monetary terms, it is a crucial component of financial risk management. The return that a business receives from the sale of items after deducting costs and expenses is known as profitability. The requirement to quantify an The demand for profitability analysis has increased due to an organization's overall financial health (Mcguire, Sundregen, & Schneeweis (2017). Additionally, the low production of the industrial sector in developing nations and the high unemployment rate economies, particularly those in Africa, have caused policymakers and academics to express alarm (Asaleye,

This study's goal is to investigate how the cash conversion cycle, inventory management, account collecting period, and account payment period affect the profitability of listed companies in a few African nations. Leverage, asset turnover, GDP growth, and interest rates are used as controls in the study. variables, since it includes both macroeconomic and management variables. Following the introduction, a review of the literature is given in Section 2, and the model is presented in Section 3. specification, Section 4 presents the findings, and Section 5 wraps up the research.

Review of Literature

Recently, COVID-19 has heightened the difficulties for companies throughout the world in managing their working capital, according to research by Ahmad, R. & H. (2022) on the topic of working capital management and company performance: are their impacts identical in COVID-19 compared to the financial crisis of 2008. Fewer research have examined the relationship between COVID-19-related management of working capital and company performance than have examined the 2008 financial crisis, especially in developing nations. Consequently, between 2004 and 2020, 577 businesses across three emerging Asian nations had their working capital management and performance analyzed. Net working capital (NWC), cash conversion cycle (CCC), working capital investment policy, and working capital financing policy are all components of working capital measurement. Both Tobin's Q and return on assets (ROA) are indicators of a company's success. The Kruskal-Wallis test is utilized to analyze the relationship between working capital management and business performance in relation to the 2008 financial crisis and COVID-19.

The effects of COVID-19 on working capital management and company performance were greater than those of the 2008 financial crisis, according to the results. Also, this study used the dynamic panel system generalized method of moments (GMM) to examine the working capital management and company performance relation during COVID-19 and the 2008 financial crisis. The impact of working capital management on company performance during the COVID-19 era was different from that during the crisis of 2008, according to the results. Although CATAR had a beneficial effect on TQ, it had a substantial and adverse effect on ROA. On the other hand, NWC had a very negative effect on ROA, whereas CLTAR and CCC had a strongly favorable effect on ROA. This is the first empirical study that we are aware of that applies cross-country analysis to the setting of developing nations with regard to non- financial enterprises. Important management implications for businesses are provided by the outcomes of this study. Since various business performance proxies produce diverse outcomes, it follows that managers of firms should implement working capital strategies that benefit both the company and its shareholders. That way, businesses in underdeveloped nations may tailor their working capital strategies to their own economic realities. A study by Panda, S&P. (2021) looked into how SMEs' working capital management correlated with their profitability. The study also uses Feasible Generalized Least Square (FGLS) regression models to examine the effect of macroeconomic impulses on the profitability of Indian SMEs from 2010 to 2017 as it pertains to the effective management of working capital. The study found that whereas inventory and account payables had a favorable correlation with SME profitability, account receivables had a negative correlation.

It suggests that by using a conservative inventory management approach, increasing the days of accounts payable, and converting credit sales to cash as early as feasible, business managers may optimize the profitability of SMEs. Key macroeconomic variables influencing the profitability of SMEs include shifts in economic growth and the amount of money advanced to small-scale businesses by commercial banks. Firm managers may use this paper's findings to inform decisions on how to best manage working capital in order to increase profits. The study's identification of the macroeconomic elements that substantially impact Indian SMEs may be of interest to policymakers. The impact of rules regarding working capital management on the profitability of agro-industrial enterprises in Argentina was examined by Sensini, L. &

M. (2021). We conducted an analysis on 326 enterprises chosen at random using a stratified random procedure according to an economic criterion in order to evaluate our hypothesis. Using a standardized questionnaire, the data was gathered. We employed DSO, DSI, DPO, and CCC, which are separate drivers of working capital, as independent variables in our methodology, with EBITDA serving as the dependent variable. Furthermore, leverage was included as a control variable. We employed dynamic panel data methods to evaluate the effect of individual factors on business profitability. The benefit of this method is that it allows one to regulate the endogeneity issues and profitability-influencing unobservable influences. The results' robustness was also verified. Several intriguing insights are offered by the research. Investment in inventory and higher requests for extensions from suppliers lead to additional costs that cannot be offset by the advantages, according to the results of the variables (DSI, DPO, and CCC), which indicate a negative association with businesses' profitability.

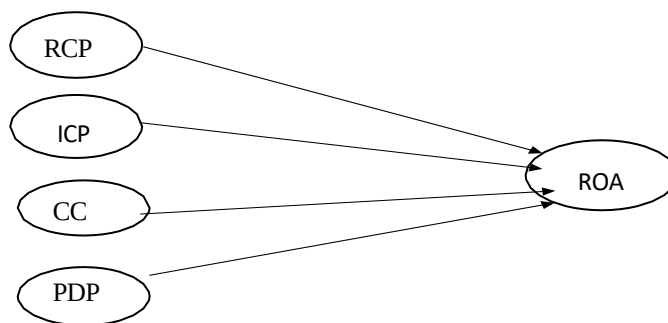
An analysis of Unilever Nepal Limited's profitability as a function of working capital management was carried out by Shrestha (2019). Effective management of a company's working capital is a key component to maximizing profits. The ideal way for a company to manage its working capital is to strike a balance between profitability and liquidity. The impact of working capital management on Unilever Nepal Limited's profitability is investigated in this study. Profitability and working capital management at Unilever Nepal Limited are the main foci of this study. We have utilized SPSS 21.0 versions, descriptive statistics, regression analysis, multicollinearity, F-test, and Pearson correlation to analyze the data. A single sample was chosen for examination out of three (3) and it was found to span the years 2009-2017 for Bottlers Nepal Limited. The operational capital is comprised of the

independent variables return on assets (ROA) and the dependent variable cash conversion period (CCP), inventor conversion period (ICP), and receivable conversion period (RCP). There was an influence on ROA from all four of the independent factors that were considered. The R-squared value is 0.770, according to the model description. From what we can see, the four independent variables account for about 77.0 percent of the variation in the dependent variable. Despite this, the analysis's independent variables still fail to account for 23.0% of the variance. This points to a strong correlation between profitability and RCP, ICP, and CCP. This finding provides more evidence that PDP and profitability are unrelated.

Conceptual Framework

This is an explanatory model and specifies the nature of hypothesis of the study, which were set out in diagrammatic form of figure 1. "Putting all variables together (dependent and independent variables) gives theoretical framework. According to model, independent variables are ICP, RCP, PDP, and CCP dependent variable are "ROA. Below presents schematic conceptual framework of the relationship between working capital management measures and profitability of Bottler's Nepal Terai Limited:

Figure 1 Conceptual Framework



Research Methodology

Secondary data were used in the study. The data were collected from one (1) Listed multinational manufacturing company of Nepal. Among the three listed multinational manufacturing company of Nepal, one has taken as a sample size. Descriptive and causal comparative methods were used to analyze the data collected from one company. The data collected is analyzed using the computer software known as Statistical Package for Service Solution (SPSS) version 21.0. Descriptive, correlations and regression analysis were applied to study and compare the effect of independent variables on the dependent variable

Data Presentation and Analysis

The analyzes of the study findings of the investigation on the working capital management and its impact on Profitability Bottler's Nepal (Terai) Limited between the years 2015 to 2023. In the study variables which were included are Return on Assets (ROA), Inventory conversion period, Receivable conversion period, Cash conversion ratio (CCR) and Payable deferred ratio (PDR). This study analyses the variables involved:

Table 1. Description of different variables

Dependent Variables	Description
ROA	Return on Assets
Independent Variables:	
Variables	Description
CCP	Cash Conversion Period
ICP	Inventory conversion Period
RCP	Receivable conversion Period
PDP	Payable deferred Period

Data Analysis

The dependent variables used in this research Return on Assets (ROA). Inventor Conversion ratio (ICR), Receivable conversion Period (RCP), Cash conversion ratio (CCR) and Payable deferred ratio (PDR). Based on the dependent variable, multiple regression models have been formulated as follows:

$$ROA = \alpha_i + \beta_1 ICP + \beta_2 RCP + \beta_3 CCP + \beta_4 PDP + \beta_5 CR + \epsilon_{it}$$

The collected data has been analyzed by descriptive statistics and inferential statistics. Firstly, data are analyzed by descriptive statistics. Mean and standard deviation is used in the descriptive statistics.

Descriptive Statistics and Correlation Statistics

The descriptive and correlative statistics of the explanatory and explained variable in this study are presented in table. It is based on a panel data set organized from Bottler's Nepal (Terai) Limited in Nepalese financial market during the period from 2015 to 2023. Looking at them, Generally, the statistics indicators of impact of working capital management on profitability of Bottler's Nepal (Terai) Limited.

Table No.2 Mean, S.D. and Correlation Coefficient with ROA

Variables	Mean	Std.	ROA	ICP	RCP	PDP	CCP
		Deviation					
ROA	7.31	4.62	1				
ICP	96.78	14.82	-.255	1			
RCP	11.15	3.94	-.248	-2.51	1		
PDP	85.20	58.10	-.190	.192	-.247	1	
CCP	22.73	58.01	.109	.046	.252	-.969**	1

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.05 level (2-tailed).

The table no.2 provides a detailed summary of descriptive statistics and the correlation coefficients between Return on Assets (ROA) and various financial variables for Bottlers Nepal Ltd over a 9-year period from 2015 to 2023. It includes five variables: ROA, Inventory Conversion Period (ICP), Receivable Collection Period (RCP), Payable Deferral Period (PDP), and Cash Conversion Period (CCP). The mean value of ROA, which measures profitability, is

7.31 with a standard deviation of 4.62, indicating moderate variability in profitability during the observed period. ICP, reflecting the time required to convert inventory into sales, has a mean of 96.78 days and a standard deviation of 14.82, showing a relatively stable inventory management process. RCP, which measures the average time taken by customers to settle invoices, has a mean of 11.15 days with a smaller standard deviation of 3.94, suggesting consistent customer payment behavior. PDP, indicating the time taken by the company to pay its suppliers, has a mean of 85.20 days with a higher standard deviation of 58.10, implying significant variation in supplier payment practices. Lastly, CCP, which measures the cash conversion efficiency, has a mean of 22.73 days and a standard deviation of 58.01, reflecting variability in cash flow cycles.

From the above table, we can easily find the relationship between profitability and components of working capital management. It can be observed that Return on Assets is negatively correlated with Inventory Conversion Period, Receivable Conversion Period, and Payable Deferral Period. It indicates that any increase in any of these factors will reduce the profitability of company. It shows that payment period has a negative significant relationship with profitability, which means if company's delay their payments they will earn less profits. The reason behind this is that firms can take advantage of discounts by paying soon. We can also see that the Cash Conversion Cycle is positively correlated with Return on Assets. This shows that positive Cash Conversion Cycle will lead to increase in profitability and vice versa. The above table describes about correlation matrix between variables under investigation. There is significant negative relationship between ROA and ICP ($r = -0.255$, $p < 0.05$). There is significant negative relationship between ROA and RCP ($r = -0.248$, $p < 0.05$). There is significant negative relationship between ROA and PDP ($r = -0.190$, $p < 0.05$). There is significant positive relationship between ROA and CCP ($r = 0.109$, $p < 0.05$).

Regression Analysis

The R-square is measure of the goodness of fit of the working capital management variables in explaining the variations in profitability of Bottler's Nepal (Terai) Limited. The regression analysis of ROA on working capital management has been separately analyzed below:

Table 3. Coefficients (ROA)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	23.095	14.905		1.549	0.182
	ICP	-0.114	0.128	-0.365	-0.885	.416c
	RCP	-0.465	0.498	-0.396	-0.932	.394c
	CCP	0.018	0.033	0.225	0.547	.608c
	PDP	0.201	0.041	0.325	3.57	.000c

Source: - Compile by authors

Dependent Variable: ROA, Table 3 stands for the R-squared value indicates how well the variables related to working capital management explain the diversity in Bottlers Nepal Ltd.'s profitability. Earlier, we examined ROA's impact on working capital management in isolation using regression analysis. Included are the key takeaways from the data study that aimed to ascertain the effect of working capital management on Bottlers Nepal Ltd.'s profitability from 2015 to 2023. The two-tail test, a significance level (α) of 0.005, and a degree of freedom (df) of 4 form the basis of the analysis findings. The relationship between the dependent variable (ROA) and the four independent variables is examined simultaneously. The model summary indicates an R-squared value of 0.216. It shows that around 21.6% of the variation in the dependent variable may be explained by the four independent factors. But even with these independent factors, 78.4% of the variance remains unaccounted for. There is a statistically significant estimated regression model ($F = 0.458$, $p = 0.723$) according to the ANOVA table. There are four independent factors that have shown promise in predicting ROA: ICP, RCP, CCP, and PDP. But the p-value or significance (Sig.): This checks if the predictor doesn't affect the dependent variable (i.e., if the coefficient is equal to zero), which is the null hypothesis
 $= .416$; $p > 0.05$ indicates no statistical significance. There is no statistical significance ($p > 0.05$) for RCP (.394). CCP (.608); $P > 0.05$, hence it is not statistically significant. There is a large influence on ROA, as indicated by the statistically significant PDP (.000) ($p < 0.05$).

Conclusion

The management of a company's working capital is an important aspect of the company's financial management. As a result, it is of the utmost importance to effectively manage the trade-off between profitability and the management of working capital. The primary objective of this study was to examine the influence of working capital management on the profitability of Bottler's Nepal (Terai) Limited from a business perspective. This would be of great assistance to businesses in gaining an understanding of the type and degree of the influence that working capital components have on the profitability of the organization. One must have such an understanding in order for managers to be successful in their efforts to increase the value of the company and, eventually, its profitability. Based on the findings, it was determined that the influence of all four independent factors is evaluated jointly with regard to the dependent variable (ROA). The R-square value was calculated to be 0.216 based on the model summary. Based on this information, it can be deduced that the four independent variables are capable of explaining roughly 21.6% of the proportion of variation in the dependent variable. In spite of this, 78.4 percent of it remains unexplained by the independent factors that were investigated in this study. The fact that this is the case suggests that there is no meaningful connection between profitability and RCP, ICP, or CCP relationships. It has been demonstrated that there is a substantial connection between profitability and percentage of profit each day.

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Influence of Liquidity Management of Commercial Banks in Nepal

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Abstract

The purpose of paper is impact of liquidity management and commercial banks' profitability in Nepal is examined in this study. Descriptive statistics, Pearson correlation, regression analysis, and the t-test were used to analyse the data. Three (3) samples that were used for the analysis covered the commercial banks in Nepal from 2014 to 2023. The factors of the Credit Deposit Ratio (CDR), Capital Adequacy Ratio (CAR), Current Reserve Ratio (CRR), and profitability, including Return on Assets (ROA), are all represented by liquidity management. With a R square value of 0.628, the study's results demonstrate a strong positive correlation between the dependent variable and the set of independent variables, with the independent variables accounting for 62.8% of the variation in the dependent variable and other variables outside the model for 37.2%. The findings indicated that while CAR had a little effect on the return on assets (ROA) of Nepal's commercial banks, CDR and CRR had a considerable influence.

Keywords

Return on Assets, Cash Reserve Ratio, Cash Deposit Ratio, and Capital Adequacy Ratio.

Introduction

The term liquidity is often used in multiple frameworks. An asset's liquidity can be used to describe how quickly, easily and costly it is to convert that asset into cash (Berger & Bouwman, 2008). The quantity of Cash or assets close to cash a firm possesses can also be used to characterize it; the more liquid assets a corporation has, the more liquidity it possesses. A company's liquidity ratios are financial measurements that quantify its liquidity. The ratio of current is one such ratio that assesses a firm's capacity to settle short-range loans as they become due.

There are numerous ways to define liquidity risk, however, the ratio can be used to assess the probability that a company would fail to fulfill its short-term commitments on schedule. A business may have severe financial issues as a result of this incapacity. Furthermore, the counterparty to a transaction can also be used to identify liquidity risk. The phrase describes the risk that the counterparty may not have sufficient liquidity to pay or settle the transaction, even in situations where they are in a healthy financial position. The contractor's ability to settle its debts at maturity, including loan and investment commitments, withdrawals, deposits, and accrued liabilities, is indicated by the commercial bank's liquidity.

The performance of commercial banks can be affected by internal and external factors (Kosmidou, 2008). These elements fall into two categories: macroeconomic and bank-specific (internal). Individual bank traits that have an influence on the bank's performance are known as core factors. In essence, the internal decisions made by the board and management have an influence on these elements. The external factors that impact banks' profitability are sector-wide or national issues that are out of the company's control. However, the relation between bank performance and consumer satisfaction is the focus of this study. Return on equity, return on assets, and net interest margin are the three main ratios used to assess the profitability of commercial banks (Murthy and Sree, 2003).

The commercial bank's liquidity is a measure of the party's capacity to pay its debts when they become due, including pledges to lend and invest, withdrawals, deposits, and accrued liabilities (Amengor, 2010).

In the corporate sector, liquidity and profitability are crucial. The management of a firm's current resources and present requirements is stated to as liquidness. It is critical in defining if a firm can effectively switch its immediate responsibilities. In order to pay their short-term obligations, businesses must keep a fair quantity of cash assets due to its crucial necessity. A stable amount of liquidness is essential to a company's effectiveness and financial success. Hence, in order to assurance good success, trades must ascertain the model equal of liquidity. Liquidity shouldn't be excessively high or low. Rather, it should remain within a reasonable range. Contrarily, profitability is the total of a business's revenue less its running expenses. By calculating a company's profitability, profitability ratios make it possible to analyze the company's current state in a clear and concise manner. All businesses aim for maximum profitability, and increasing profitability is their ultimate goal. The corporation must maintain an ideal level of liquidity because there is a considerable correlation between the two (Khan & Ali, 2016).

Literature Review

Alshatti, (2015) showed how Jordanian commercial banks' income was impacted by liquidity management

between 2005 and 2012. The thirteen banks that make up the study's sample are typical of Jordan's whole commercial banking sector. Among the liquidity indicators that are looked at are the investment ratio, the fast ratio, the capital ratio, the ratio of net credit facilities to total assets, and the liquid assets ratio. Profitability is measured using surrogates such as return on equity (ROE) and return on assets (ROA). Hypotheses are tested and whether a unit root exists in the time series data of the variables using regression analysis and the Augmented Dickey Fuller (ADF) stationary test model.

The observed results show that the productivity of Jordanian marketable banks is completely impacted by a rise in the fast and investment ratios. On the other hand, productivity is adversely impacted by the investment and liquid assets ratios. The researcher recommends maximising the use of available liquidity across a range of investment factors in order to boost bank profitability. Furthermore, in order to provide adequate liquidity for effective operations, banks are advised to implement a thorough framework for managing liquidity. It's also advised to balance the sources and uses of funds and analyse the rates at which liquidity changes.

Shrestha, B. (2018) conducted research on Nepal's commercial banks' profitability and liquidity management. Liquidity management is one of the primary determinants of a company's market value since it directly affects profitability. This study looks at the relationship between liquidity management and the profitability of Nepali commercial banks. The study's goal is to determine how liquidity management influences profitability and how it is related to profitability. The relationship between liquidity management and profitability is examined using Pearson correlation analysis. The effect of liquidity on profitability is investigated using regression analysis. It was found that Nepal's commercial banks from 2012 to 2016 were included in the data. Liquidity management represents profitability criteria such as return on equity (ROA), the current reserve ratio (CRR), and the credit deposit ratio (CDR). The result indicates that liquidity has no effect on the profitability of Nepalese commercial banks. Yüksel, et al. (2018) determined the elements influencing the profitability of banks in thirteen post-Soviet countries. They used pane reversion with fixed factors and the Generalised Method of Moments (GMM) to analyse annual data from 1996 to 2016. The outcomes show that profitability is knowingly stuck by mortgage size, non-interest income, and financial progress. The profitability of banks in these countries has suffered as a outcome of the universal mortgage crisis of 2008. Profitability is strongly correlated with economic expansion and more non-interest revenue driven by recognition card dues and charges. However, banks' profitability is negatively impacted by a higher loan-to-GDP ratio. These results imply that post-Soviet banks should prioritise the growth of non-interest income and exercise care when making loans. Sathyamoorthi, Mapharing, & Dzimiri, (2020) examined how liquidness supervision affected Botswana's profitable banks' fiscal results. A variety of criteria were employed as stand-ins for liquidness management, while return on equity and return on assets were employed as procedures of financial performance. Data from Botswana's nine commercial banks was examined during the nine-year examination. Significant positive correlations were found by regression analysis between return on equity, return on assets, liquid assets to total assets, and loans to total assets. However, there was a significant inverse relationship between the ratio of liquid assets to deposits and the ratio of loans to deposits. There was no substantial connection between cash-related ratios. The study recommends establishing minimum liquidity standards to boost bank profitability and shows that optimizing liquidity variables can enhance bank performance.

Zaharum, et al. (2022) conduct research on the impact of liquidity management on banks' profitability. The main objective of this study is to look into the relationship between liquidity management and the profitability of Malaysian commercial banks. A sample of the top five commercial banks listed on Bursa Malaysia has been used to investigate the relationship between liquidity and profitability throughout the ten-year period from 2011 to 2020. The data was taken from the annual financial statements of the institutions. The current ratio (CR), cash deposit ratio (CDR), loan to total deposit (LTD), capital to asset ratio (CAR), and non-performing loan (NPL) were used as proxies for liquidity as an independent variable, while the return on assets (ROA) was used as a stand-in for banks' profitability as a dependent variable. The results of the study show a favourable correlation between return on assets (ROA) and current ratio (CR). This implies that a higher current ratio (CR) would result in a higher return on assets (ROA). However, the study shows that non-performing loans (NPL) and return on assets (ROA) are negatively correlated. This implies that when the amount of non-performing loans (NPL) rose, the return on assets (ROA) would fall. In order to avoid having too much liquidity, which would lower their profitability, the study recommended that banks should keep the minimum amount needed to cover certain liabilities.

Shrestha, B., & Chaurasiya, S. (2023) conducted research on Liquidity management's effect on Nepali joint venture commercial banks' profitability. This study looks at the relationship between joint venture commercial banks' profitability and liquidity management in Nepal. The data was analysed using the t-test, regression analysis, descriptive statistics, and Pearson correlation. From 2012 to 2021, Nepal's joint venture commercial banks were included in five

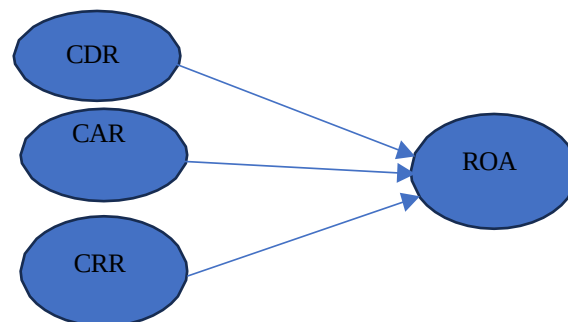
(5) of the 27 samples used for the analysis. Liquidity management is a representation of the following characteristics: profitability, including return on assets (ROA); credit deposit ratio (CDR); capital adequacy ratio (CAR); current reserve ratio (CRR); total deposit to total ratio (TDTAR); and total loan to total assets ratio (TLTAR). The study's findings show a strong positive correlation between the dependent variable and the set of independent variables, with the independent variables explaining 61.5% of the variation in the dependent variable and other variables outside the model explaining 38.5%, according to the R square value of 0.615. The

findings show that TLTA has a major impact on ROA for Nepali joint venture commercial banks, but CDR, CAR, CRR, and TDTAR have less bearing.

Conceptual Framework

Below presents schematic conceptual framework of the connection between liquidness supervision and effectiveness of profitable bank “with reference to SANIMA, NABIL and MBL”

Figure 1 Conceptual/Research Framework



Hypothesis formulation

H1: There is significant connection between CDR and profitability.

H2: There is significant connection between CRR and profitability.

H3: There is significant connection between CAR and profitability.

Research Methodology

We can determine correctness, validity, and applicability with the use of research methodology. Appropriate research approach is necessary to obtain the justification for the current investigation. The applied approach will be employed in order to accomplish the study's goals. Below is a quick summary of the research technique employed in this study. This study looks into how the capital structure affected the profitability of the 20 commercial banks during the period. Using information from three sample banks' annual reports i.e. Sanima Bank, Nabil Bank and Machhapuchhre Bank, research methodology gives a great insight towards the goal and objective of this research following are the content of the research methods appropriately devised for organizing the collected data.

Variable defined

Return on Assets (ROA): A profitability ratio called return on asset (ROA) shows how much money a business can make from its assets. Stated differently, return on assets quantifies the effectiveness of a company's management in producing profits from its financial resources or assets listed on its balance sheet.

Cash Deposit Ratio (CDR): The ratio of a bank's lending to its mobilized deposits is known as the cash deposit ratio, or CDR. It shows the proportion of a bank's core funds allocated to lending, which is the primary banking function. It can also be expressed as the ratio of total deposits to total cash.

Capital Adequacy Ratio (CAR): One factor that shows a bank's level of financial strength is its capital adequacy. Depositors are somewhat reassured by the bank's capital position that they will be paid in the event of a failure. The capital adequacy ratio, which is determined by dividing the total risk-weighted assets by the regulatory capital (tier I + tier II), is taken from the annual report.

Cash Reserve Ratio (CRR): The amount of cash that banks must retain in order to invest or lend it for interest is known as the cash reserve ratio, or CRR. This percentage, which is sometimes referred to as the reserve ratio, informs commercial banks of the amount of monetary reserves they must maintain with their respective central banks.

Data Analysis

Descriptive and correlation analysis

Table:1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	30	.87	2.89	1.6363	.52442
CAR	30	10.63	16.82	12.9317	1.30929
CRR	30	3.66	30.01	19.6180	8.58964
CDR	30	64.43	94.10	83.6923	7.20531
Valid N (listwise)	30				

Table 1 signifies expressive study of 3 commercial banks including connection study from Financial Year 2014 to 2023.

Table: 2 Correlations

		ROA	CAR	CRR	CDR
ROA	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	30			
CAR	Pearson Correlation	-.141	1		
	Sig. (2-tailed)	.456			
	N	30	30		
CRR	Pearson Correlation	-.533**	.293	1	
	Sig. (2-tailed)	.002	.116		
	N	30	30	30	
CDR	Pearson Correlation	-.485**	.483**	.313	1
	Sig. (2-tailed)	.007	.007	.092	
	N	30	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

A factual evaluation technique called connection investigation is used to focus on the degree of relationship between two consistent, statistically assessed components. When a scientist needs to regulate whether there is a connection among variables, this particular type of investigation is useful. To determine how strongly two things are connected, connection investigation is used. The dependent variable and the free component have a strong correlation, according to connection analysis, with the relationship coefficient esteem falling between a short one and a large one (- 1.00 and +1.00).

There is a negative linear link between the CAR and ROA, as showed by the connection coefficient of r of - 0.141. The inverse association serves as more evidence that Nepal's commercial banks are less profitable the higher the CAR. In the same way, a positive connection coefficient indicates a positive suggestion among the two variables. better profitability among Nepal's commercial banks translates into better return on assets (ROA), as realized by the positive connection among the two variables. In a similar vein, CRR (-0.533**) and CDR(-0.485**) have negative correlation coefficients with ROA. Higher CRR and CDR among Nepal's commercial banks are associated with lesser profitability, as further shown by the negative correlation coefficient.

Regression Analysis

The financial data of Machhapuchhre Bank Limited (MBL), Nabil Bank Limited (NABIL), and Sanima Bank Limited (SANIMA) in Nepal is examined using regression analysis. The correlations between Return on Assets (ROA) and important variables such as the Capital Adequacy Ratio (CAR), Cash Reserve Ratio (CRR), and Cash Deposit Ratio (CDR) are shown via linear regression. We might then look into the quantitative environment and ascertain how these factors affect the sample banks' financial stability.

Table: 3 Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.810	.999		3.814	.001
CAR	.082	.069	.205	1.194	.243
CRR	-.028	.010	-.455	-2.868	.008
CDR	-.032	.013	-.442	-2.554	.017

a. Dependent Variable: ROA

The connection among the dependent and independent variable quantity is displayed in Table 3. The independent variables CRR and CDR have a major impact on ROA. Nevertheless, CAR has a considerable value of 0.243 and has no effect on ROA. The following is one way to give the model summary:

$$Y_{ROA} = 3.810 + 0.082(CAR) - 0.028(CRR) - 0.032(CDR) + E$$

Discussion

According to the research above, NABIL Bank Ltd. has a greater Return on Assets (ROA) than MBL and SANIMA. It shows the effectiveness of a commercial relative to its total properties. According to the data, MBL has the greatest Capital Adequacy Ratio (CAR) ratio amongst the three banks, while NABIL has the lowest. It suggests that, in contrast to SANIMA and NABIL, MBL has greater CAR. According to the data, MBL has the greatest Cash Reserve Ratio (CRR) proportion amongst the three banks, while NABIL has the lowermost. It suggests that, in contrast to SANIMA and NABIL, MBL has a higher Reacceding to the data, SANIMA has the greatest Cash Deposit Ratio (CDR) proportion amongst the three banks, while NABIL has the lowermost. It suggests that, in contrast to MBL and NABIL, SANIMA has a higher Crosshanded deviation, average, maximum, and smallest values are examples of descriptive statistics. The average of each of the thirty banks' ROA, CAR, CRR, and CDR is displayed. Means displays the average, while S.D. displays consistency. Both the CDR mean and the CRR standard deviation are larger in this instance as compared to other examples. The subordinate variable and free factor's positive or negative relationship is shown by the connection coefficient. If the ROA is higher when the connection coefficient esteem is positive, then more productivity must lower the ROA, and vice versa if the relationship coefficient esteem is negative. The connection coefficient illustrates the positive or negative connection among the dependent and independent variable star in the context of the classical summary. Similarly, the R square shows how fine the free factor clarifies the distinction in the dependent flexible. The coefficient displays the influence among the variables. Whether or whether climate has an impact on ROA is debatable.

Conclusion

The goal of the current study is to examine the joining between Nepalese commercial banks' effectiveness and liquidity management. Thirty observations total from the years 2014 to 2023 are included in the study. Three commercial banks chosen at random have been used as a sample.

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Artificial Intelligence (AI) Role in Financial Literacy in the Banking Channels: Mobile Apps and Physical Branches

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Abstract

The integration of Artificial Intelligence (AI) in the banking sector is transforming financial literacy initiatives by offering personalized, accessible, and interactive learning experiences. This study examines the impact of AI interventions on financial literacy improvement through a two-way ANOVA analysis, considering two independent variables: demographics (age groups) and banking channels (mobile apps vs. physical branches). Findings indicate significant improvements in financial literacy among younger users (18–35) and higher effectiveness of AI-driven tools in mobile apps compared to physical branches. Additionally, the interaction effect reveals that demographic-specific strategies are essential for maximizing AI's impact. This research underscores AI's potential to bridge knowledge gaps and promote financial inclusion by tailoring educational tools to diverse customer needs.

Keywords

Artificial Intelligence (AI), Financial Literacy, Banking Sector, Demographics Two-Way ANOVA

Introduction

Financial literacy has become a cornerstone of modern banking, enabling individuals to make informed financial decisions and manage their resources effectively. However, achieving widespread financial literacy remains a challenge, especially in diverse populations with varying levels of access to information and technology. The banking sector, with its pivotal role in economic development, has embraced innovative solutions to address this gap, and Artificial Intelligence (AI) has emerged as a transformative tool in this endeavor. AI technologies such as chatbots, virtual assistants, personalized learning platforms, and predictive analytics are redefining the way banks educate their customers. These tools not only provide tailored financial advice but also enhance customer engagement through real-time and interactive learning experiences. While the benefits of AI in improving financial literacy are widely recognized, its effectiveness can vary across demographic groups and banking channels, necessitating a deeper understanding of its impact.

This study leverages a two-way ANOVA (Analysis of Variance) framework to analyze the role of AI in financial literacy improvement, focusing on two critical factors: demographics (age groups) and banking channels (mobile apps vs. physical branches). By evaluating the main and interaction effects of these variables, the research aims to uncover nuanced insights into the effectiveness of AI-driven financial literacy programs.

The findings of this study provide valuable recommendations for banks to design targeted AI interventions that cater to the specific needs of their diverse customer base. Ultimately, this research contributes to the broader discourse on using technology to enhance financial inclusion and empower individuals in managing their financial futures.

Literature Review

The role of financial literacy in fostering economic stability and individual empowerment has been extensively documented. According to Lusardi and Mitchell (2014), financially literate individuals are better equipped to plan for retirement, manage debt, and make informed investment decisions. However, disparities in financial literacy persist across age groups, education levels, and geographic locations, creating challenges for banks and policymakers.

AI in Financial Literacy

Artificial Intelligence has emerged as a game-changer in addressing financial literacy gaps. Research by Davenport and Ronanki (2018) highlights the transformative potential of AI in personalizing customer experiences in banking. AI-powered chatbots and virtual assistants, such as Erica by Bank of America, have demonstrated significant success in providing real-time financial guidance, simplifying complex concepts for users. Furthermore, algorithms capable

of analyzing user behavior allow banks to tailor educational resources to individual needs (Marr, 2020). Gamification has also been recognized as an effective AI-driven strategy to improve financial literacy. Tools like financial literacy apps employ AI to gamify budgeting and saving, making financial education engaging and accessible (Fernandes et al., 2014). These interventions have shown measurable improvements in user knowledge and behavior, particularly among younger, tech-savvy demographics.

Demographic Variations in Financial Literacy

Demographics significantly influence financial literacy levels and the adoption of AI tools. Studies reveal that younger individual (aged 18–35) are more likely to engage with mobile-based financial tools, owing to their familiarity with technology (Van Rooij et al., 2011). Conversely, older individuals (36–60+) prefer traditional methods of learning, including in-person guidance, and exhibit slower adoption of AI-based tools (Friedline & West, 2020).

Banking Channels and Technology Adoption

The mode of delivery—mobile banking apps versus physical branches—plays a critical role in determining the success of financial literacy initiatives. Mobile apps provide convenience and scalability, enabling real-time, AI-driven financial advice. In contrast, physical branches offer personalized, face-to-face interactions that may be more effective for older and less tech-savvy populations (Beck et al., 2010).

Two-Way ANOVA in Financial Studies

Two-way ANOVA has been extensively used to study the interaction effects of independent variables in financial contexts. For example, Agarwal et al. (2009) used two-way ANOVA to analyze the interplay between financial advice channels and customer demographics in improving investment decisions. This approach is particularly useful in exploring how demographic factors interact with technological interventions to shape financial literacy outcomes. While existing literature underscores the importance of AI in enhancing financial literacy, there is limited research on how its effectiveness varies across demographic groups and banking channels. This study seeks to address this gap by employing a two-way ANOVA framework to evaluate the role of AI in improving financial literacy across different age groups and delivery methods. By integrating insights from prior studies, this research aims to provide a comprehensive understanding of AI's role in financial literacy and offer practical recommendations for banks to design inclusive, impactful educational programs.

Objectives of the Study

The study aims to evaluate the role of Artificial Intelligence (AI) in enhancing financial literacy within the banking sector by focusing on two critical variables: demographics (age groups) and banking channels (mobile apps vs. physical branches).

The specific objectives are:

- To assess the impact of AI-driven financial literacy tools on different age groups (18–35 and 36–60).
- To evaluate the effectiveness of AI interventions across banking channels (mobile apps vs. physical branches).
- To analyze the interaction effects of demographics and banking channels on financial literacy improvement.
- To provide actionable recommendations for banks to design demographic-specific and channel-appropriate AI tools.

Hypotheses of the study

Null Hypotheses (H_0):

- H_{01} : AI interventions do not significantly improve financial literacy across age groups.
- H_{02} : AI interventions do not significantly improve financial literacy across banking channels.
- H_{03} : There is no significant interaction effect between age groups and banking channels on financial literacy improvement.

Alternative Hypotheses (H_i):

- H_{11} : AI interventions significantly improve financial literacy, with variations across age groups.
- H_{12} : AI interventions significantly improve financial literacy, with variations across banking channels.
- H_{13} : There is a significant interaction effect between age groups and banking channels on financial literacy improvement.

Research Methodology

This study employs a quantitative research design to evaluate the role of Artificial Intelligence (AI) in improving financial literacy in the banking sector. A two-way ANOVA framework is used to analyze the interaction effects of demographics (age groups) and banking channels (mobile apps vs. physical branches) on financial literacy improvement. The methodology includes data collection, sample selection, variable identification, and statistical analysis.

Research Design

The study is structured to measure the effects of AI interventions on financial literacy improvement. It uses an experimental approach, comparing literacy outcomes before and after AI-based training programs across two independent variables: *Demographics*: Age groups (18–35 and 36–60). *Banking Channels*: Mobile banking apps and physical branches.

Population and Sample

Population: Customers of banks utilizing AI-driven tools for financial literacy training. *Sample Size*: A total of 240 participants are divided equally across the four experimental groups (60 per group). *Sampling Technique*: Stratified random sampling is employed to ensure proportional representation of age groups and banking channels.

Data Collection

Pre-Test and Post-Test: Financial literacy levels are assessed using a standardized test administered before and after the AI intervention. The test includes questions on budgeting, saving, investing, and managing debt. *AI Tools Used*: Mobile banking apps integrated with AI features (e.g., chatbots, educational modules) and in-branch AI kiosks providing personalized financial guidance. *Duration*: The intervention period spans six months, allowing sufficient time for participants to engage with the AI tools.

Variables

Independent Variables: Demographics: Age groups (18–35 and 36–60). Banking Channels: Mobile apps and physical branches. *Dependent Variable*: Financial literacy improvement, measured as the difference in test scores before and after the intervention.

Statistical Analysis

Two-Way ANOVA: Main Effects: Evaluate the individual impact of demographics and banking channels on financial literacy improvement. *Interaction Effect*: Analyze how demographics and banking channels interact to influence the effectiveness of AI interventions. Tools and Software Data is analyzed using statistical software such as SPSS. Descriptive statistics (mean and standard deviation) are calculated to summarize group data, followed by inferential statistics (two-way ANOVA) to test the hypotheses.

Data Analysis

The data analysis focuses on evaluating the impact of Artificial Intelligence (AI) interventions on financial literacy improvement using a two-way ANOVA. This statistical method analyzes the main effects of two independent variables—demographics (age groups) and banking channels

(mobile apps vs. physical branches)—and their interaction effects on the dependent variable, financial literacy improvement.

Table 1. Financial literacy improvement Scores across all groups

Group	Mean Improvement Score	Standard Deviation
18–35 (Mobile Apps)	15.4	3.2
18–35 (Physical Branches)	10.8	2.9
36–60 (Mobile Apps)	8.6	3.0
36–60 (Physical Branches)	12.1	3.4

Source: Primary Data.

Before conducting the two-way ANOVA, the following assumptions are tested: Normality: Financial literacy scores in each group are checked for normal distribution using the Shapiro-Wilk test ($p > 0.05$). Homogeneity of Variance: Levene's test confirms equal variances across groups ($p > 0.05$). Independence of Observations: Ensured by design, as participants belong to separate groups.

Table 2. Two-Way ANOVA Results

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Value	p-Value
Age Groups (Demographics)	420.25	1	420.25	29.63	0.000***
Banking Channels	328.90	1	328.90	23.19	0.000***
Interaction (Age × Channel)	182.50	1	182.50	12.86	0.001***
Error	334.60	236	1.42		
Total	1266.25	239			

Source: Primary Data.

Significance Levels: * $p < 0.01$, Main Effects: Demographics: Younger participants (18–35) show significantly higher financial literacy improvement than older participants (36–60) ($p < 0.01$). Banking Channels: Mobile apps are significantly more effective in improving financial literacy compared to physical branches ($p < 0.01$). Interaction Effect: The significant interaction effect ($p < 0.01$) indicates that the combined influence of age groups and banking channels affects financial literacy improvement. Younger participants (18–35) benefit most from mobile apps, while older participants (36–60) show higher improvement in physical branches. *Post-Hoc Analysis:* To further explore group differences, a Tukey HSD test is conducted: Significant differences are found between: 18–35 (Mobile Apps) vs. 36–60 (Mobile Apps) ($p < 0.01$). 18–35 (Mobile Apps) vs. 18–35 (Physical Branches) ($p < 0.01$). 36–60 (Mobile Apps) vs. 36–60 (Physical Branches) ($p < 0.05$).

Finding and Conclusion

Younger Participants (18–35): Mobile apps leverage their technological proficiency, offering dynamic, engaging AI tools. Older Participants (36–60): Physical branches provide a comfortable learning environment with tailored AI guidance, bridging the tech adoption gap. Channel-Specific Trends: Mobile apps are more universally effective but require demographic-specific adjustments for optimal impact. The two-way ANOVA analysis confirms that AI interventions significantly improve financial literacy, with effectiveness varying by demographic and delivery channel. The interaction effect highlights the importance of designing age-specific and channel-appropriate AI tools for maximum impact in the banking sector.

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Customer Perception on Adoption of Quick Response (QR) Code Payment in Nepal

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Abstract

The Quick Response (QR) code payment system has grown popularity in recent years. This study aims to examine the impact of customer perception on adoption of QR code payment in Nepal. Descriptive and causal comparative research design has employed with structured questionnaire survey administered to 385 banks customers in Nepal. This study analyze the relationships and impact between the variables by using pearson correlation and regression analysis. The findings reveal positive and significant impact of Knowledge about QR Code Perceived Cost on adoption of QR code and Ease of Use while Trust and Security have insignificant impact on customer perception. The findings of this study may offer valuable insights to banks customers, policymakers, and the future researchers, aiding the value of QR code payment on cusomer satisfaction. This study offers a unique contribution by exploring how the QR code payment enhance banking transaction with customer satisfaction in the context of Nepal, where only the limited research has been conducted.

Key Words

Customer Satisfaction, QR Code payment, Nepal

Introduction

The Quick Response (QR) code payment system, which has witnessed a significant surge in popularity and usage over the past few years in developing countries including Nepal. A Quick Response (QR) code is a kind of barcode that is two-dimensional and is composed of black squares that are placed in a square grid on a white backdrop. It comprises information that is accessible by machines and this information may be retrieved via the use of a QR code scanner or the camera on a smartphone (Sapkota, 2021). By harnessing the capabilities of smartphones and digital applications, QR code payments facilitate transactions that are not only highly secure but also remarkably fast, offering a seamless alternative to traditional payment methods. The rate at which QR code payments are being accepted has increased as a result of the growth of smartphones that are equipped with cameras and internet connections (Zhou, 2020). As a consequence of this, the rate of adoption has been increased.

QR codes make the process of making a payment easier due to the fact that enable customers to scan a code using their smartphone. QR codes have become an enticing choice for both consumers and companies as a result of their incorporation into a variety of payment systems, such as mobile wallets and banking applications (Ali & Hameed, 2020). There are a number of factors that have a significant influence on the way in which customers understand and make use of QR code payments. The simplicity of use, the amount of security that is perceived by consumers, and the level of trust that customers acquire are all characteristics of this category. In the context of QR code payment systems, the term "perceived ease of use" refers to the ease with which customers can browse and utilize these systems, while the term "perceived security" refers to the safety measures that are in place to protect user data and transactions (Lin, 2021).

Customers' adoption of QR code payments may be delayed by a range of factors, including concerns around the protection of their personal information and their faith in technological advancements. Despite the fact that QR code payments provide a multitude of benefits, including the capacity to be fast and easy, this is the situation that has arisen. Choi and Lee (2023) conducted a research that brought to light the fact that the degree of user experience and the level of technological trust are two factors that have a big impact on the adoption of QR code payments.

Many countries that are still in the process of development, QR code payments. There are a number of possible challenges that might impede the introduction of new technologies by preventing them from being implemented. For the time being, mobile payments that are performed via the use of QR codes are still in the earliest phases of being accepted in Nepal. The adoption rates of QR codes in Nepal are influenced by a number of factors, including limited knowledge, problems with infrastructure, and varying degrees of trust in the advancement of technology. Moreover, perceived security, simplicity of use, speed, and convenience may impact customer opinions towards QR code payments (shrestha, 2021).

Quick response (QR) code payments have both potential and problems in emerging countries. First, they provide a cheap option to financial inclusion that allows consumers in outlying regions to use digital payment systems without investing in costly and complex infrastructure (Sharma, 2024). However, there are a lot of obstacles that could stand in the way of introducing new technology. Inadequate infrastructure and a general lack

of technical knowledge are them. The importance of knowledge and awareness in the effective adoption of QR code payments in countries that are deemed underdeveloped (Dwivedi & Rana, 2019).

This study seeks to shed light on the various factors that influence the adoption and continued use of QR code payment systems in Nepal, a country that is experiencing an increasing integration of digital payment technologies. What are the factors influencing consumer adoption of QR code payments system in Nepal, what is the relationship between consumer perceptions variables and adoption of QR code payment system in Nepal, what is the impact of ease of use, trust & security, perceived cost and knowledge about QR code with adoption QR code payment system in Nepal.

Literature Review

Shafir (2013) employs behavioural economics principles to examine the factors influencing consumer acceptance of QR payments, with an emphasis on perceived ease of use and trust. The research indicates, using an experimental methodology and data from a 500-person survey, that ease of use has a significant impact on trust, which promotes adoption. The article also looks at cognitive biases that influence customer decision-making in mobile payments, addressing topics such as user experience and trust building. Like as, Kalinic (2017) uses survey data from 640 respondents in China and Europe to compare the adoption of QR code payments among consumers in both regions. The findings highlight differences in trust, security concerns, and ease of use, indicating that consumer perceptions of QR payments are heavily influenced by cultural factors. The study provides information for organizations worldwide who use QR codes in a variety of applications. Moreover, Tan (2018) examines the likelihood of QR code payments utilizing mobile technologies using a sample of 500 mobile users. Validated by structural equation modeling, the research identifies three key factors influencing adoption: consumer perception, social influence, and ease of use. The findings suggest that consumer perception and social influence have a significant impact on adoption, which has implications for mobile payment providers and future research directions.

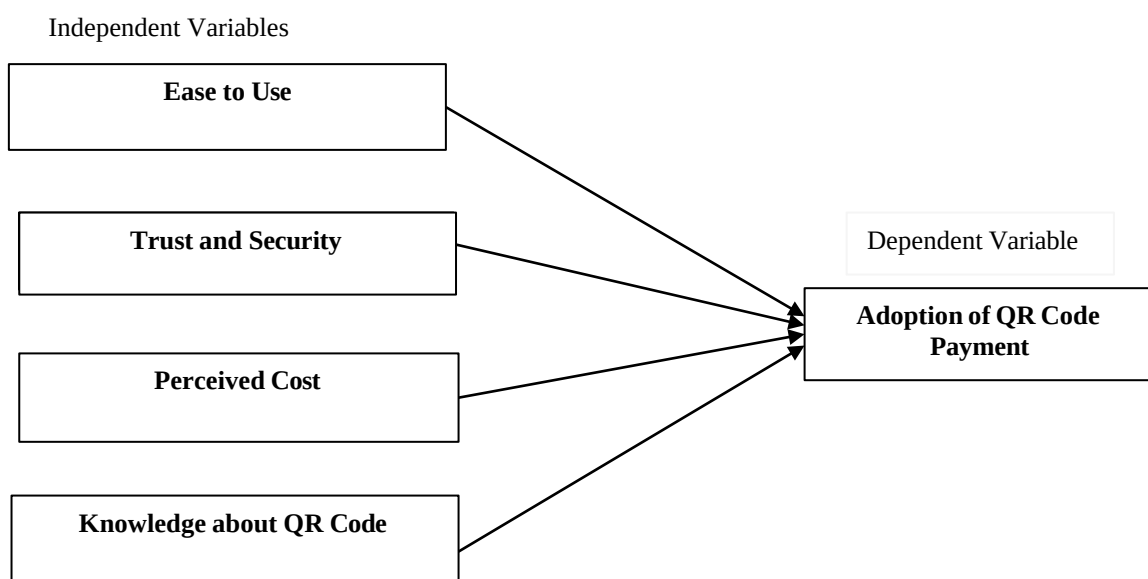
Rana (2019) explores the role of awareness and knowledge in the acceptability of QR code payments in developing nations using a quantitative methodology and a survey of 300 consumers from many countries. The findings suggest that increasing adoption is dependent on knowledge and comprehension; higher levels of both will enhance consumer confidence. The paper emphasizes the need for concentrated educational initiatives to increase consumer knowledge and awareness, giving important suggestions to governments and financial institutions. Similarly, Zhou (2020) seeks to discover the elements that influence continued mobile payment adoption, including QR code payments. Using structural equation modeling, the study investigates 385 user data to identify the primary factors perceived ease of use, trust, and perceived usefulness. Ensuring continued usage is dependent on trust, which has implications for service providers seeking to improve security measures. Chen (2020) uses a quantitative technique and structural equation modeling on 800 consumers to investigate how perceived risk and trust influence consumer behavior toward QR code payments. The findings suggest that perceived threat reduces consumer trust; nevertheless, appropriate security measure communication may assist to mitigate this risk. The research emphasizes the need of building client trust for broad QR code payment acceptance. Like as, Hameed (2020) uses a mixed-methods approach, including quantitative surveys and qualitative interviews, to explore the factors influencing consumer adoption of QR code payment systems in a developing nation. Research indicates that adoption is influenced by perceived security and ease of use, as well as demographic factors like as age and wealth. The report offers suggestions for how businesses and politicians may enhance QR code payment acceptability. Wang (2020) found the impact of perceived value on consumer adoption of QR code payments in India. According to the report, perceived value the driving force behind adoption is heavily impacted by simplicity, security, and social effect. The poll also takes into account demographics, with younger consumers being more likely to utilize QR payments. There are several suggestions for increasing perceived value in order to encourage more widespread acceptance.

Khan and Ali (2021) investigate the links between perceived risk, trust, and mobile payment acceptance using QR code payments as an example. The study uses a 500-person sample to evaluate how gender influences these interactions. Results reveal that, although trust is an important mediator, perceived risk limits adoption. Men also have higher levels of faith in technology than women. The paper makes recommendations for how marketers may boost trust and reduce perceived risks in mobile payments. Moreover, Sinha (2022) uses a survey of 384 respondents from major metropolitan regions to study the impact of social influence on the adoption of QR code payments in urban India. According to the study, peer recommendations and social media have a significant effect on consumer decisions to adopt QR payments. It also underlines the importance of digital literacy in increasing social effect, and it concludes with recommendations for leveraging social media to promote QR payment adoption. Cronin (2022) conducted the various firms define and rate service excellence. The study also examined how purchasing decisions, customer appeal, and service quality interacted. It studied the significance of the relationship between service quality, customer satisfaction, and purchase intention, as well as another method for operationalizing apparent service quality. According to the findings, performance-based service quality assessment may be a better strategy to assessing service quality in banks and other service organizations. According to studies, customer pleasure is directly proportional to service quality, which has a significant impact on purchasing behavior. However, service quality has less of an influence on purchase intention than customer

satisfaction. Chio and Lee (2023) use a mixed- methods approach to investigate the factors impacting QR code payment acceptability in South Korea, collecting data from 500 consumers and conducting in-depth interviews with 20 industry experts. With security concerns and a lack of expertise among elderly clients identified as impediments, the findings indicate that technical trust and user experience are the primary drivers of adoption. The implications for lawmakers and service providers are discussed in detail. Sharma (2024) investigates client attitudes about digital payments in underdeveloped countries, focusing on QR code systems. Using a survey of 250 respondents from three nations, the research found that knowledge of infrastructure availability and quality is critical for customer views. It also emphasizes the need of financial knowledge in allowing the acceptance of digital payments and finishes with ideas for enhancing consumer trust in digital payments. Dhakal (2024) explored the idea of trust in regard to the use of QR code payments in Nepal's retail sector. The study used a mixed-methods approach, combining qualitative interviews with retail store owners and consumers with quantitative questionnaires administered to those people. Based on the data, it is obvious that trust in the payment system's security and reliability is an important factor influencing broad adoption. According to the study, a significant boost in consumer trust has been linked to a brand's reputation as well as previous positive experiences with QR code payments. A number of suggestions are made for merchants and payment service providers to emphasize the creation of trust via the deployment of transparent and secure payment processes.

Thapa (2024) conducted research to evaluate the factors that impact the acceptance of QR code payments among consumers in Kathmandu, Nepal. The research looks at how customers perceive the ease of use, security, convenience, and social effect of a product or service. The findings show that perceived security and convenience are the most critical factors influencing adoption. The data was collected using questionnaires sent to a total of 300 respondents. Further barriers to wider adoption, according to the research, include a lack of understanding and few acceptance points. This research contributes to our understanding of Nepal's digital payment ecosystem and provides information that governments and enterprises may utilize to promote consumer adoption of QR code payments.

Figure 1 Conceptual Framework



Source: Zhou (2020)

From insights collected through a systematic literature review, the conceptual framework has been carefully developed, emphasizing ease to use, trust and security, perceived cost and knowledge about QR code as independent variables of dependent variable customer satisfaction on adoption of QR code payment in Nepal.

Research Methodology

Data and variables used for the study using a tested structured questionnaire from articles. The questionnaires were distributed to the bank's customers both the physical contact and using Google forms through various online social media platforms. Descriptive and casual comparative research design was used. The respondents for this study have been selected through non-probability sampling technique, i.e., convenience sampling. The population is regarded as infinite. Therefore, a sample size of 385 respondents has been considered for this study (Cochran, 1977). Descriptive as well as inferential both the statistical techniques employed in this study. The reliability statistics of the constructs has been tested with Cronbach's Alpha and got of 0.902 across 25 items, reflecting excellent internal consistency for the combined scale.

The multiple regressions have been used in this research is as follow: $AQRP = \beta_0 +$

$$\beta_1 EU + \beta_2 TS + \beta_3 PC + \beta_4 KQR + \varepsilon \dots\dots\dots (i)$$

Where,

AQRP = Adoption QR Code Payment EU =

Ease of Use

TS = Trust and Security PC =

Perceive Cost

KQR = Knowledge about QR Code

β_0 = Intercept of the dependent variable ε =

error term and

$\beta_1, \beta_2, \beta_3$ and β_4 are the beta coefficients of the explanatory variables to be estimated.

Results and Discussion

Table 1 Demographic Profile of Respondents

Variables/Categories	Frequency	Percentage
Gender		
Male	210	54.5
Female	175	45.5
Age Groups		
Under 20	62	16.1
21-30	65	16.9
31-40	181	47.0
41-50	46	11.9
Above 50	31	8.1
Education		
+2 Level	74	19.2
Bachelor Degree	228	59.2
Master Degree and above	83	21.6

Table 1 summarizes the gender distribution of the respondents. Among the total 385 participants, 210 (54.5%) are male, while 175 (45.5%) are female. This indicates a slightly higher representation of male respondents compared to female respondents. The age distribution of the respondents. The largest group comprises individuals aged 31-40, accounting for 181 respondents (47.0%). This is followed by the 21-30 age group with 65 respondents (16.9%) and those under 20 with 62 respondents (16.1%). Participants aged 41-50 represent 46 respondents (11.9%), while the smallest group is those above 50, with 31 respondents (8.1%). The total sample size is 385, reflecting diverse age representation. The majority, 228 respondents (59.2%), hold a bachelor's degree, indicating a highly educated sample. This is followed by 83 respondents (21.6%) with a master's degree or higher, and 74 respondents (19.2%) with education at the +2 level. The total sample consists of 385 individuals, showcasing a well-educated population overall.

Table 2 Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Dev.
Adoption QR Code Payment (AQRP)	1.80	5.00	3.20	0.63
Ease to Use (EU)	2.20	5.00	3.49	0.51
Trust and Security (TS)	1.60	5.00	3.39	0.53
Perceive Cost (PC)	2.20	5.00	3.50	0.54
Knowledge about QR Code (KQR)	2.40	5.00	3.70	0.59

Table 2 depicts the descriptive statistics for the variables related to the adoption of QR code payment systems. The table reports the minimum, maximum, mean, and standard deviation (Std. Dev.) for each variable.

The Adoption QR Code Payment variable has a mean of 3.20 with a standard deviation of (0.63), indicating moderate adoption levels and some variability in responses. The Ease of Use variable has a higher mean of 3.49 and a lower standard deviation (0.51), reflecting a generally favorable and consistent perception of ease. The Trust and Security variable has a mean of 3.39 with a standard deviation of (0.53), suggesting moderate trust in the security of QR code payments with relatively consistent responses. For Perceived Cost, the mean is 3.50 with a standard deviation of (0.54), indicating a positive view of the cost-effectiveness of QR code payments and

moderate variability. Lastly, the Knowledge about QR Code variable has the highest mean 3.70 and a standard deviation of (0.59), reflecting a good level of knowledge and relatively consistent responses among participants.

Table 3 Correlation Analysis

Variables	AQRP	EU	TS	PC	KQR
AQRP	1	.541**	.426**	.731**	.812**
		.000	.000	.000	.000
EU		1	.520**	.595**	.532**
			.000	.000	.000
TS			1	.493**	.401**
				.000	.000
PC				1	.784**
					.000
KQR					1

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 reveals the correlation analysis between the variables related to QR code payment adoption. The correlation coefficients are all statistically significant at the 0.01 level (denoted by **), indicating strong relationships between the variables.

The variable Adoption QR Code Payment (AQRP) shows the strongest correlation with Knowledge about QR Code (KQR) ($r = 0.812$), suggesting that greater knowledge about QR codes is strongly associated with higher adoption of QR code payment systems. AQRP also has a strong positive correlation with Perceived Cost (PC) ($r = 0.731$), indicating that a more positive perception of cost-effectiveness is associated with higher adoption. Like as the variable Ease of Use (EU) is significantly correlated with AQRP ($r = 0.541$) and Trust and Security (TS) ($r = 0.520$), suggesting that perceptions of ease of use are positively linked to both adoption and trust in QR code payments. EU also has a moderate correlation with PC ($r = 0.595$), showing that ease of use is perceived as linked to the cost-effectiveness of QR code payments. Similarly, trust and Security (TS) has significant positive correlations with PC ($r = 0.493$) and KQR ($r = 0.401$), highlighting that trust in security measures is associated with perceived cost-effectiveness and knowledge about QR codes. Perceived Cost (PC) has a very strong positive correlation with KQR ($r = 0.784$), suggesting that individuals who perceive QR code payments as cost-effective tend to have more knowledge about QR codes.

Table 4 Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.469	.145		-3.240	.001
EU	.104	.046	.085	2.236	.026
1 TS	.059	.041	.050	1.438	.151
PC	.214	.058	.183	3.666	.000
KQR	.637	.049	.604	13.054	.000
R = 0.832 R ² = 0.691 f = 212.85 Sig. = 0.000					

Dependent Variable: Adoption QR Code Payment

Table 4 shows the model summary for the relationship between the dependent variable, Adoption QR Code Payment (AQRP), and the independent variables: Ease of Use (EU), Trust and Security (TS), Perceived Cost (PC), and Knowledge about QR Code (KQR). The model's overall R value is 0.832, indicating a strong relationship between the independent variables and the dependent variable. The R² of 0.691 shows that the model explains 69.1% of the variance in QR code payment adoption. The f-statistic of 212.85 and a significance level of 0.000 further support the overall significance of the model. The unstandardized coefficients (B) and standardized coefficients (Beta) show the contribution of each independent variable to the dependent variable. Knowledge about QR Code (KQR) has the highest unstandardized coefficient (B = 0.637) and standardized coefficient (Beta = 0.604), indicating it has the strongest impact on the adoption of QR code payment systems. The t-statistic for KQR is 13.054, with a significance level of 0.000, showing that this variable is highly significant. Perceived Cost (PC) also has a significant positive impact on adoption, with an unstandardized coefficient of B = 0.214 and a standardized coefficient of Beta = 0.183. The t-statistic is 3.666, with a significance level of 0.000, indicating a strong relationship between perceived cost and adoption. Ease of Use (EU) shows a positive but weaker effect, with an unstandardized coefficient of B = 0.104 and a standardized coefficient of Beta = 0.085. The t-statistic is 2.236, with a significance level of 0.026, indicating statistical significance but a smaller impact compared to KQR and PC. Trust and Security (TS) has a positive coefficient (B = 0.059) and a standardized coefficient (Beta = 0.050), but its effect is insignificant, with a t-statistic of 1.438 and a significance level of 0.151, suggesting that while trust and security are related to adoption, their contribution is weaker compared to the other variables.

Discussion

Younger adults dominate QR code payment adoption in Nepal. Dhakal (2024), found that trust in the security and reliability of QR code payments was a key factor influencing adoption in Nepal's retail sector. Similarly, Chio and Lee (2023) noted that technical trust was a primary driver of adoption, particularly in South Korea. The common theme across these studies is that consumers' concerns about security must be addressed to increase adoption rates. Chio and Lee (2023) emphasize the significance of ease of use in encouraging QR code payment adoption. Likeas, Thapa (2024), where ease of use was identified as a major factor influencing QR code payment adoption. Basnet (2024) too identified digital literacy as a barrier to the adoption of QR payments in rural areas. Like as, this finding is similar to the research by Sharma (2024), who highlighted the importance of financial knowledge in driving the acceptance of digital payments in underdeveloped countries.

However, this study found some concerns about hidden fees and the need for greater transparency in the cost structure, this issue was not as explicitly emphasized in the other studies. Sharma (2024) focused more on the availability and quality of infrastructure as influencing customer views, rather than concerns about hidden costs, which seems to be more relevant to this study in Nepal. Moreover, this study found that while respondents generally have a good understanding of QR code payments, they felt less confident in resolving issues such as failed transactions or security concerns.

In contrast, like Dhakal (2024) and Basnet (2024) indicates a potential area for improvement in terms of user education, which is not as prominently discussed in other studies. Lastly, this study noted gender differences, with male respondents showing a slightly higher likelihood of adopting QR code payments. However, this is not a common theme in the other studies. Tamang (2024) found gender discrepancies in QR code adoption, with men more likely to use QR payments, which aligns with this study, but this was not a focal point in other studies like Sharma (2024) or Thapa (2024), which did not extensively explore gender-related adoption patterns.

Conclusion

Based on the findings of this study, several key conclusions can be drawn regarding the factors influencing the adoption of QR code payment systems in Nepal. First, consumer adoption is significantly influenced by the perceived ease of use, cost-effectiveness, and the level of knowledge about QR code payments. Respondents generally find QR code payments easy to use and appreciate their convenience and efficiency. While the adoption of QR code payments is not yet fully mainstream, there is a strong willingness to continue using and recommending them to others, suggesting positive attitudes toward the system. Second, while trust and security are important factors, they appear to have a lesser impact on adoption compared to perceived cost and knowledge. Although respondents express confidence in security features such as encryption, there is a slightly lower level of trust in the overall safety of QR code payments, pointing to concerns about potential fraud or system vulnerabilities. Third, the study highlights the importance of transparency in the costs associated with QR code payments. While many respondents perceive QR codes as cost-effective, concerns about hidden fees emphasize the need for clearer communication regarding any associated charges. Addressing these concerns could further promote the widespread adoption of QR code payments. Additionally, the findings underscore the importance of consumer knowledge in fostering adoption.

Implications

The findings of this study have several important implications for the practitioners and policymakers in Nepal, as well as for future researcher. Businesses and service providers should focus on improving the user experience by addressing concerns related to ease of use, design, and interface friendliness. Policymakers should consider regulating and standardizing QR code payment systems to ensure that they are secure, transparent, and user-friendly. Future researcher could further explore the specific barriers to QR code payment adoption. More detailed studies could investigate consumer concerns regarding security and trust in greater depth, as well as identify other factors that may influence adoption, such as cultural attitudes toward technology or the role of social influence. Moreover, longitudinal studies could assess how the adoption of QR code payments evolves over time and the impact of interventions designed to address the issues identified in this study.

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