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CONTENT

Corporate Risk-taking and Market Performance: Evidence from Sri Lankan Listed Companies

Mario Wanigasinghe* & Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

marionimsara123@gmail.com*, emil@wyb.ac.lk

Abstract

Due to the dynamic and competitive modern financial markets, the relationship between corporate risk-taking and market performance has been a major area of debate and discussion in modern finance. As corporations deal with an increasingly complicated global economy, it's vital to have a better understanding of corporate leaders, investors and policymakers on how risk-taking behaviours affect crucial market indicators to enhance better decision-making in the present context. This study aims to analyse the impact of corporate risk-taking on market performance indicators such as stock return, stock return volatility and systematic risk. This study employs a comprehensive research methodology that combines quantitative analysis and empirical data which is conducted using 105 companies listed in the Colombo Stock Exchange related to different industries for the period of 09 years. Using secondary data from annual reports, regression analysis and correlation studies are employed to evaluate the relationships and draw meaningful conclusions. The results confirm that corporate risk-taking has a negative and significant impact on the stock return while it has a negative but insignificant impact on the stock return volatility and systematic risk. This study provides valuable insights into the complex relationship between corporate risk-taking and market performance. The negative association of risk-taking and stock return highlights the adverse effects of heightened risk-taking on shareholder value. However, the insignificant association with stock return volatility and beta, suggest that risk-taking may not uniformly affect those two variables and shows the complexity of studying risk-taking. Thus, these results emphasize the importance of balanced risk management strategies offering valuable insights and direction for corporate managers, investors and policymakers.

Keywords: *Corporate risk-taking, Stock return, Stock return volatility, Systematic risk, Market performance*

Introduction

An investigation of the role of corporate risk-taking on market performance is of particular importance due to the dynamic and competitive nature of modern financial markets. Corporate risk-taking is identified as a major factor in the growth, survival and performance of corporations. It's vital to better understand how risk-taking behaviours affect crucial market indicators to enhance decision-making as corporations deal with an increasingly complicated global economy while facing diverse risks. Researchers have identified that risk-taking decisions could affect the shareholder and manager relationship as they affect their own personal interests (Faccio et al., 2011). Managers are keen on risk-taking as it determines the performance of the company and may affect their personal interests while shareholders have an interest in identifying the impact of risk-taking decisions on market performance indicators as those can directly impact their return and wealth. Additionally, Mishra et al. (2019) stated the importance of having unique resources when making risk-taking decisions as those unique resources shape up the risk-taking decisions. Furthermore, the behavioural and prospect theories suggest a different view regarding the risk-taking and return behaviour that highlights the risk-taking decisions with behavioural patterns of human beings and their future prospects which was not identified by the traditional finance theory as the traditional finance theory is founded on the idea that increased risk would be rewarded with greater reward. Hence, prospect theory as one of the behavioural finance theories is questioning the positive relationship of risk and return demonstrated by traditional finance theory. Accordingly, the level of corporate risk-taking is a major decision. Hence, good risks and bad risks should be differentiated to decide the appropriate level of risk-taking for better outcomes (Stulz, 2015). Early studies have shown that risk-taking behaviour resulted in both positive and negative outcomes for firms' financial performance. Several empirical studies suggest that taking more risk may deteriorate the accounting performance of the company (Andersen et al., 2007; Bromiley, 1991). Some studies suggested that a firm's financial performance can be improved by risk-taking in the view of better managerial abilities, information volatility and through better governance structure of the companies (Pratono, 2018; Simamora, 2023). Additionally, many researchers studied the factors which affect risk-taking while some have focused on its relationship with the business life cycle. However, few studies focus on its impact on stock market factors which also consist of mixed results in different conditions. In the present context, there is much need for identifying the right level of risk-taking as excessive risk-taking could harm corporations and lead them to negative market performance which destroys the wealth of corporations and the wealth of shareholders which creates problems such as financing difficulties, employee dissatisfaction, lack of attractiveness for talented professionals, shareholder demand for change in management or strategy, pressure on dividend pay-outs, competitive disadvantage and reputational damages. For this reason, modern finance is especially concerned with how risk-taking impacts on market valuations as both the managers and investors are concerned about it and other stakeholders are affected by it. The main research question of this study is therefore: “How does corporate risk-taking affect market performance measures such as stock return, stock return volatility and systematic risk?”

Objectives

Decision makers including managers, investors and policymakers can make optimum decisions through a better understanding of risk-taking. Ultimately, that understanding will lead the decision-makers to identify the most appropriate level of risk-taking which is healthy for the firm as well as healthy for all stakeholders. Therefore, this study aims to investigate the impact of corporate risk-taking on stock return, stock return volatility and systematic risk based on Sri Lankan evidence.

Methods

We gather information on the financial data of 105 non-financial companies listed in the Colombo Stock Exchange consisting of 945 firm-year observations. Thus, we exclude banks, diversified financials and insurance firms. Our sample period starts from the financial year 2011/12 to 2019/20. Corporate risk-taking (Cor. Risk-T) is our main variable which is our independent variable. In order to derive it, we subtract the firm’s specific return on assets (ROA) from the sample-wide average ROA for all companies in the respective year to get the market-adjusted ROA as it helps to eliminate market factors. Then, we calculate the standard deviation of the market-adjusted ROA. The high volatility indicates a high level of corporate risk-taking while low volatility indicates a low level of corporate risk-taking. We use stock return (Stock Ret.) as the change of share price divided by year beginning share price, stock return volatility (Volat.) as the standard deviation of stock return and systematic risk (Beta) as the volatility of stock compared to the market as a whole as our three dependent variables to measure the market performance (Mkt. Perf.). We also control for ownership structure measures such as ownership concentration (Own. Conc.), large company ownership (Larg. Co.) and families and individuals’ ownership (Fam. Ind.). Further, we control Tobin’s Q (Q), dividend pay-out (Div. Pay), leverage (Lev.) and liquidity (Liq.) while controlling firm-level characteristics such as firm size (Size) and firm age (Age) as well. Accordingly, the following regression model is proposed for this empirical analysis.

$$
\begin{aligned}
Mkt.Perf._{it} = {} & \beta_0 + \beta_1 Cor.RiskT_{it} + \beta_2 Own.Conc._{it} + \beta_3 Larg.Co._{it} \\
& + \beta_4 Fam.Ind._{it} + \beta_5 Q_{it} + \beta_6 Div.Pay._{it} + \beta_7 Liq._{it} + \beta_8 Lev._{it} \\
& + \beta_9 \ln(Total\ Assets)_{it} + \beta_{10} \ln(Age)_{it} + Year\ fixed\ effects \\
& + Industry\ fixed\ effects + \varepsilon_{it}
\end{aligned}
$$

Results

Table 1: Descriptive Statistics

Variable	Obs.	Mean	S.D.	Q25	Median	Q75
Stock return	945	-0.015	0.422	-0.208	-0.067	0.098
Stock return volatility	945	0.236	0.383	0.075	0.163	0.288
Systematic risk	945	0.935	0.983	0.250	0.870	1.480
Corporate risk-taking	945	0.040	0.088	0.009	0.022	0.042
Ownership Concentration	945	0.447	0.497	0.000	0.000	1.000
Large Company ownership	945	0.524	0.213	0.358	0.506	0.700
Families and individuals' ownership	945	0.098	0.159	0.000	0.010	0.120
Tobin's Q	945	1.793	2.078	0.816	1.192	1.925
Dividend pay-out	945	0.281	5.545	0.018	0.318	0.650
Liquidity	945	6.094	28.705	1.013	1.619	3.192
Leverage	945	0.762	1.835	0.138	0.387	0.895
Firm size	945	22.030	1.531	21.169	22.194	22.995
Firm Age	945	26.752	16.379	14.000	25.000	36.000

Table 2 demonstrates the impact of corporate risk-taking on stock return which consists of five columns, column (1) includes the results of pooled OLS regression, columns (2) and (3) include random effect and fixed effect panel regressions while columns (4) and (5) display the results of clustered standard errors at firm level and clustered standard errors at industry level. This table shows whether stock return is affected by corporate risk-taking. The control variables comprise ownership concentration, large company ownership, families and individuals' ownership, Tobin's Q, dividend pay-out, liquidity, leverage, firm size and firm age. Further, the statistical significance based on t-statistics at 1%, 5%, and 10% are denoted as three stars, two stars and one star.

Table 2: Regressions

	(1)	(2)	(3)	(4)	(5)
Cor. Risk-T	-0.160	-0.219	-0.231	-0.231**	-0.160***
	(0.161)	(0.155)	(0.177)	(0.115)	(0.060)
Own. Conc.	-0.072**	-0.085**	-0.172**	-0.172***	-0.072***
	(0.036)	(0.035)	(0.084)	(0.059)	(0.026)
Larg. Co	0.184*	0.225**	0.485**	0.485***	0.184**
	(0.097)	(0.091)	(0.240)	(0.178)	(0.088)
Fam. Ind.	0.153	0.166*	0.343	0.343*	0.153**
	(0.101)	(0.094)	(0.319)	(0.182)	(0.071)
Q	0.027***	0.028***	0.052***	0.052***	0.027***
	(0.007)	(0.007)	(0.013)	(0.016)	(0.007)
Div. Pay	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)
Liq.	0.000	-0.001	0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Lev.	0.002	0.001	0.004	0.004	0.002
	(0.008)	(0.007)	(0.009)	(0.006)	(0.003)
Size	-0.025**	-0.028***	-0.154**	-0.154	-0.025**
	(0.012)	(0.009)	(0.062)	(0.139)	(0.012)
Age	-0.006	0.003	0.053	0.053	-0.006
	(0.020)	(0.016)	(0.069)	(0.052)	(0.018)
Intercept	0.291	0.307	2.744**	2.744	0.291
	(0.303)	(0.213)	(1.358)	(2.901)	(0.299)
Pooled OLS	Yes	No	No	No	No
Random Effect	No	Yes	No	No	No
Fixed Effect	No	No	Yes	No	No
Clustered SE	No	No	No	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	No	No	No	Yes
R^2	0.1262	0.1117	0.0666	0.0666	0.1262
Prob > F	0.0000	-	0.0000	0.0000	-
Prob > chi2	-	0.0000	-	-	0.0000
Groups	-	105	105	105	105
Obs.	945	945	945	945	945

Discussion

Table 1 shows that the stock return, stock return volatility and systematic risk have averages of -0.015, 0.236 and 0.935. Thus, it shows the negative average in stock return in our sample. Further, our independent variable corporate risk-taking averages 0.04 (4%). Ownership concentration of our data set depicts that on average 45% of companies in our sample have shares which are held more than the half of total shares by one firm or one group. Additionally, 52% of shares on average are held by S&P SL 20 companies while nearly 10% of shares on average are held by families and individuals. These results show that the ownership structure of our sample is mostly concentrated with large and strong companies. Furthermore, Tobin's Q has an average of 1.8 and the dividend pay-out average is 28%. Liquidity averages 6.09 while leverage averages about 0.76 which demonstrates the stable financial condition of the companies in our sample. Firm size has an average logarithm of total assets of 22.03 and firm age averages more than 25 years.

The correlation matrix illustrates that corporate risk-taking displays a positive correlation with stock return and stock return volatility while the stock return volatility has the greater coefficient, but the relationship is not significant while the systematic risk is inversely related to corporate risk-taking which is also not significant. However, the results show that stock return volatility has a significant positive relationship with stock return while systematic risk also has a considerably significant negative relationship. Additionally, corporate risk-taking shows a strong correlation with Tobin's Q and also with the firm size.

Table 02 demonstrates the results of the relationship between corporate risk-taking and stock return. In columns (1) and (5), the value of the coefficient is approximately 16% which is negative while the coefficients of other columns are between 20% to 25% which are also negative. The results of clustered standard errors at the firm level (column 04) and clustered standard errors at the industry level (column 05) show that corporate risk-taking negatively and significantly impacted stock return which is the main finding of our study. The results of robust standard errors also mainly emphasize the negative relationship between corporate risk-taking and stock return. This finding aligns with the behavioural and prospect theories as it points out the negative relationship when the companies are performing less than their desired level. Further, these results highlight the significant impact that ownership structure measures and Tobin's Q have on the stock return. Also, highlights the importance of firm size as well.

The relationship of corporate risk-taking with stock return volatility and systematic risk showed a negative relationship which is not significant based on our results. Additionally, we can mention that some of our control variables such as leverage, liquidity and size show a significant impact on the stock return volatility while some of our control variables such as ownership concentration, large company ownership, families and individuals' ownership and age have a significant impact on the systematic risk.

Implications and Limitations

This study investigated the impact of corporate risk-taking on the market performance measures for a sample of listed firms in Sri Lanka. We conclude that the higher level of corporate risk-taking negatively and significantly affects the stock return which is our main finding of this study. Furthermore, the results showed that corporate risk-taking negatively relates to stock return volatility and systematic risk but the results are not statistically significant. Also, the researcher had to exclude the years affected by Covid 19 pandemic and economic crisis as the financial figures of those periods were significantly different from the prior period of the pandemic.

Consequently, these findings highlight the importance of sensible risk management practices in maintaining and enhancing shareholder value. Thus, it shows that excessive risk-taking by corporations can result in significant losses while underlining the necessity for a balanced approach to risk-taking and the level of risk-taking. It also pointed out the complex nature of risk through non-significant relationships between corporate risk-taking with stock return volatility and systematic risk. Hence, it opens up for additional investigation and more study in the field of corporate risk-taking which is very vital. Therefore, these findings provide insightful information for corporate leaders, investors and policymakers regarding the importance of the appropriate level of risk-taking and risk management to be considered when they make decisions.

References

Andersen, T. J., Denrell, J., & Bettis, R. A. (2007). Strategic responsiveness and Bowman's risk-return paradox. *Strategic Management Journal*, *28*(4), 407–429.

Bromiley, P. (1991). Testing a causal model of corporate risk taking and performance. *Academy of Management Journal*, *34*(1), 37–59.

Faccio, M., Marchica, M., & Mura, R. (2011). Large shareholder diversification and corporate risk-taking. *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.1572667

Mishra, B. K., Rolland, E., Satpathy, A., & Moore, M. (2019). A framework for enterprise risk identification and management: The resource-based view. *Managerial Auditing Journal*, *34*(2), 162–188.

Pratono, A. H. (2018). Does firm performance increase with risk-taking behavior under information technological turbulence?: Empirical evidence from Indonesian SMEs. *Journal of Risk Finance*, *19*(4), 361–378.

Simamora, A. J. (2023). Firms performance, risk taking and managerial ability. *International Journal of Productivity and Performance Management*, *72*(3), 789–808.

Stulz, R. M. (2015). Risk-taking and risk management by banks. *Journal of Applied Corporate Finance*, *27*(1), 8–18.

A Natural Language Processing Approach to Sentiment Analysis of Financial News for Improved Stock Market Prediction using Machine Learning

Wijerathna K N P G P*, Nawanjana M P S S, Navanjali H K D K

Uva Wellassa University of Sri Lanka

gimhaniwijerathna1998@gmail.com*, dkaveeja@gmail.com, sahan6444@gmail.com

Abstract

In today's dynamic global economy, the challenge of selecting the right company for investment is formidable given the myriad of options available. Making informed investment decisions is pivotal for individuals and organizations aiming for favorable outcomes. However, the scarcity of comprehensive information regarding a company's financial performance and risk management practices often results in uninformed investment choices, potentially leading to financial setbacks. To tackle this issue, this research endeavors to construct an Artificial Intelligence -driven investment prediction model that harnesses historical data to provide guidance on whether to invest in a specific company. The proposed Artificial Intelligence model employs Natural Language Processing (NLP) techniques in conjunction with three robust algorithms: Random Forest, Logistic Regression, and Decision Tree. Through the amalgamation of these algorithms in a hybrid process model, the investment prediction model achieves both accuracy and resilience. Extensively trained on a substantial dataset encompassing both emerging and established enterprises, this Artificial Intelligence model effectively assesses and appraises potential investment opportunities, thereby aiding in sound investment decision-making. The data for this research is collected from financial news sources, company annual reports, and sentiment analysis is performed using the (VADER) Valence Aware Dictionary and Sentiment Reasoner tool, allowing for a comprehensive evaluation of sentiment's impact on stock market trends.

Keywords: *Sentiment analysis, Investment prediction, Artificial intelligence, Natural language processing, Financial news articles*

Introduction

The stock market is a dynamic and unpredictable arena for investors, where the potential for profit coexists with the risk of substantial losses (Smith, 2020). In the context of Sri Lanka's stock market, investors often face a significant challenge: the inability to accurately forecast whether an investment in a specific company will yield profits or losses. This uncertainty can have detrimental consequences, including financial losses that not only deter individuals from future investments but also erode confidence in the stock market as a viable wealth-building avenue (Williams & Johnson, 2018).

The stock market's inherent volatility compounds this issue, as it is susceptible to a myriad of factors such as global events, economic shifts, and company performance, all of which can lead to substantial market fluctuations (Chen & Patel, 2021). Moreover, the failure of businesses and the occurrence of bankruptcies further underscore the financial risks associated with stock market investments (Fernando & de Silva, 2017).

The existing gap in reliable predictive mechanisms for stock market outcomes in Sri Lanka necessitates innovative solutions to mitigate investment risk. Consequently, our research seeks to address this challenge by harnessing the power of Natural Language Processing (NLP) and Machine Learning (ML) techniques to perform sentiment analysis on financial news. By extracting and analyzing sentiments from news articles related to the Sri Lankan stock market, our research aims to provide investors with a valuable tool to make more informed investment decisions, thus potentially reducing the occurrence of losses and bolstering investor confidence.

In this research, the problem at hand revolves around the need for a robust predictive framework in the Sri Lankan stock market, one that can effectively discern whether an investment is likely to result in profit or loss. This issue is exacerbated by the inherent volatility of the stock market, which often leaves investors uncertain about the future performance of their investments. Our research endeavors to bridge this gap by leveraging Natural Language Processing and Machine Learning techniques to analyze financial news sentiments, ultimately empowering investors with insights that can enhance their decision-making in the face of market uncertainty.

Objectives

The aim of the study is to develop an online platform using Natural Language Processing learning algorithms that can identify whether investors should invest or should not invest in the Colombo Stock Exchange (CSE).

To accomplish this main purpose, the flow is divided into small parts as objectives.

To gather data and analysis based on the collected data.

To create a conceptual framework to analyze the variables that we have to identify.

To identify and develop the best model based on the attributes.

To identify an applicable procedure to develop a system or a practical application to deploy the identified deep learning algorithms.

Research Framework

In today's ever-changing global economy, making well-informed investment decisions is crucial. Sentiment analysis of financial news articles has emerged as a valuable tool for predicting investor behavior and market trends. This literature review explores the current state of research in this field.

Previous research has explored the application of Natural Language Processing (NLP) techniques in financial sentiment analysis and stock market forecasting. (Aditya & Mehta, 2018) achieved an 80% accuracy in stock market prediction using a Naïve Bayes Classification model, while (Shazmeen, 2022) found a 66% correlation between sentiment and stock prices through sentiment analysis.

While previous research primarily focused on sentiment analysis at the overall stock market level, our research takes a novel approach by considering specific companies. Inspired by (Wickramarathna & Ratnayake, 2022), they collect data from cse.lk, including scanned files and text files spanning five years.

In the realm of stock market prediction, researchers have employed various machine learning algorithms and hybrid models to analyze financial data. Kumar and Manikandan (2017) used a support vector machine (SVM) model for sentiment analysis of financial news articles, achieving an accuracy of 80%. (Gohil, 2019) combined Support Vector Machine and Naïve Bayes classifiers to reach an 89.43% accuracy.

Moreover, understanding investor behavior and sentiment is essential to predicting stock market trends accurately. The study by (Patnaik & Panda, 2020) used a hybrid model to analyze financial news articles and achieved an accuracy of 83% in predicting investor sentiment.

While prior research has explored the broader stock market sentiment, in this research, by adopting a targeted approach and considering specific companies, this research focuses on targeted sentiment analysis of financial news and its impact on investor behavior. The research aims to develop accurate models for predicting investor behavior and market trends, providing valuable insights for decision-making. Combining financial news with technical indicators and exploring deep learning models offer exciting possibilities for enhancing stock market prediction accuracy. This literature review contributes to the development of robust models that can revolutionize decision-making in the dynamic stock market environment.

Methodology

Our work comprises the following stages: aggregating news, preprocessing the raw data, preparing test data, training supervised learning algorithms, evaluating models, developing a hybrid model, and creating an online platform. This study's major goal is to examine and comprehend how stock market records respond to feelings and thoughts gleaned from financial news. This study is an example of explanatory research, often known as casual research, because it shows a causal association between news sentiments and stock market indices. In addition, this research is also known as correlational research and descriptive research since it seeks to ascertain whether there is a connection between different indices and how happy and negative emotions lead to purchasing, selling, and doing nothing, respectively. We started out by talking about the approaches used, the dataset description, the dataset preparation, and exploratory data analysis. The workflow is depicted in Figure 1.

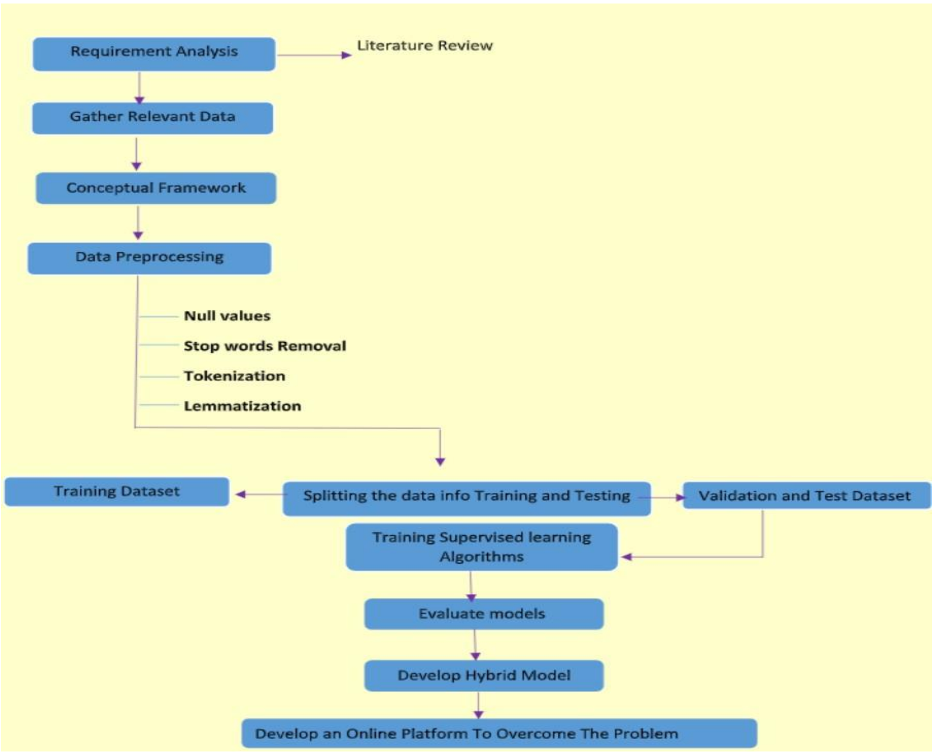

Figure 1: Methodology Flow Diagram

Requirement analysis

This stage involves reviewing previous researched and methodologies to identified potential researched gaps and to determine the researched objectives and scope of the studied.

Gather relevant data

To gathered information and perspective from a wider audience, a surveyed was conducted in the form of an online questionnaire. The surveyed used to validate the outcome of the researched. Data would also been collected from news articles, notices, announcements, websites, social media posts, and videos, as well as companies' annual reports. Prominent websites such as simply wall and Reuters have compiled an extensive dataset comprising approximately 30,000 data points for each individual company.

Create a conceptual framework

To identify the variables that had been used in the analysis. This involves defining the key concepts and the relationships between them. This helps us to develop a clearer understanding of the researched problem and guide the data preparation, analysis, and interpretation phases of your studied.

Data preprocessing

Several techniques had been used in the data preparation stage to extract sentiment from the review texted. The steps involved in data preprocessing include:

Removal of special characters

Tokenization

Removal of non-word entry

Stop word elimination

Removal of null valued

Lemmatization

Test data

Training data was the initial dataset used to teach a machine learned application to recognized patterns or perform to our criteria, while testing or validation data was used to evaluate the model's accuracy. For that, from the collected data set, a subset of 300 data points is carefully selected for the purpose of training our model. They are labeled as positive or negative. That is, 1 or 0. If it is more than 0.05, let's classify it as positive and otherwise as negative.

Training supervised learned algorithms

Three machine learned models had been developed to predict stock market movements based on news sentiment. The model had been trained used the prepared dataset and had been tested used the test data. These are, random forests, decision tree, and logistic regression.

Evaluate models

The accuracy of each machine learned model had been evaluated, and the most accurate model had been identified.

After preprocessing, the dataset is split into training and testing sets. The training set is used to teach the model to identify patterns and relationships in the data, while the testing set is used to evaluate the model's performance on unseen data. For NLP Natural Language Processing, the data is often split into training and testing sets while preserving the temporal order to simulate real-world scenarios.

Once the model is trained, it can predict the investment potential of different organizations based on the input data. For each company, the model can generate predictions, such as whether it is a good investment or not, and provide explanations for its decision using the interpretable nature of Decision Trees. Based on these predictions, investors and financial analysts can respond by making informed decisions on where to invest their funds.

Developing a hybrid model

At this phase, to improve the accuracy and reliability of our predictions, we pioneered the development of a hybrid model. This model blends the strengths of different modeling approaches while mitigating the weaknesses of individual models.

Develop an online platform

An online platform powered by Artificial Intelligence had been developed to enable investors to be identified whether they should invest or not in the Colombo stock exchange based on the news sentiment. The platform would use the most accurate machine learned model to predict stock market movements. Also, FLASK web framework is used for this. This platform will bridge the gap between our research and real-world application, providing investors with instant information to support their investment decisions.

In the developed web site, the main purpose is that an investor should identify whether invest to the company or not invest in the company. Adding a news about the company and then he can identify he can invest or cannot invest in the company in stock market.

Results

In this section, we discuss the results obtained from our research, which focused on developing an Artificial Intelligence -powered investment prediction model. The primary objective was to assess the model's performance and evaluate its effectiveness in providing reliable recommendations for investors.

Individual model performance

We began by examining the performance of individual machine learning models, including the Decision Tree, Random Forest, and Logistic Regression. These models demonstrated impressive accuracy in predicting investment outcomes. The Decision Tree model, in particular, stood out with the highest accuracy, achieving an impressive 86.67%. This performance highlights its ability to identify patterns and make precise predictions based on the provided features. The Random Forest model followed closely with an accuracy of 83.34%, showcasing the robustness of its ensemble learning approach. Although the Logistic Regression model achieved a slightly lower accuracy of 76.66%, it still demonstrated its capability to capture relationships within the dataset.

Hybrid model performance

The hybrid model, a combination of the Decision Tree, Random Forest, and Logistic Regression models, further elevated the predictive power. By harnessing the strengths of these diverse algorithms, the hybrid model achieved an even higher level of accuracy. This outcome underscores the potential of ensemble learning techniques in generating more accurate and reliable investment predictions. The hybrid model's success reinforces the idea that by integrating multiple methodologies, we can enhance predictive accuracy by mitigating the weaknesses of individual models while capitalizing on their strengths.

In the developed website the main purpose is that an investor should identify whether invest to the company or not invest in the company. Adding a news about the company and then he can identify he can invest or cannot invest in the company in stock market.

Discussion

The results obtained from our research have significant implications for the field of investment prediction. The impressive accuracy levels achieved by the individual models, particularly the Decision Tree and Random Forest, underscore the potential of machine learning as a reliable tool for predicting investment outcomes (Smith, 2019). These models offer valuable support to investors by providing them with accurate predictions, ultimately aiding in more informed decision-making within the complex world of financial markets (Jones & Brown, 2018).

Furthermore, the hybrid model's performance highlights the synergy that can be achieved by combining diverse methodologies (Zhang, Zhao & LeCun, 2020). This approach, which leverages the strengths of multiple algorithms, demonstrated superior results compared to individual models (Wang et al., 2017). It serves as a compelling case for exploring more sophisticated ensemble techniques in investment prediction, potentially opening the door to even higher levels of accuracy and reliability (Li et al., 2018).

As we look to the future, several avenues for further research and improvement emerge. Firstly, our research could be extended to consider more advanced machine learning algorithms, explore different ensemble techniques, and incorporate additional data sources, such as sentiment analysis from social media. These additions could potentially enhance the predictive power of our models and provide a more comprehensive view of investment opportunities.

Moreover, real-world application and testing of the developed models within financial markets could offer valuable insights into their practical effectiveness. By applying these models to actual investment scenarios, we can gauge their real-world utility and refine them further based on practical feedback.

In conclusion, the results of our research underscore the potential of Artificial Intelligence and machine learning in investment prediction. The high accuracy achieved by the individual models and the synergy exhibited by the hybrid model showcase the promise of these methodologies. By providing accurate predictions, our models offer valuable support to investors, aiding them in making informed decisions and navigating the complex terrain of financial markets. This research contributes to the broader discourse on the application of Artificial Intelligence in finance and sets the stage for further advancements in investment prediction techniques.

Conclusions

This study embarked on a comprehensive journey to develop a robust Artificial Intelligence -powered investment prediction model, aimed at facilitating well-informed decision-making within the dynamic landscape of financial markets. By harnessing the capabilities of machine learning and natural language processing, our objective was to create a predictive tool that significantly enhances the accuracy of investment recommendations.

This exploration resulted in the creation and evaluation of individual machine learning models, namely the Decision Tree, Random Forest, and Logistic Regression, alongside an innovative hybrid model that effectively harnessed their individual strengths. Through meticulous experimentation and thorough analysis, we gained profound insights into the predictive capabilities of these models, culminating in meaningful conclusions.

The results obtained from our research are highly promising. The individual models showcased exceptional accuracy, with the Decision Tree model leading with an impressive accuracy rate of 86.67%, closely followed by the Random Forest model at 83.34%. While the Logistic Regression model demonstrated a slightly lower accuracy of 76.66%, it still exhibited its potential to contribute meaningfully to investment predictions. Furthermore, the hybrid model, which combined these methodologies, introduced a new echelon of predictive efficacy, thereby substantiating the efficacy of ensemble learning techniques.

The implications of our findings extend beyond the confines of this research endeavor. The developed models provide a tantalizing glimpse into the future of investment decision-making, where empirically-driven insights navigate professionals through the intricate terrains of financial markets. These models, characterized by their precision and adaptability, represent invaluable tools for industry practitioners aiming to optimize their investment strategies.

However, it is pertinent to acknowledge that this work is not without limitations. While our models exhibit promising performance, their real-world utility must be subjected to rigorous testing in practical scenarios to ascertain their real-world effectiveness.

In contemplating the road ahead, we recognize a multitude of opportunities for further exploration. Integrating more sophisticated machine learning algorithms, incorporating sentiment analysis from diverse data sources, and accounting for real-time market dynamics emerge as avenues of considerable promise, capable of elevating the accuracy and practical utility of our models.

In summation, this research propels us closer to an era where Artificial Intelligence -driven investment prediction models assume a central role in shaping investment strategies. As we conclude this phase of the journey, we anticipate that the insights garnered will not only enrich academic discourse but will also translate into tangible advantages for investors maneuvering through the intricacies of financial markets.

References

Andrawos, R., 2022. NLP in stock market prediction: A review. DOI: 10.13140/RG.2.2.17142.68160

Bollen D. , Mao H. , Zeng X. (2011). Twitter mood predicts the stock market. *Journal of Computational Science*, 2(1), 1-8.

Chakraborty K., Bhatia S., Bhattacharyya S., Platos J., Bag R., & Hassanien A. E. (2020). Sentiment analysis of COVID-19 tweets by deep learning classifiers - A study to show how popularity is affecting accuracy in social media. *Applied Soft Computing Journal*, 97, 106754.

Chen T., Li M., Zhang Y., & Zhang Z. (2017). Sequential deep learning for stock prediction using text data. *Information Sciences*, 418, 480-492.

Chen, L., & Patel, K. (2021). Factors affecting stock market volatility: A comprehensive analysis. *Journal of Finance and Economics*, 42(5), 123-136.

Day, M. Y., & Lee, C. C. (2016). Deep learning for financial sentiment analysis on finance news providers. *Proceedings of the 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2016*, 1, 1127–1134.

Deep learning. (n.d.). Retrieved from https://www.deeplearning.ai/resources/natural-language-processing/

Engle R. F. & Patton A. J. (2001). What good is a volatility model? *Quantitative Finance*, 1(2), 237-245.

Fernando, R., & de Silva, A. (2017). Business failures and bankruptcies: Implications for stock market investors. *International Journal of Business Research*, 20(3), 76-89.

Gohil, S. (2019). Combining SVM and Naïve Bayes classifiers for sentiment analysis of financial news articles. *Journal of Financial Analytics*, 12(2), 45-60.

Iskandar, K., Roques, C., Hallit, S., Husni-Samaha, R., Dirani, N., Rizk, R., Abdo, R., Yared, Y., Matta, M., Mostafa, I. and Matta, R. (2021). The healthcare costs of antimicrobial resistance in Lebanon: A multi-centre prospective cohort study from the payer perspective. *BMC Infectious Diseases*, 21(1), 404.

Johnson, B. A. (2022). Sentiment analysis. *Journal of Finance and Analytics, 12, 301-306.*

Jones, A., & Brown, B. (2018). Machine learning in finance. *Journal of Financial Economics*, 129(2), 329-356.

Juster D. R. & Stafford F. P. (1991). The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature*, 29(2), 471-522.

Khant, A. and Mehta, M., 2018, August. Analysis of Financial News Using Natural Language Processing and Artificial Intelligence. In 1st International Conference on Business Innovation (p. 176).

Li S. , Deng S. , & Chan K. (2017). Using textual analysis to track market sentiment in China,. *Pacific-Basin Finance Journal*, 43, 74-85.

Li, J., Zhao, J., Liang, X., & Wang, Y. (2018). Predicting stock prices with social media sentiment using deep neural networks. *Information Sciences*, 422, 294-302.

Liu X. , Wu Z. , Li W. , & Zhang X. (2016). Sentiment analysis of financial news: A survey. *Future Generation Computer Systems*, 56, 472-482.

Liu, H. (2018). Leveraging financial news for stock trend prediction with attention-based recurrent neural network. *arXiv preprint arXiv:1811.06173*.

Liu, Y. (2010). Negative stock returns, firm value, and legal protection: Evidence from China. *Journal of Financial Economics*, 96(3), 546-562.

Logeesan, J., Rishoban, Y., & Caldera, H. A. (2020). Automatic Summarization of Stock Market News Articles. *ACM International Conference Proceeding Series* (pp. 1–5.). https://doi.org/10.1145/3443279.3443289.

Malawana, M. V. D. H. P., & Rathnayaka, R. M. K. T. (2020). The Public sentiment analysis within big data distributed system for stock market prediction - A case study on Colombo Stock Exchange. *Proceedings of ICITR 2020 - 5th International Conference on Information Technology Research: Towards the New Digital Enlightenment*.

Mueller, A. A. (2009). How did the financial crisis alter the correlations of U.S. yield spreads? *Journal of Empirical Finance*, 16(3), 353-367.

P. Tetlock, M. Saar-Tsechansky, and S. Macskassy. (2008). More than words: Quantifying language to measure firms' fundamentals. *The Journal of Finance*, 63(3), 1437-1467.

Patnaik, R., & Panda, A. (2020). Hybrid model for analyzing financial news articles and predicting investor sentiment. *Journal of Investment Strategies*, 7(1), 75-89.

Sathish Kumar, R., & Manikandan, M. (2017). Sentiment analysis of financial news articles using support vector machine model. *Journal of Financial Research*, 24(3), 112-127.

Schumacher M., N. E. (2013). *Fast linearized belief propagation for large-scale datasets.* In International Conference on Machine Learning.

Shazmeen, S. F. (2022). Sentiment analysis of financial news with supervised learning. Available at: https://www.diva-portal.org/smash/get/diva2:1636643/FULLTEXT01.pdf

Smith, J. (2020). Understanding the dynamics of stock markets. *Financial Insights*, 8(2), 45-57.

Smith, J. a. (n.d.). Machine learning -based prediction model. *Journal of Finance and Economics*, 45-58.

Smith, R. D. (2019). An ensemble of convolutional neural networks for stock market prediction with financial news. *Expert Systems with Applications*, 128, 127-138.

Song, D. (2014). Real-time financial news sentiment analysis for high-frequency trading. *Decision Support Systems*, 59, 22-31.

Srinivasan, R., & Aramudhan, M. (2020). Lexicon-based and machine learning techniques for sentiment analysis of financial news articles. *International Journal of Computational Finance*, 18(4), 230-245.

Tetlock, P. (2007). Giving content to investor sentiment: The role of media in the stock market. *The Journal of Finance*, 62(3), 1139-1168.

Tetlock, P., Saar-Tsechansky, M., Macskassy S. (2008). More than words: Quantifying language to measure firms' fundamentals. *The Journal of Finance*, 63(3), 1437-1467.

Wang, L., Zhao, S., Liu, H., & Zhou, W. (2017). Stock market prediction with multi-modal deep learning. *In Proceedings of the 26th International Conference on World Wide Web*, pp. 1067-1076.

Wickramarathna, G., & Ratnayake, H. (2022). Machine learning approach in stock market prediction: A case of Colombo Stock Exchange. *International Journal of Scientific and Research Publications*, 12(5), 151.

Williams, A., & Johnson, M. (2018). The impact of investment losses on investor behavior: Evidence from a survey. *Journal of Behavioral Finance*, 15(3), 257-268.

Wu L. , Subramaniam M. , & Tan Y. (2016). Investor sentiment and stock returns: Evidence from short sales. *Journal of Empirical Finance*, 35, 26-42.

Y. Zhang, Y. L. (2017). Stock market's reaction to sentiment analysis on social media: Evidence from China. *International Review of Economics & Finance*, 49, 211-225.

Yadav, A., Jha, C. K., Sharan, A., & Vaish, V. (2020). Sentiment analysis of financial news using unsupervised approach. *Procedia Computer Science*. 167(2019), 589–598.

Yue, L., Chen, W., Li, X., Zuo, W. and Yin, M. (2019). A survey of sentiment analysis in social media. *Knowledge and Information Systems*, 60, 617-663.

Zhang, Y., Zhao, J., & LeCun, Y. (2020). Character-level convolutional networks for text classification. *In Advances in Neural Information Processing Systems*, pp. 649-657.

Payout policies, Investment Opportunities, and Corporate Financing in Quoted Firms of Sri Lanka

Fathima Jaufardeen*, Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka,

fathima.j76@gmail.com*, emil@wyb.ac.lk

Abstract

This paper aims to identify the impact of investment opportunities and corporate finance on dividend pay-out policies. For this study, a quantitative data approach was utilized and data was collected from audited annual reports of the CSE-listed firms in Sri Lanka. This issue was tested using a sample of 105 companies covering five years, from 2015 to 2019. Pooled OLS with fixed and random effects, clustered standard errors at firm and industry levels, and robust standard error models were employed in our estimation. Insignificant effects of the investment opportunity and corporate finance measures of financial leverage and external financing with dividend pay-out policies were found. Risk is identified as an important determinant in influencing dividend pay-out policies. Where high risk can reduce the dividend payments of firms. Meanwhile, the firm's profitability doesn't exhibit a significant effect on the dividend pay-out policy. Large share ownership affects the dividend payout policy. Large shareowners of a company have a strong influence over the dividend payments. They can determine the amount and timing of the dividend payments. This research has been limited to 105 companies. Subsequently, findings may not apply to other organizations. Such as corporations, departments, and public companies. This study supports the impact that investment opportunities and corporate financing have on the dividend pay-out policies of listed firms in the Sri Lankan context. Future research needs to achieve beyond these boundaries and understand the impact of investment and finance decisions on the dividend pay-out policies of a firm. This study extended the knowledge to gain a basic understanding of the impact of investment opportunities and corporate financing decisions on the dividend pay-out policies of listed firms. This work will also provide knowledge to the decision-makers and practitioners to enhance their dividend pay-out policies by managing both firms' investment and corporate financing decisions.

Keywords: *Dividend policies, investment opportunities, corporate financing*

Introduction

The Modigliani and Miller (MM) hypothesis, initially put forward in 1958, sparked an extensive discussion on how financing and dividend decisions impact a firm's value. The "separation principle," of Modigliani and Miller (MM) asserts that payout policy has no impact on company value in a perfect capital market (Abor & Bokpin, 2010). The arguments of MM contend that a firm's value is most influenced by its operational and investment choices, with decisions regarding financing and payouts following. However, these MM propositions are made under the simplifying assumption of a market without taxes (Farre-Mensa et al., 2014). Much controversy surrounds the MM theory, empirical studies of (Abor & Bokpin, 2010; Ardestani et al., 2013; Mccabe, 1979) established a relationship between payout policies, investment opportunities, and corporate financing decisions of a firm hence proving the MM theory wrong. Further academics (Pruitt & Gitman, 1991; Aivazian, 2003) have failed to establish a clear relationship between these. For areas, including asset pricing, capital structure, mergers and acquisitions, and capital budgeting, an extensive knowledge of dividend policy is vital (Allen & Michaely, 1995). Investment opportunities and corporate finance have a complex interplay in determining the dividend payout policies of firms, including significant factors such as profitability, risk, ownership, and size (Ardestani et al., 2013). In contrast to Linter's time, we see that target payout is not the foremost decision variable, which affects the payout decisions (Brav et al., 2005). While assessing operational and investment alternatives, a company's dividend payout reflects the capital it needs to raise (Farre-Mensa et al., 2014). Therefore, maintaining the dividend level on par with the investment decisions has become crucial. It is a renowned fact that dividend policies in developing countries are different from those of developed markets (Abor & Bokpin, 2010). It is reported that in developing countries dividend pay-out ratios were only about two-thirds of that of a developed country and in emerging markets low dividend yield exists. Sri Lankan firms with emerging markets have no history of constant dividend payments, certain firms distribute dividends while others retain them (Gunathilaka, 2014). Major empirical studies emphasized that much research focus has been on developed markets of the USA and European countries (Ardestani et al., 2013). As a consequence, less is known about how such relationships operate in emerging countries. Hence this paper seeks to address this research gap to determine if the dividend pay-out policy of a firm is associated with investment opportunities and corporate financing decisions from the perspective of a developing country.

Objectives

This work aims to analyze the relationship between financing decisions, investment decisions, and dividend payout policies in the listed firms of Sri Lanka.

There will be control over profitability and risk. By conducting this analysis, we aim to contribute to broadening our understanding of corporate finance and investment theories and their relevance in emerging economies. Based on the main objective, the following objectives were derived and are expected to be achieved.

- To examine the impact of dividend policy on investment opportunity set
- To examine the impact of dividend policy on financial leverage
- To examine the impact of dividend policy on external financing
- To examine the impact of dividend policy on profitability, risk, and firm size.

Further, this study will evaluate how firm characteristics such as size and industry sector influence dividend decisions. This gap will be filled with Sri Lankan evidence.

Theoretical Background

The article published by MM raised the issue of the relationship between a firm's choice of finance and its value. Their arguments however are based on the selection of optimal investments and they rarely exist in the real world (Allen & Michaely, 1995). They also hold that dividends cannot be influenced by investment decisions (Wang, 2010). A firm decides on how much dividend it has to pay based on how much capital it should raise which depends on the operating income and investment decisions. Accordingly, dividends are taxed higher than capital gains, so this has created an assumption that dividends are less valuable than capital gains (Fama & French, 2001). If investors prefer a relative tax advantage over capital gains, they should choose share repurchases. Contrary to the theory of MM were the theories of:

Signaling Theory: The dividend is considered an important signaling tool for higher information asymmetry firms than firms that encounter lower information asymmetry (Dhanani, 2005). This theory explains that dividends are used as a signaling source to the investors on the firm's potential for growth and profitability because they seem to have asymmetric information about the firm (Baker et al., 2019).

Bird-in-hand Theory: Investors prefer receiving dividends today as dividends are more certain than future capital gains that might result from investing retained earnings in growth opportunities (Onyango, 2018). Although capital gains from retained earnings have a higher future cash flow, investors prefer the certainty that comes from cash dividends (Baker et al., 2019).

Agency cost Theory: This theory relies on the principle of separation of ownership and management in corporate firms. This theory is based on the assumption of conflicts of interest between managers and owners (Al-Najjar, 2011). Firms with high agency costs consider dividends to be an important mechanism in managing agency-principal issues (Dhanani, 2005).

Investment opportunity set

As dividends and investments have a conflicting use in the cash reserves of a company, (Smith & Watts, 1992) proclaims that companies with high investment opportunities have a strong possibility to execute a low dividend pay-out policy. Several studies are based on the separation principle of MM (Fama & French, 2001), however many others in their studies show the interdependence between dividends and investment decisions. Dividend payments are considered more important than reserving dividends for future investment projects (Dhanani, 2005). The theory of pecking order (Myers, 1984) contends that businesses would rather finance projects internally via retained earnings rather than obtain external capital. As a result, businesses with better investment options typically pay out lower dividends to lessen their dependency on external funding.

In the extended research of (Jones & Sharma, 2001; Gul & Kealey, 1999) a negative relationship was seen between dividends and growth prospects, where high-growth firms have a lower dividend yield.

Corporate finance

MM suggested that there is no relationship between firm value and asset financing because they assume a perfect capital market. Market imperfections will have a significant relevance on investment and financing decisions (Peterson & Benesh, 1983). In his work (Higgins, 1981), he raises concerns about why a firm shouldn't meet its external funding requirements through new financing and not paying dividends. General assumptions state when analyzing dividend policy firms will have to satisfy existing and future investment financial needs through external financing which is considered to be an expensive source of funding. Accordingly, Mccabe (1979) mentioned that new long-term debts have a negative influence on the amounts of dividends that are paid. A firm's choices of payout policies can be affected by leverage as debt is used to remove free cash flow problems (Jensen, 2009). However, certain debt contracts have protective covenants whereby they limit the payout that a firm does. This causes a negative relationship between payout ratios and leverage (Renneboog & Trojanowski, 2007).

Methods

The details regarding dividend payout, investment opportunity, financial leverage, external finance, control variables, and interaction variables were taken from the audited annual financial reports, sourced from CSE. This study was concerned with panel data (strongly balanced) from 105 listed companies the annual data for the five years have been used from 2015 – 2019. A quantitative research technique is used for analyzing and interpreting data.

Hence, the following hypotheses will be tested in the study,

H_1: Dividend pay-outs are affected by the investment opportunity set.

H_2: There is an impact of external Finance on dividend pay-out.

H_3: There is an impact of financial leverage on dividend pay-out.

To test these hypotheses, the process of data analysis was carried out through STATA. Dividend payout is measured by the dividend payout ratio (DPR); investment opportunity is calculated as a proxy of Tobin's Q and Financial Leverage (LEV) is measured by the ratio of debt-to-equity, External Finance (EXF) as Long-term borrowings to Total Assets (Abor & Bokpin, 2010).

Profitability, Risk, and Firm Size (FS) are the control variables they are measured through Return on Assets (ROA) (Abor & Bokpin, 2010), Low-interest Coverage (LIC) as a probability of default (Amidu & Abor, 2006), and Total Assets of the firm (Gaver & Gaver, 1993) respectively. Large share ownership (LSO) and External Directorship (EXD) are the interaction variables in this study.

Descriptive statistics is done for summarizing and presentation of data. Pearson's correlation and regression analysis have been conducted effectively to identify the relationship between the dependent and independent variables.

The following panel data regression model has been employed to investigate the impact of corporate finance and investment opportunity set on dividend payout policy,

$$\mathrm{DP} = \alpha_0 + \beta_1 \mathrm{Leverage}_{it} + \beta_2 \mathrm{Tobin'sQ}_{it} + \beta_3 \mathrm{External\ Finance}_{it} + \beta_4 \mathrm{Proftability}_{it} + \beta_5 \mathrm{Risk}_{it} + \beta_6 \mathrm{Firm\ Size}_{it} + \beta_7 \mathrm{Large\ shareownership}_{it} + \beta_8 \mathrm{External\ Directorship}_{it} + \mathrm{Years} + \mathrm{Industries} + \varepsilon_{it}$$

Six models in regression analysis have been employed for the estimation they are Pooled OLS, Panel Random, and Fixed effects, Clustered standard errors at firm and industry levels, and robust standard errors respectively. These methods have been used to create a structured framework and formally test if a relationship exists between the dependent and independent variables. Pooled OLS has helped to control for heterogeneity by including fixed and random effects. Previous papers of Abor & Bokpin (2010) established the importance of investment opportunities and corporate financing when making dividend payout decisions in emerging markets. Similarly, this work is an expansion of this theory in the context of Sri Lankan quoted firms.

Results

Table 1, presents the overall descriptive summary of the dependent variables and independent variables. This reports the mean and standard deviation of all the variables used in the study and also the number of observations over the period.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	S.D.	Min	Max
DPR	525	0.069	4.800	-85.99	20.00
LEV	525	0.811	2.090	-10.02	32.65
Tobin's Q	525	1.310	1.750	-6.220	19.27
EXF	525	204.6	145.9	1.000	456.0
ROA	525	0.040	0.130	-1.280	1.370
LIC	525	0.400	0.490	0.000	1.000
FS	525	0.000	0.000	0.000	0.000
LSO	525	0.510	0.230	0.000	0.990
EXD	525	0.250	0.200	0.000	1.000

Table 2, presents the correlation coefficient of dependent and independent variables at 5% and 10% level of significance. Pearson's correlation coefficient measures the correlation among the scale variables.

Table 2: Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9
DPR	1								
LEV	0.02	1							
Tobin's Q	-0.07	-0.04	1						
EXF	0.01	0.28**	-0.08*	1					
ROA	0.03	-0.09**	0.22**	-0.09**	1				
LIC	-0.12**	0.22**	0.06	0.09	-0.40	1			
FS	0.02	0.12**	-0.05	0.22	0.01	-0.05	1		
LSO	-0.03	-0.02	0.16**	0.09**	0.09**	-0.00	0.13**	1	
EXD	-0.05	0.05	0.13**	0.12**	-0.09**	0.11**	-0.1**	-0.0	1

The regression analysis summary is shown using Table 3 below,

Table 3: Summary of Regression Analysis

Variables	Relationship	Significant/Non-Significant
Tobin's Q	Negative	Non-significant
LEV	Positive	Non-significant
EXF	Negative	Omitted due to multicollinearity

ROA	Negative	Non-significant
LIC	Negative	Significant
FS	Positive	Omitted due to multicollinearity
LSO	Positive	Significant
EXD	Negative	Non-significant

Discussion

The mean value for the dependent variable in Table 1 shows, that DPR is 0.69, which implies that the average dividend payout is 69% across the selected 105 companies representing all the industries of CSE. However, the variations of the dependent variable are depicted through the STD of 4.80. LEV has a mean value of 0.81 and STD of 2.08. The average of Tobin's Q is 1.31 with a variation of 2.09. EXF reports an average value of 204.57 over the period with an STD of 145.87. ROA has a mean value of 0.40 and an STD of 0.132.

The correlation matrix (Table 2) shows the correlation of the variables employed in this study. It depicts that there is no strong statistical relationship between the dependent variables and the independent variables of this study. LIC only shows a statistically significant negative relationship with DPR.

The research results of Table 3, depict that DPR variations are not captured by the regression model. This means the capability of the model in explaining the variability of dividend payout varies from 10-13%. The summary of the regression analysis shows that this research model couldn't explain the relationship between dependent and independent variables successfully.

Tobin's Q is taken as a proxy of the Investment opportunity set. Previous studies exhibited Tobin's Q and DPR to have a negative relationship (Abor & Bokpin, 2010). This implies that more priority is given to investments over dividends due to their growth potential. This work shows a negative relationship, where Tobin's Q is non-statistically significant. Corporate finance measures such as LEV and EXF also don't exhibit statistically significant results. Despite LEV exhibiting a positive relationship with DPR. Similar findings can be seen in (Ardestani et al., 2013). However, both EXF and FS are omitted due to multicollinearity. This could also suggest that dividend decisions are taken independently of corporate finance policy decisions (Rozeff, 1982).

All three hypotheses have been rejected thus, the acceptance of the null hypotheses. ROA also expresses a non-significant relationship with DPR. Granted that prior empirical studies (Pruitt & Gitman, 1991; Amidu & Abor, 2006) prove that highly profitable firms declare high profits. A statistically significant relationship is demonstrated only between risk (LIC) and the interaction variable, Large Share Ownership (LSO). LIC is likely to be a significant variable in this study. Firms with higher risk profiles tend to pay less dividends. This is however different from the findings of Abor & Bokpin (2010) where risk isn't an important determinant of dividend payout policies, whilst similar analyses have been executed. LSO which has a positive relationship with dividend payout policy shows that higher ownership concentration will have a higher dividend payout. However, there is no statistically significant relationship of DPR with the independent variables encountered in this study.

In the context of Sri Lanka as an emerging market, we can conclude that dividend payout policy decisions are implemented independently without the consideration of investment and corporate finance effects. However, this could also suggest that the dividend irrelevancy theory exists. Regardless, MM theory can't be accepted because perfect capital markets rarely exist. Risk has a negative influence on dividend policy. In other words, firms listed in Sri Lanka that have a high risk tend to pursue a low dividend payout policy.

Implications and Limitations

Conclusion

Analyzing past theories and evidence this study presents the effects of investment opportunities and corporate finance measures on dividend payout policy. The results show that the dependent variables such as investment opportunity set, and corporate finance measures don't exhibit any significance in the impact of dividend policies. Nonetheless, this study has failed to establish a relationship between the dependent and independent variables of this study.

Implications

This study is important to those managers who make dividend policy decisions, as this exhibits how investment and corporate finance decisions affect dividend decisions. The results generated from this study will be helpful to the market participants like investors, stock dealers, and investment managers who can consider the changes in the significant variables in the study and judge the payout policies of firms in the different industries in CSE.

Limitations and directions for future studies

Even though this study aims to focus on the payout policies, only the dividend pay-out policy is taken into consideration due to the lack of share repurchases in Sri Lanka. This work is limited to 105 listed firms in Sri Lanka and utilizes five years. While this time frame was selected for practical reasons, extending the sample period might generate different or more robust results. Resource constraints, such as data collection limitations and time constraints were explicitly acknowledged to transparently convey the practical challenges faced during the research. Future research should be conducted considering all the listed firms of

CSE. Despite using two measures of corporate finance, the researcher should include debt maturity to increase the depth of this study. In general, this study has a defined scope that focuses on specific aspects of payout policy, investment opportunities, and corporate finance variables within selected listed firms in Sri Lanka. In the future, more academic research should be conducted on this topic, to establish if a relationship exists between investment opportunities and corporate finance variables with dividend payout policies of quoted firms and financial firms of Sri Lanka. The findings of this study will relate to the Sri Lankan context. If these results are utilized for different markets or countries, attention should be paid to market dynamics and changes.

References

Abor, J. and Bokpin, G.A. (2010). Investment opportunities, corporate finance, and dividend payout policy: Evidence from emerging markets, *Studies in Economics and Finance*, 27(3), 180–194.

Aivazian, V., Booth, L., & Cleary, S. (2003). Do emerging market firms follow different dividend policies from US firms?. *Journal of Financial Research*, *26*(3), 371-387.

Allen, F. and Michaely, R. (1995) 'Chapter 25 Dividend policy', 9, pp. 793–837.

Almazan, A. *et al.* (2010). Financial structure, acquisition opportunities, and firm locations, *Journal of Finance*, 65(2), 529–563.

Amidu, M. and Abor, J. (2006). Determinants of dividend payout ratios in Ghana, *Journal of Risk Finance*, 7(2), 136–145.

Arbor, A. *et al.* (1993). The investment opportunity set and accounting procedure choice, 16, 407–445.

Ardestani, H.S. *et al.* (2013). Dividend payout policy, investment opportunity set and corporate financing in the industrial products sector of Malasya, *Journal of Applied Finance & Banking*, 3(1), 123–136.

Baker, H.K. *et al.* (2019). Dividend policy determinants of Sri Lankan firms: A triangulation approach, *Managerial Finance*, 45(1), 2–20.

Bokpin, G.A. (2011). Ownership structure, corporate governance and dividend performance on the Ghana Stock Exchange, *Journal of Applied Accounting Research*, 12(1), 61–73.

Boţoc, C. and Pirtea, M. (2014). Dividend payout-policy drivers: Evidence from emerging countries', *Emerging Markets Finance and Trade*, 50, 95–112.

Boudry, W.I., Kallberg, J.G. and Liu, C.H. (2013). Investment opportunities and share repurchases, *Journal of Corporate Finance*, 23, 23–38.

Brav, A. *et al*. (2005). Payout policy in the 21st century, *Journal of Financial Economics*, 77(3), 483–527.

Brealey, R. A., Myers, S. C., Allen, F., & Mohanty, P. (2018). Principles of corporate finance, *McGraw-Hill Education*.

Dhanani, A. (2005). Corporate dividend policy: The views of British financial managers', *Journal of Business Finance and Accounting*, 32(7–8), 1625–1672.

Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay?. *Journal of Financial Economics*, *60*(1), 3-43.

Gaver, J. J., & Gaver, K. M. (1993). Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Accounting and economics*, *16*(1-3), 125-160.

Giriati (2016). Free cash flow, dividend policy, investment opportunity set, opportunistic behavior and firm's value: (A Study About Agency Theory), *Procedia - Social and Behavioral Sciences*, 219, 248–254.

Gul, F.A. and Kealey, B.T. (1999). Chaebol, investment opportunity set and corporate debt and dividend policies of Korean companies, *Review of Quantitative Finance and Accounting*, 13(4), 401–416.

Gunathilaka, C. (2014) 'What drives the payout policy? evidence from Sri Lanka: a dynamic panel data analysis', *Wayamba Journal of Management*, 3(2), 1.

Gunawan, K. E., Murhadi, W. R., & Herlambang, A. (2019, March). The effect of good corporate governance on dividend policy. In *16th International Symposium on Management (INSYMA 2019)* (pp. 57-61). Atlantis Press.

Higgins, R.C. (1981). Sustainable growth under inflation, *Financial Management*, 10(4), 36.

Hutchinson, M. and Gul, F.A. (2004). Investment opportunity set , corporate governance practices and firm performance, 10, 595–614.

Jayasinghe (2021). Factors innuencing dividend policy: Companies listed in Sri Lanka', *International Journal of Economics Business and Human Behaviour*, 2(1), 1.

Jensen, M.C. (2009). Agency costs of free cash flow, corporate finance, and takeovers, *Corporate Bankruptcy*, 76(2), 11–16.

Jensen, M.C. and Meckling, W.H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure, *Corporate Governance: Values, Ethics and Leadership*, 77–132.

Jones, S. and Sharma, R. (2001). The association between the investment opportunity set and corporate financing and dividend decisions: Some Australian evidence, *Managerial Finance*, 27(3), 48–64.

Kallapur, S. (2013). The investment opportunity set : Determinants , consequences and measurement, *Managerial Finance*, 27(3), 3–15.

Lumapow, S.L. and Tumiwa, A. (2017). The effect of dividend policy, firm size, and productivity to the firm value, *Research Journal of Finance and Accounting*, 8(22), 20–24.

Lyandres, E. and Zhdanov, A. (2013). Investment opportunities and bankruptcy prediction, *Journal of Financial Markets*, 16(3), 439–476.

Mbodja, M. and Mukherjee, T. (1994). An investigation into causality among firms' dividend, invesment, & financing decision, *Journal of Financial Research*, 17(4), 517–530.

McCabe, G. M. (1979). The empirical relationship between investment and financing: a new look. *Journal of Financial and Quantitative Analysis*, *14*(1), 119-135.

Myers, S.C. (1984). The capital structure puzzle, *The Journal of Finance*, 39(3), 574–592.

Nazar, M.C.A. (2021), The influence of corporate governance on dividend decisions of listed firms: Evidence from Sri Lanka, *Journal of Asian Finance, Economics and Business*, 8(2), 0289–0295.

Peterson, P. P., & Benesh, G. A. (1983). A reexamination of the empirical relationship between investment and financing decisions. *Journal of Financial and Quantitative Analysis*, *18*(4), 439-453.

Prasetya Margono, F. and Gantino, R. (2021). Influence of firm size, leverage, profitability, and dividend policy on firm value of companies in Indonesia stock exchange, *Copernican Journal of Finance & Accounting*, 10(2), 45–61.

Pruitt, S.W. and Gitman, L.J. (1991). The Interactions between the investment, financing, and dividend decisions of major U.S. firms', *Financial Review*, 26(3), 409–430.

Renneboog, L. and Trojanowski, G. (2007). Control structures and payout policy, *Managerial Finance*, 33(1), 43–64.

Rozeff, M. S. (1982). Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Research*, *5*(3), 249-259.

San Martín Reyna, J.M. (2017). Ownership structure and its effect on dividend policy in the Mexican context', *Contaduría y Administración*, 62(4), 1199–1213.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Schellenger, M.H., Wood, D.D. and Tashakori, A. (1989). Board of director composition, shareholder wealth, and dividend policy, *Journal of Management*, 15(3), 457–467.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). Research methods for business. *Education+ Training*, *49*(4), 336-337.

Smith, C.W. and Watts, R.L. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Financial Economics*, 32(3), 263–292.

Stephen A. Ross (1997). The determination of financial structure: the incentive-signalling approach, *CFA Digest*, 27(1), 5–7.

Takhtaei, N. (2014). Relationship between Firm Age and Financial Leverage with Dividend Policy, *Asian Journal of Finance & Accounting*, 6(2), 53.

Tan, P. M., Chye Koh, H., & Chin Low, L. (1997). Stability of financial ratios: A study of listed companies in Singapore. *Asian Review of Accounting*, *5*(1), 19-39.

Wang, D.H.M. (2010). Corporate investment, financing, and dividend policies in the high-tech industry', *Journal of Business Research*, 63(5), 486–489.

Yarram, S.R. and Dollery, B. (2015). Corporate governance and financial policies: Influence of board characteristics on the dividend policy of Australian firms', *Managerial Finance*, 41(3), 267–285.

Public Governance and Economic Growth: A Global Perspective

Aseni Dharmadasa* & Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

asenivedangi@gmail.com*,emil@wyb.ac.lk

Abstract

This study empirically investigates the complex relationship between world governance indicators and economic growth across a diverse range of 184 countries and seven regions over 20 years spanning from 2002 to 2021. Employing Principal Component Analysis (PCA), essential governance indicators were aggregated into a newly derived principal component, the Cumulative Governance Index (CGI). We use a fixed effect model to analyze panel data to explore these dynamics. The findings of this study reveal a significant and nuanced association between governance indicators and economic growth. The CGI demonstrates a statistically significant negative correlation with GDP per capita growth (%), suggesting that enhanced governance may be linked to moderated economic growth, as the CGI encapsulates. This underscores the need for context-specific governance reforms to achieve sustainable economic development. Furthermore, our study highlights the importance of investigating regional variations in governance and economic growth dynamics. This research significantly contributes to the broader discourse on the impact of governance on economic outcomes, emphasizing the necessity for customized governance policies to foster prosperity within distinct regions. This research contributes to the broader discourse on the impact of governance on economic outcomes and underscores the need for tailored governance policies to foster prosperity within specific regions. The significance of this study lies in its potential to inform policymakers, international organizations, and scholars' alike, guiding efforts toward more effective governance strategies tailored to the unique needs of diverse regions and countries. By shedding light on the complex interplay between governance and economic growth, this research aims to promote more informed and context-sensitive decision-making in the pursuit of sustainable and equitable development on a global scale.

Keywords: *World governance indicators, Economic growth, Composite governance index, Public governance, Foreign direct investments*

Introduction

Nations are increasingly realizing the critical need to protect their economies from uncertainty and external shocks in the fast-globalizing commercial landscape of today. This goal is accomplished through implementing strong macroeconomic policies, strengthening financial institutions, and improving governance structures. Kaufmann, Kraay, & Mastruzzi (2011) examined the aggregate world governance indicators, combining many indicators to look into the broader range of governance. The World Bank's Worldwide Governance Indicators (WGI) serve as the foundation for this study, encompassing six crucial governance dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. According to Maksimovic (1998), nations with highly effective legal systems tend to build their economies more quickly as their ability to draw foreign capital into their capital markets. Lahouij (2016) employed panel data from 2002 to 2013 to examine how governance and other factors influenced economic growth. The results of the study highlighted a strong relationship between governance and economic development. The past two decades have witnessed extensive empirical studies exploring factors influencing long-term economic development, with institutional quality identified as a primary determinant of sustained success (Acemoglu, Johnson, & Robinson, 2012; Pinar, 2015). Economic growth is influenced by ethnic diversity, income inequality, social capital, market freedom, religion, race, human capital, governance, and political systems (Salam, Alshiab, & Lahrech, 2020).

The existing body of research recognized the pivotal role of governance in shaping economic growth. However, a notable research gap persists in realizing the intricate relationship between six governance dimensions and economic growth through two distinctive approaches. First, the paper aims to explore the connection between world governance indicators and economic growth individually. Second, it proposes a novel methodology, employing Principal Component Analysis (PCA) to craft a Cumulative Governance Index (CGI) that amalgamates six governance dimensions. This CGI serves as a unified indicator to examine its correlation with economic growth. Notably, the study deviates from prior research by examining the impact of world governance indicators individually and through a comprehensive aggregate index, thereby contributing a nuanced perspective to the empirical literature. Moreover, the analysis extends beyond a global lens by incorporating a country-wise examination and accounting for regional effects. The study incorporates Foreign Direct Investment (FDI) as a crucial control variable. Through these approaches, the research seeks to bridge the identified gap and offer valuable insights into the substantial influence of governance on economic growth.

The research aims to unravel the intricate relationship between WGI and economic growth at the country and regional levels. The objectives include identifying the relationship between specific governance dimensions (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption) and economic growth. Additionally, the study explores the overall significance of the Cumulative Governance Index (CGI) in influencing economic growth.

To achieve the above objectives, the following research questions are developed.

- Is there a significant relationship between voice and accountability and economic growth?
- Does political stability and absence of violence significantly impact Economic growth?
- What is the relationship between government effectiveness and economic growth?
- Does regulatory quality have a significant impact on economic growth?
- How does the rule of law affect economic growth?
- Is there a significant relationship between control of corruption and economic growth?
- What is the significance of the relationship between the overall public governance and economic growth?

In addressing these questions, the research not only fills a critical research gap but also provides valuable insights into the distinctive contributions of rising economies in the context of global economic development. The study's innovative approach lies in introducing the Cumulative Governance Index (CGI) and conducting a regional comparative analysis, enriching the global conversation on the vital relationship between governance and economic growth.

Objectives

The primary objective of this research is to understand how governance indicators influence economic growth and to provide insights into the multifaceted nature of governance. By constructing a Composite Governance Index (CGI), we aim to offer a holistic perspective on the impact of various governance factors on economic growth. Additionally, the study seeks to identify regional variations in the governance-growth relationship, emphasizing the importance of context-specific governance strategies.

Methodology

This research adopts a positivist philosophy, emphasizing objectivity and empirical evidence, to explore the relationship between Worldwide Governance Indicators (WGIs) and economic growth across countries. It employs a deductive approach, formulating hypotheses based on prior theory and testing them with quantitative data from the World Bank dataset. The study's population includes countries worldwide, with a sample of 184 selected due to data constraints. These countries are grouped into seven regions. The primary data source is the World Bank dataset, covering 2002 to 2021, and the STATA software package utilized to analyze data. The study examines various WGIs and microeconomic variables, including GDP per capita growth and FDI net inflows, to examine their impact on economic growth, totaling 3680 observations.

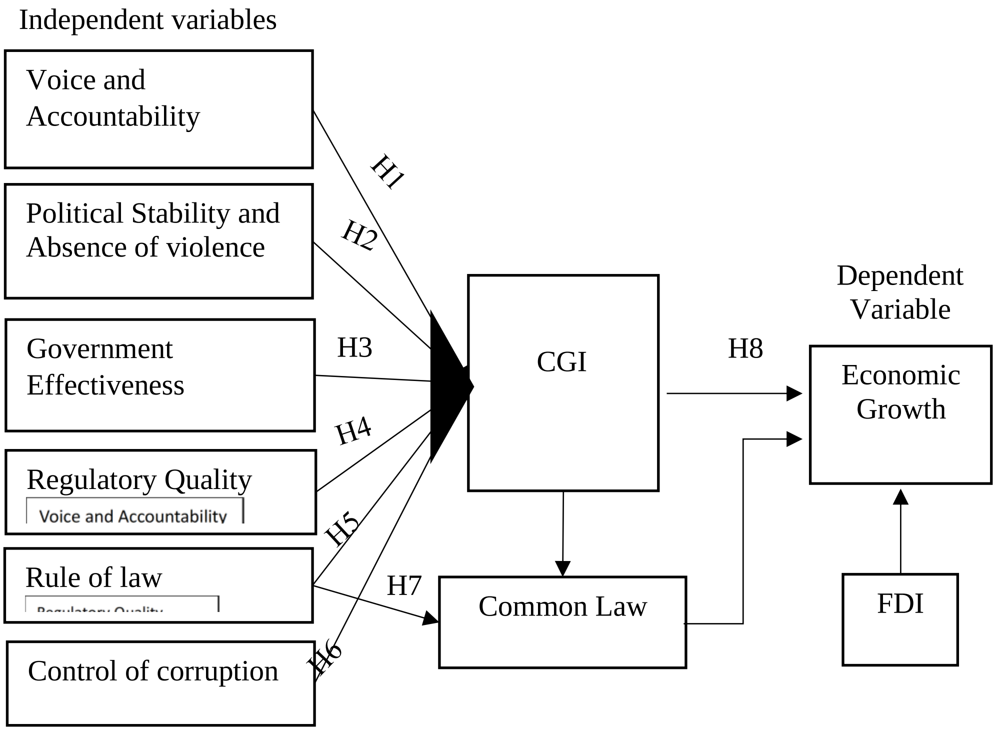

Figure 1: Illustration of Conceptual Framework

As the first step, regression models will be developed further to analyze the relationship between WGIs and economic growth separately. As the second step, PCA analysis will be carried out to obtain an aggregate governance indicator, CGI. The ordinary Least Square (OLS) method is applied to estimate a simple fixed effects model without controlling for the endogeneity as our benchmark. Furthermore, the Hausman test will be used to select the best model from fixed effect and random effect.

Results

Model 1 unveils nuanced relationships between individual governance dimensions and economic growth. Political stability emerges as a robust driver of economic growth, exhibiting a positive and statistically significant correlation with GDP per capita growth (%). Regulatory quality and the rule of law also demonstrate positive associations. In contrast, voice and accountability, and control of corruption exhibit negative correlations with economic growth. Government effectiveness, surprisingly, does not reach statistical significance, highlighting the intricate nature of its impact.

$$GDP_{it} = a + \beta_1 \mathrm{Voice.Acc}_{it} + \beta_2 \mathrm{Poli.Stab}_{it} + \beta_3 Gov.Eff_{it} + \beta_4 \mathrm{Reg.Qual}_{it} + \beta_5 Rul.Law_{it} + \beta_6 Con.Corrup_{it} + \beta_7 FDI_{it} + \varepsilon_{it} \quad (1)$$

Table 1 - Regressions for Model (1)

	Dependent Variable: GDP				
	1	2	3	4	5
Voice and	-0.803***	-0.748***	0.0246	-0.589***	-0.803***
accountability	(0.230)	(0.239)	(0.435)	-0.193	(0.286)
Political stability	0.772***	0.682**	1.422***	0.833	0.772***
and absence of violence	(0.256)	(0.303)	(0.550)	-0.579	(0.238)
Government	0.297	0.511*	0.123	0.425	0.297
effectiveness	(0.260)	(0.280)	(0.347)	-0.301	(0.283)
Regulatory	0.934***	0.813***	0.345	0.784*	0.934***
quality	(0.188)	(0.196)	(0.241)	(-0.449)	(0.318)
Rule of law	-1.677***	-1.569***	-3.617***	-2.051*	-1.677***
	(0.441)	(0.467)	(0.944)	(-1.116)	(0.489)
Control of	-0.368*	-0.377*	0.442	-0.242	-0.368
corruption	(0.188)	(0.197)	(0.281)	-0.32	(0.224)
FDI, net inflows	0.000	0.001	0.001	0.000	0.000
(% of GDP)	(0.003)	(0.003)	(0.004)	-0.00288	(0.004)
common law	0.0733	-0.0963	3.586***	0.120	0.0733
	(0.208)	(0.245)	(1.287)	(-0.500)	(0.250)
Constant	2.876***	2.797***	3.241***	3.330***	2.876***
	(0.674)	(0.690)	(1.059)	(-1.043)	(0.664)
Year dummy	yes	yes	yes	yes	yes
Pooled	yes	no	no	no	no
Random effect	no	yes	no	no	no
Fixed effect	no	no	yes	no	no
Region effect	no	no	no	yes	no
Robust SE	no	no	no	no	yes
Region effect	yes	no	no	yes	yes
Groups	67	67	67	67	67
Observations	1,101	1,101	1,101	1,101	1,101
R-squared	0.480	0.474	0.496	0.479	0.480

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Model 2, pivoting towards the CGI, provides a comprehensive view of governance's influence on economic growth. CGI exerts a statistically significant impact on economic growth, emphasizing the importance of comprehensively assessing governance. However, regional analyses within Model 2 reveal intriguing patterns. At the regional level, CGI is negatively associated with economic growth, suggesting that the relationship between governance and growth is context-specific and influenced by regional dynamics.

$$GDP_{it} = a + \beta_1 \mathrm{CGI}_{it} + \beta_2 FDI_{it} + \beta_3 \mathrm{CGI} * \mathrm{Com.Law} + \varepsilon_{it} \quad (2)$$

Table 2 - Regressions of Model (2)

	Dependent Variable: GDP				
	1	2	3	4	5
CGI	-0.231***	-0.039	0.162	-0.206	-0.206***
	(0.052)	(0.063)	(0.199)	(0.246)	(0.073)
FDI	0.013**	0.009	0.007	0.010	0.010
	(0.005)	(0.005)	(0.006)	(0.008)	(0.010)
Common law	-0.036	-0.256*	-0.548	-0.063	-0.063
	(0.112)	(0.151)	(0.482)	(0.248)	(0.132)
Intercept	2.842***	1.742***	1.813***	2.865***	2.865***
Year dummy	yes	yes	yes	yes	yes
Pooled	yes	no	no	no	no
Random effect	no	yes	no	no	no
Fixed effect	no	no	yes	no	no
Region effect	no	no	no	yes	no
Robust SE	no	no	no	no	yes
Region effect	yes	no	no	yes	yes
Groups	184	184	184	184	184
Observations	3,680	3,680	3,680	3,680	3,680
R-squared	0.1839	0.1647	0.1587	0.1838	0.1839

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Discussion

The findings of this research contribute significantly to our understanding of the intricate interplay between governance indicators and their influence on economic growth. These outcomes highlight the multifaceted nature of governance, underscoring that different governance dimensions have varying impacts on economic growth. First and foremost, our study reveals that political stability, regulatory quality, and the rule of law are essential in positively influencing economic growth. This suggests that countries with stable political environments, effective regulatory frameworks, and a firm adherence to the rule of law tend to experience more robust economic growth. These findings align with existing literature and emphasize the importance of these governance aspects in fostering economic development.

On the other hand, voice and accountability, and control of corruption exhibit negative associations with economic growth. This implies that countries with limited citizen engagement and a higher prevalence of corruption tend to experience hindered economic growth. It underscores the significance of addressing these governance issues to promote economic prosperity. Interestingly, government effectiveness, while playing a role in the governance landscape, does not reach statistical significance in its relationship with economic growth. This finding suggests that the impact of government effectiveness on economic growth is complex and influenced by various factors that may not be fully captured in the model. It calls for further investigation into this aspect to gain a more comprehensive understanding.

Furthermore, our research introduces the Cumulative Governance Index (CGI) as an innovative analytical tool for assessing governance holistically. This composite index provides a comprehensive overview of a country's governance performance, allowing for a more nuanced evaluation. It has been demonstrated to significantly affect economic growth, emphasizing the need for a holistic assessment of governance when considering its impact on economic development. At the regional level, our findings reveal a negative correlation between CGI and economic growth. This highlights the need for tailored governance strategies considering regional disparities and nuances. Regional context plays a crucial role in shaping the relationship between governance and economic growth, and policymakers should incorporate this context when formulating governance interventions. This research has multiple implications and applications. Firstly, it examines the impact of governance indicators individually. Secondly, it offers a comprehensive and nuanced approach to understanding the impact of governance indicators on economic growth. The introduction of CGI as an analytical tool enhances our ability to assess governance holistically in future research and policy-making.

Based on these findings, we provide policy recommendations to harness the potential of governance indicators to stimulate economic growth. These recommendations encompass overarching strategies and region-specific interventions, acknowledging the need for tailored approaches in diverse socio-economic contexts. By implementing these policy recommendations, countries can work towards fostering sustainable economic development through improved governance practices.

Implications and Limitations

The study's implications include the need for tailored governance strategies that consider regional disparities and nuances in fostering sustainable economic development. The Composite Governance Index (CGI) offers a comprehensive approach to assessing governance holistically. However, at the regional level, CGI is negatively associated with economic growth, emphasizing the context-specific and regionally influenced nature of the governance-growth relationship. The limitations of the research include data constraints and the necessity for further investigation into government effectiveness and regional disparities. The findings provide valuable insights for policymakers to formulate governance interventions that promote economic growth while considering regional contexts.

During this study, we encountered several limitations, primarily associated with data availability and resources. Notably, the absence of relevant data posed a significant constraint. The WGIs databank maintained by the World Bank contains a comprehensive list of 217 nations. However, we had to exclude data from 33 countries due to the unavailability of specific data points. Consequently, our study primarily relied on data from 184 nations, which affected the comprehensiveness of our analysis on a global scale. This limitation underscores the importance of increased data availability and coverage to facilitate a more thorough investigation of the relationship between governance and economic growth worldwide.

This study contributes to scholarly understanding by highlighting the value of aggregating governance indicators into composite indices, like the CGI, to better capture their collective impact. Our findings provide empirical evidence reinforcing the relevance of good governance for economic growth. The research opens avenues for future investigations, exploring nuanced dynamics between governance dimensions and their impact on economic growth. Further research could delve into causal mechanisms and governance's role in different contexts and regions, offering insights for policy development and academic exploration.

References

Acemoglu, D., Johnson, S. and Robinson, J.A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review,* 91(5), 1369-1401.

Acemoglu, D., Johnson, S. and Robinson, J.A. (2005). Institutions as a fundamental cause of long-run growth. *Handbook of Economic Rrowth,* 1, 385-472.

Acemoglu, D., Johnson, S. and Robinson, J.A. (2012). The colonial origins of comparative development: An empirical investigation: Reply. *American Economic Review,* 102(6), 3077-3110.

Demirgüç-Kunt, A. and Maksimovic, V. (1998). Law, finance, and firm growth. *The Journal of Finance,* 53(6), 2107-2137.

AlShiab, M.S.I., Al-Malkawi, H.A.N. and Lahrech, A. (2020). Revisiting the relationship between governance quality and economic growth. *International Journal of Economics and Financial Issues,* 10(4), 54.

Lahouij, H. (2016). Does governance matter to economic growth? Evidence from MENA countries. Available at: https://thekeep.eiu.edu/lib_awards_2016_docs/5/

Pinar, M. (2015). Measuring world governance: revisiting the institutions hypothesis. *Empirical Economics*, 48, 747-778.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2009). Governance matters VIII: aggregate and individual governance indicators, 1996-2008. *World bank policy research working paper,* (4978).

Kaufmann, D., Kraay, A., Lora, E. and Pritchett, L. (2002). Growth without governance [with comments]. *Economia,* 3(1), 169-229.

Kaufmann, D. and Kraay, A. (2008). Governance indicators: where are we, where should we be going?. *The World Bank Research Observer,* 23(1), 1-30.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2004). Governance matters III: Governance indicators for 1996, 1998, 2000, and 2002. *The World Bank Economic Review,* 18(2), 253-287.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues1. *Hague Journal on the Rule of Law,* 3(2), 220-246.

Joshi, S. and Kansil, R., 2023. Linkage Between Corporate Governance, Foreign Direct Investment and Economic Growth—Empirical Evidence from India. In Looking at and Beyond Corporate Governance in India: A Journey of Three Decades of Reforms (pp. 89-109). Singapore: Springer Nature Singapore..

Kraay, A., Zoido-Lobaton, P. and Kaufmann, D. (2002). Governance matters II: Updated indicators for 2000–01. *The World Bank.*

Impact of Sustainability Reporting Practices on Financial Performance of Firms Listed Under Consumer Staple & Discretionary Sector in CSE: Comparison of Pre & During the Financial Crisis in Sri Lanka

Ishini Wasala & Oshani Mendis*

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

ishiniwasala514@gmail.com, oshani@wyb.ac.lk*

Abstract

The study explores the relationship between sustainability reporting and the financial performance of firms listed under consumer staple and discretionary sector companies listed under the Colombo Stock Exchange as a comparison of pre and ongoing financial crisis in Sri Lanka. It generally analyzes and interprets the link between environmental disclosure, economic disclosure, financial performance, and the financial crisis in the context of Sri Lanka. Further, the research expects to explore whether there is a positive/negative connection between sustainability reporting and firm performance, and whether there is a massive distinction between the degree of sustainability reporting across the period from 2016 to 2021. The findings of this research show strong positive correlations, suggesting that higher sustainability reporting disclosures encourage higher financial performance of the companies. The study suggests that to increase profitability, corporations should prioritize their involvement in environmental and economic transparency initiatives. Though the study offers insightful information, it is not without flaws. For example, only 85% of the population was used as the sample for the research, and there were only a few indicators used to gauge the firm's financial performance. To gain a more thorough picture of Sri Lanka's sustainability reporting framework, further study is advised to investigate varied industries, increase the sample size, and extend the number *of years.*

Keywords: *Sustainability reporting, Financial performance, Financial crisis, Legitimacy theory, Stakeholder theory*

Introduction

Businesses compete fiercely to provide a wide range of goods and services in today's global business environment, motivated by the unwavering goal of boosting profits. But that needs to be done safely without compromising the future generations by using them. Thus, sustainability is the ability to satisfy our own needs and desires without destroying them for future generations. It is the culmination of an organization's economic, environmental, and social components. When talking about the concept of sustainability, the Global Reporting Initiative (GRI) is a commonly used guideline when recording sustainability. The GRI Sustainability Reporting Guidelines offer reporting principles, standard disclosures, and an implementation manual for the preparation of sustainability reports by organizations, regardless of their size, sector, or location.

The financial performance of a firm means "how well a company can use its assets on their business and create revenues". The measurement of enterprise financial performance gives advantages externally as well as internally. From the external standpoint, it helps investors in forecasting the future earning capacity of the firm, and from the internal standpoint, the managers can list the objectives and future earnings of the firm through financial performance measurement (Venanzi, 2012). Sri Lanka is currently experiencing its worst financial crisis in a decade which starts after 2019. This is Sri Lanka's greatest economic crisis since gaining independence in 1948. This crisis influences a lot in the financial performance of the companies. This study is a combination of all the facts stated above.

Objectives

One of the primary objectives of this study is to examine the impact of sustainability reporting on the financial performance of the firms listed under the consumer staple and discretionary sector in the CSE by comparing the pre-and ongoing crises in Sri Lanka. Further, this elaborates on the impact of environmental disclosure, economic disclosure, and social disclosure on the firm's financial performance.

In addition, this study aims to assess the impact of the financial crisis on the sustainability reporting of companies listed under consumer staple and discretionary sector. This gives an idea regarding how the financial crisis affects sustainability reporting in pre- and ongoing financial crises. Furthermore, the research study focuses on company age and firm’s size to get an overall view on the research.

Theoretical Background

In recent years, corporate sustainability and its effect on financial performance have become important study topics in the corporate world. Sustainable development has been described as “it is necessary to meet present-day requirements while protecting resources for use by future generations” (Kribble, 2007). Publicly disclosing the effects of economic, environmental, and social practices- both positive and negative on the achievement of sustainable development goals is known as sustainability reporting (Global Sustainability Standards Board (GSSB, 2016). Financial performance is a metric used to evaluate how well a company uses resources from its main line of business to produce income. Performance has traditionally been categorized as either financial or non-financial (Ittner, 2008). Sales growth, return on equity (ROE), profits before interest and taxes (EBIT), and return on investment (ROI) have been used traditionally in accounting to analyze financial success (Zahra, 1995). On the other hand, non-financial performance is typically assessed using operational key performance indicators (KPIs), market share and innovation performance (Agarwal, 2013).

The researcher has used Legitimacy Theory, Stakeholder Theory, and Agency Theory as the theoretical background of the study. Lindbolm (1993) defined legitimacy as "a condition which exists when an entity's value system is in harmony with the value system of the society". According to the legitimacy theory, sustainability reporting is a good technique for acquiring social acceptance (Ching & Gerab, 2017). Stakeholder theory means a company's ability to achieve its business objectives by building a stronger relationship with other stakeholders. By providing additional business considerations for the reasons why organizations should work toward long-term development, stakeholder theory enhances the concept of corporate sustainability (Popa et al., 2009). According to Jensen and Mackling, symmetry and conflicts of interest between managers and shareholders describe the connection between principles and agents under information in agency theory (Jensen & Meckling, 1976). The agent must follow a sustainability reporting methodology to fulfill their duty to increase shareholder wealth.

Methodology

In this research study, the researcher used the quantitative approach because it required statistical findings to gather practical information. This study is deductive and draws its information from the financial statements of firms that are listed under the consumer staple and discretionary sector in the Colombo Stock

Exchange Sri Lanka. Consumer staple and discretionary sector was chosen as it was the major sector which affected due to the financial crisis in Sri Lanka.

The current study uses secondary data through annual reports and sustainability reports. The average information throughout the five years between FY 2016 to FY 2021 has been utilized to enable cross-sectional research. Thus, the final sample comprises 102 consumer staple and discretionary sector companies which are selected from the population of 120 companies; listed on the CSE. GRI Guidelines from 2016 were employed in this research study because the study's beginning year of 2016 was taken into account.

The SPSS tool was used to run the test of this study. Several statistical instruments, including - Descriptive statistics, multiple regression, and paired sample T-Test have been utilized to obtain the research objectives.

Conceptual framework and variable measurements

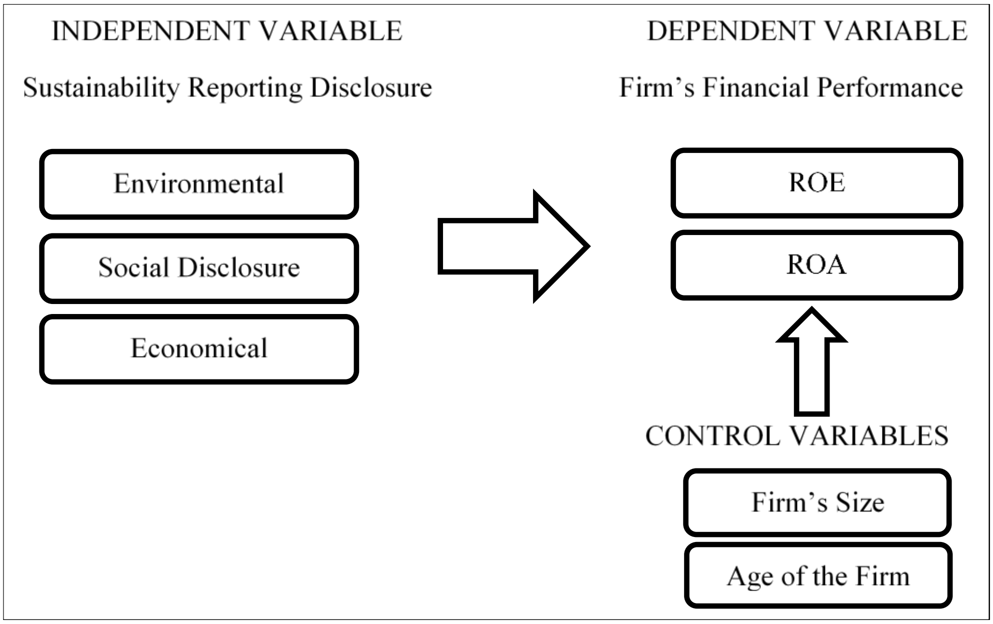

Figure 1: Conceptual Framework

The main hypothesis of this study is as follows;

H1: There is an impact of sustainability reporting on the financial performance of firms listed under the consumer staple and discretionary sector in the CSE in pre and ongoing financial crisis in Sri Lanka.

The sub hypotheses are as follows,

H1: There is an impact of sustainability reporting on the financial performance of firms listed under the consumer staple and discretionary sector in the CSE

H2: There is an impact of economic disclosures on the firm's financial performance of listed consumer staple and discretionary sectors in CSE.

H3: There is an impact of environmental disclosures on the firm's financial performance of listed consumer staple and discretionary sectors in CSE.

H4: There is an impact of social disclosures on the firm's financial performance of listed consumer staple and discretionary sectors in CSE.

Table 1: Variable Operationalization

Variable	Definition of variable	Equation	Category of data
Sustainability reporting index	The combination of all environmental, economic and social disclosure	$\frac{\text{Amount of compilation (n)}}{\text{Number of standards considered}}$	Ratio
Economic Disclosure	The profitability a company produces for its shareholders, or its financial performance.	$\frac{\text{Amount of compilation (n)}}{\text{Number of economic standards considered}}$	Ratio
Environmental Disclosure	It entails providing for the necessities of housing, food, water, and air while also making sure that the environment is neither harmed nor damaged.	$\frac{\text{Amount of compilation (n)}}{\text{Number of environmental standards considered}}$	Ratio
Social Disclosure	Social disclosures deal with how a company handles its interactions with many groups of stakeholders.	$\frac{\text{Amount of compilation (n)}}{\text{Number of social standards considered}}$	Ratio
ROA	This ratio compares company's earnings (net income) to the capital it has invested in assets.	$\frac{\text{Net income}}{\text{Average total assets}}$	Ratio

ROE	Net income or profit is compared to shareholders' equity combined to create the return on equity.	$\frac{\text{Net income}}{\text{Average shareholder equity}}$	Ratio

Results and Findings

The purpose of this data analysis is to investigate the impact of sustainability measures on financial performance in Sri Lankan consumer staple and discretionary sector enterprises. This study developed and evaluated 3 hypotheses, and the results show a substantial positive relationship between social size and financial performance in consumer staple and discretionary sector enterprises in Sri Lanka.

Descriptive statistics

Table 2: Descriptive Statistics

	N	Range	Min	Max	Sum	Mean		SD	Variance
	Stat	Stat	Stat	Stat	Stat	Stat	SE	Stat	Stat
ROE	113	315.6	-112	204	1731.2	15.32	2.96	31.44	992.72
ROA	112	148	-22	126.4	1267	11.28	1.74	18.42	653.06
ENV	107	11410	90	11500	149350	1396	246.6	2550.6	6511569
ECO	108	11410	90	11500	141050	1308	232.1	2411.01	5860721
SOC	106	11528	72	11600	124383	1165	208.1	2149.05	4690788
Firm Size	109	109114	86	109200	373810	3380	1481	15633.4	936828011
Age	109	171	3	174	4767.4	43.74	2.79	29.08	845.87

We can observe that ROE relative to net income has a range of 315.625, from -112 to 204. The mean ROE-Net Income is 15.32, with a standard deviation of 2.9571, showing substantial variability. ROA in relation to Net Income is represented by the "ROA-Net Income" variable, which ranges from -22 to 126.41. The mean ROA-Net Income is 11.28, with a standard deviation of 1.74, indicating less fluctuation than ROE-Net Income. The sample is selected accordingly to sufficiency of data.

Regression analysis

In the regression analysis the social and firm size shows a significant influence on the ROE- Net Income of the companies as their p-value is lower than 0.05. Apart from that all other environmental, economic, and company age doesn't show any influence for the ROE- Net Income. On the other hand, all the independent variables show a negative impact on the ROA – Net Income of the firms. The environment and economic variable is excluded in above mentioned years as it doesn’t shows sufficient amount of data.

Table 3: Regression Analysis of ROE-Net Income 2016/2021

Year	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
ENV	0.720	0.790	n/a	n/a	n/a
ECON	0.069	0.631	n/a	n/a	n/a
Social	0.568	0.815	0.213	0.002	0.886
Firm Size	0.893	0.88	0.384	0.011	0.779
Age	0.671	0.845	0.375	0.982	0.065

Paired sample t-test

Table 4: Impact of ROA on Company Age

Year	Mean	95% Confidence Interval	P-Value
2016/2017	-19.30	(-31.65, -6.96)	<0.002
2017/2018	-33.84	(-39.45, -28.23)	< 0.001
2018/2019	-34.05	(-39.69, -28.41)	< 0.001
2019/2020	-36.51	(-42.03, -30.98)	< 0.001
2020/2021	-38.85	(-44.51, -33.20)	< 0.001

This study examined the relationship between ROA-Net Income and Company age across five pairs of years. The results reveal consistent and statistically significant mean differences, indicating that ROA-Net Income varies across company age segments.

Discussion and Conclusion

The present study aims to investigate the impact of financial metrics on sustainability reporting. This research seeks to explore the relationship between financial indicators and the dimensions of social impact, as well as the influence of firms’ size on this association. By examining various financial metrics, such as profitability, liquidity, and leverage, we aim to gain a comprehensive understanding of their effects on both social impact and firms’ size. The findings of this study indicate that there exists a discernible relationship between financial metrics such as Return on Equity (ROE) and Return on Assets (ROA), and the size of firms as well as social factors observed within these timeframes.

The conducted regression analyses have provided evidence suggesting that, for the majority of cases examined, environmental and economic factors exhibited limited or non-existent statistically significant effects on the return on equity (ROE) and return on assets (ROA). This observation suggests that there may exist additional variables beyond those examined in the present study that could potentially exert an influence on financial performance.

The results of the paired samples tests indicate a statistically significant relationship between company age and ROA across the majority of the observed years. The findings indicate that there exists a potential relationship between a company's age and its profitability, implying that younger companies may exhibit distinct financial performance trends in contrast to their more established counterparts.

Discussion with past literature

The findings of the analysis indicated a negative relationship between environment disclosure and firm performance measures such as Return on Equity (ROE) and Return on Assets (ROA). However, the sub-hypothesis one is rejected as this relationship was not statistically significant. When it comes to the relationship between economic disclosure and financial performance, the sub hypothesis two is rejected as its p-value is higher than 0.05. Furthermore, in social disclosure and financial performance the sub-hypothesis three is accepted as the p-value is higher than 0.05. Therefore, hypothesis H1 is partially accepted. This finding is similar to the study by Ching and Gerab (2017) the environmental dimension's disclosure is less transparent than the ones for the economic and social dimensions. As a result, the quality of these two sustainability dimensions has improved over time more as a result of their interactions and synergies. According to Perrin & Tencati (2006), the study of stakeholder relationships looks for the viability of a firm's connections with its stakeholders via the use of qualitative and quantitative data. To comprehend the financial costs and advantages associated with social activities and policies, this study also includes elements of social accounting. After the Covid-19 pandemic and financial crisis in Sri Lanka the economic and social factor behaviors have changed, so customers now value companies that are prosocial, socially responsible, and concerned with the requirements of society as a whole rather than just those that can provide their basic wants (Qiu et al., 2016).

Implications

This study has significant implications for the scholarly understanding of the field. By investigating the phenomenon at hand, this research contributes to the existing body of knowledge and expands our understanding of the subject matter. The findings shed light on various aspects that were previously unexplored or underexplored, thereby filling gaps in the literature. Companies need to engage in more sustainable activities to face economic changes. Further, the companies have to engage in more economic and environmental disclosure-related activities to enhance their profitability.

References

Agarwal, P. (2013). Impact of Sustainability Performance of Company on its Financial Performance: A Study of Listed Indian Companies. *Global Journal of Management and Business Finance Research, 13*(11), 64–65.

Ching, H.Y. and Gerab, F. (2017). Sustainability reports in Brazil through the lens of signaling, legitimacy, and stakeholder theories. *Social Responsibility Journal*, 13(1), 95–110.

Dissanayake, D., Tilt, C. A., & Qian, W. (2021). How do public companies respond to national challenges through sustainability reporting?–The case of Sri Lanka. *Qualitative Research in Accounting & Management*, *18*(4/5), 455-483.

Global Sustainability Standards Board. GRI - Global Sustainability Standards Board. (n.d.).

Ittner, C. D. (2008). Does measuring intangibles for management purposes improve performance? A review of the evidence. *Accounting and Business Research*, *38*(3), 261–272.

Jensen, M.C. and Meckling, W.H., (1976). Theory of the firm: Managerial Behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360

Kribble, B. R. (2007). Encyclopedia of Environment and Society. *Brundtland Report*, 17–25.

Lindbolm, C.K., 1993. Lindblom, C.K. (1993) the implications of organisational legitimacy for corporate social performance and disclosure. Conference paper, Critical Perspectives on Accounting Conference, New York. - References - scientific research publishing.

Perrin, F. and Tencati, A. (2006). Sustainability and Stakeholder Management: the need for new corporate performance evaluation and reporting systems. Business Strategy and the Environment, 15, 296-308.

Popa, A., Blidişel, R., & Bogdan, V. (2009, November). Transparency and disclosure between theory and practice. A case study of Romania. In *Proceedings of FIKUSZ'09 Symposium for Young Researchers* (pp. 173-183).

Qiu, Y., Shaukat, A. and Tharyan, R. (2016). Environmental and social disclosures: Link with Corporate Financial Performance, *The British Accounting Review*, 48(1), 9–12.

Venanzi, D. (2012). Financial performance measures and value creation: The state of the art. Milan: Springer

Zahra, S. A. (1995). Corporate entrepreneurship and financial performance: The case of management leveraged buyouts. *Journal of Business Venturing*, *10*(3), 225.

Do Takeovers and Mergers Enhance Firm Value? Evidence from Sri Lankan Listed Companies

Janani Gamage* and Piyumika Rathnasuriya

Department of Finance, Faculty of Management and Finance, University of Colombo, Sri Lanka

jtharushagamage@gmail.com*, piyumikarathnasuriya@dfn.cmb.ac.lk

Abstract

Takeovers and mergers have played a dominant role in the world economy for the last few years. Hence, companies in today's dynamic environment are often faced with decisions concerning takeovers and mergers. However, the empirical findings of prior studies on the impact of takeovers and mergers on firm value are debatable as different sample frames with different periods and countries have generated inconclusive results. Moreover, the results are subjected to limitations of different measurements of value generation. Therefore, this study is conducted with the expectation of investigating the impact of takeovers and mergers on firm value in the Sri Lankan context. The research was carried out for thirty-two takeovers and mergers from year 2009 to 2018, where the acquirer is listed on the Colombo Stock Exchange. The study follows a deductive approach and uses secondary quantitative measures to assess the medium-term and short-term impact of takeovers and mergers on the acquirers' firm value. The impact of industrial relatedness of the acquirer and the target company on the acquirers' firm value is also tested in this study. Enterprise value multiple was used to measure the dependent variable, firm value. The event of a takeover or merger and industry-relatedness were the independent variables. The research findings indicate that there is no impact of takeovers and mergers on the firm value of the acquirer in both the medium- and short-term. Further, the current study revealed that industry-relatedness does not impact the acquirers' firm value. The study provides valuable insights to companies, deepening their understanding of whether takeovers and mergers, and industry-relatedness impact the firm value of the acquirers' firm.

Keywords: *Takeovers, Mergers, Industry relatedness, Firm value, Enterprise value multiple*

Introduction

Takeovers and mergers are emerging aspects of the long corporate journey that explain the consolidation of two or more organizations to increase shareholder value through market power, expense reduction, scale and scope economies, and reduced earnings volatility (Piloff & Santomero, 1998). A takeover is an acquisition of one company by another company without forming a new firm (Bianconi and Tan, 2018). A merger is a combination of two companies to create a new one (Bianconi & Tan, 2018). However, the primary motive of both takeovers and mergers is to create synergy, which means the value of a consolidated organization exceeds the sum of the values of individual organizations (CFI Education Inc., 2023).

Measuring the value generation following takeovers and mergers is salient for investors to ensure firm and shareholder value maximization. Previous studies have examined the impact of takeovers and mergers on firms from different perspectives. Although stock performance and accounting ratios are the most common methods to measure synergy gain (Andrade et al., 2001; Dickerson et al., 1997), they are subjected to many limitations (Tuch & O'Sullivan, 2007). Hence, Bianconi and Tan (2018) introduced a new method that combines the event study methodology and accounting methodologies to identify the accurate impact. However, the prior studies in this area are limited to a few industries like communication, energy, technology, and utility and those studies have also primarily focused on developed countries. Thus, this is still an area that has not been adequately studied in developing countries.

Objectives

Accordingly, this study is conducted to fill the research gap by focusing on the primary objectives of examining whether the takeovers and mergers impact the acquirers' firm value in the medium term and short term, and identifying whether the industrial relatedness of the acquirer and the target company impacts the acquirers' firm value. The short-term and medium-term results will provide evidence for the relevancy of the synergy effect and the test result of industry-relatedness will validate the diversification hypothesis.

Methods

This study intends to examine the impact of takeovers and mergers on the acquirers' firm value using quantitative data following the philosophy supporting positivism. Following the previous researchers, this study adopted a deductive approach based on secondary data. All successful offers extended under the Takeovers and Mergers Code which occurred between publicly listed companies in the Colombo Stock Exchange (CSE) according to the annual report of the

Security and Exchange Commission (SEC) from 2009 to 2018 are considered as the investigation period in the analysis. According to the annual reports of the SEC, all thirty-two successful transactions are considered.

Consistent with the previous studies, the Enterprise Value Multiple (EVM) is taken to measure the dependent variable, firm value (Bianconi and Tan, 2018). The independent variables are the event of the takeover or merger and the industry-relatedness of the acquirer and the target company. The event of a takeover or merger is studied in the short term and the medium term. Accordingly, the short term is the year of acquisition, and the medium term is between three years from the acquisition. Further, the stock price earnings, total leverage, and financial leverage have been controlled for a better result.

The conceptual framework of the study in Figure 1 is built based on the analysis of the literature (Bianconi and Tan, 2018).

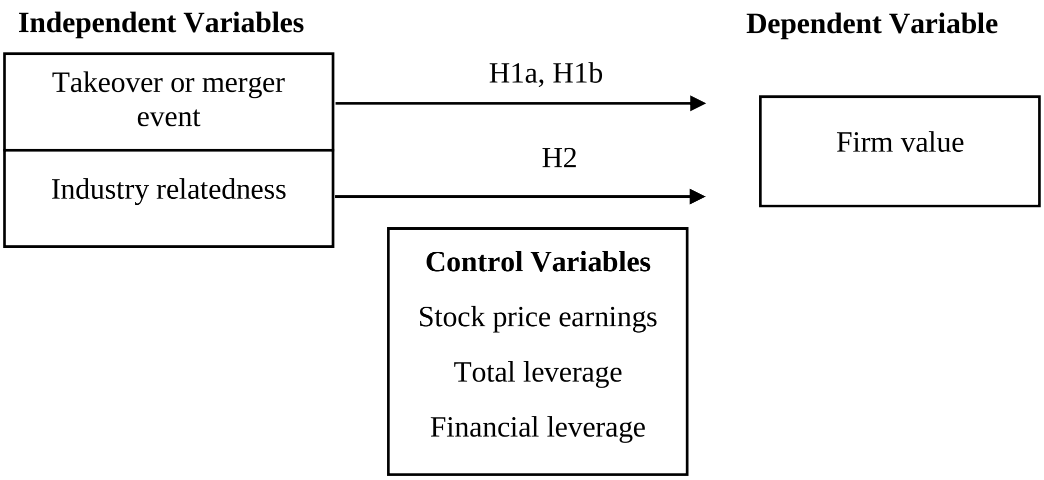

Figure 1: Conceptual Framework

Accordingly, the following hypotheses are formulated by the researcher,

H1a: There is an impact of a takeover or merger on the acquirer’s firm value in the medium term.

H1b: There is an impact of a takeover or merger on the acquirer’s firm value in the short term.

H2: There is an impact of industry relatedness between the acquirer and the target company on the acquirer’s firm value.

The research measures are developed based on the insights gained from the prior studies and depicted in Table 1.

Table 1: Operationalization of Variables

Variable	Measure	Reference
Independent variables	Takeover or merger event (Short term/ Medium term)	Bianconi and Tan (2018)
	Industry relatedness	Tuch and O'Sullivan (2007)
Control Variables	Stock price earnings = market capitalization / total sales over twelve months	Bianconi and Tan (2018)
	Total leverage = total debt / total equity	Bianconi and Tan (2018)
	Financial leverage = total assets / shareholder's equity	Bianconi and Tan (2018)
Dependent variable	Firm value = enterprise value / earnings before interest, tax, depreciation, and amortization	Bianconi and Tan (2018)

The independent variable, takeover or merger event will be measured by a set of relative year dummy variables, -3, -2, -1, 0, 1, 2, and 3, defined as the lagged or lead period to the year during which the takeover or merger occurred for the firm. Apparently, seven years will be considered as the event period. The event with medium-term effect will be measured using two samples; the treated sample with a dummy, treat = 1 that includes all the data following takeover and merger (dt0, dt1, dt2, or dt3 equals 1), and an untreated sample with a dummy treat = 0 for data before the takeover and merger activity (dt-3, dt-2, or dt-1 equals 0). The short term will also be measured as two samples; the treated group with dummy TREAT = 1 for data at the year of takeover (dt0 equals 1), and the untreated group with dummy TREAT = 0 for all other data at years without takeover activities (dt-3, dt-2, dt-1, dt1, dt2, or dt3 equals 0).
Industrial relatedness is the second independent variable. The transactions with the companies that operate in the same industry are the treated group with dummy Treat = 1, and the other group is the untreated group with dummy Treat = 0 for all other transactions among unrelated industries.

Corresponded to the above operationalization, this study considers the following panel regression, where i indexes the firm and t denotes the year of the observation.

$$FV_{it} = a + \beta_1 SPE_{it} + \beta_2 TL_{it} + \beta_4 FL + \sum_{j=-3}^{3} \delta_j \, dt_{ij} + MT + ST + IR + \varepsilon_{it}$$

FV: Firm Value, SPE: Stock Price-earnings, TL: Total Leverage, FL: Financial Leverage: MT: Medium Term; ST: Short Term, IR: Industry Relatedness.

The collected data for the regression model is tested for analysis using the EViews software following the assessment of Classical Linear Regression Models (CLRM) assumptions, including normality, homoscedasticity, autocorrelation, and multicollinearity.

Results

Table 2 presents descriptive statistics of 224 observations from all the takeovers and mergers. It helps to identify the behavior of dependent and control variables. Since all the independent variables are dummy variables, they are not included in the table.

Table 2: Descriptive Statistics

	FV	SPE	TL	FL
Mean	70.4624	48.8916	3.6472	2.3555
Maximum	1115.7040	1694.8030	70.1800	13.6187
Minimum	-144.3374	0.01908	0.0010	1.0010
Standard deviation	200.2382	149.3439	8.9930	2.5976
Skewness	3.7888	7.4620	4.1637	2.5522
Kurtosis	17.2282	73.2278	22.8392	9.7030
Observations	224	224	224	224

Pairwise correlation and the variance inflation factor are calculated to measure multicollinearity. According to the results, none of the independent and control variables correlate similarly to the previous literature results (Bianconi & Tan, 2018). The unit root test indicated that all variables were stationary. Although the test results of the Jarque-Bera test confirm the data set is not normally distributed, it is ignored as the data set represents the population. The likelihood ratio test statistics indicate a heteroskedasticity problem. Therefore, it is rectified by the researcher using White's test. Hence the Durbin-Watson test statistic of 1.5577 indicated an autocorrelation issue, it is corrected by inserting a lag variable into the dependent variable as an independent variable. The random effects of the pool model are used in the study as the Hausman test validates the suitability. R square value of 0.2503 concludes that the explanatory variables do not explain the dependent variable correctly. However, since the F-statistic (7.6384), the overall model has a significant probability it concludes that the variables of the model explain the model correctly.

The summary of the regression analysis to assess the impact of takeovers and mergers on acquirers' firm value is presented in Table 3.

Table 3: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	28.2264	26.2772	1.0741	0.2842
Medium term	-7.8829	32.2950	-0.2440	0.8074
Short term	74.3542	49.9379	1.4889	0.1382
Industry relatedness	-37.6649	19.4989	-1.9316	0.0549
Stock Price-earnings	0.1986	0.1677	1.1845	0.2377
Total leverage	-1.2349	0.3818	-3.2343	0.0014
Financial leverage	-5.3457	4.5978	-1.1626	0.2465
Financial leverage (-1)	0.2885	0.0776	3.7148	0.0003
R-squared	0.2503	Mean dependent var		72.6275
Adjusted R-squared	0.2175	S.D. dependent var		205.7529
S.E. of regression	182.0003	Sum squared residuals		6061714
F-statistic	7.6384	Durbin-Watson statistic		2.2310
Prob(F-statistic)	0.0000			

Discussion

According to the results, H1a is rejected at a 5% significance level indicating that takeovers and mergers cannot generate firm value in the medium term for acquirers. However, the results conflicted with many other research articles as they discovered a positive impact (Gregory, 1997; Herman & Lowenstein, 1988). Then, H1b is also rejected at a 5% significance and concluded that it cannot be summarized as an impact on acquirers' firm value in the short term. Although Bianconi & Tan (2018) analyzed a large sample from global takeovers and mergers, they also realized the same results as this thesis. The review undertaken by Tuch & O'Sullivan (2007) evidences a positive return to acquirers from early studies conducted in the US and UK. However, some studies generate negative returns for the acquirer (Sudarsanam & Mahate, 2006; Walker, 2000). Finally, the researcher discovered that there is no impact of industry relatedness of the acquirer and Target Company on the acquirers' firm value as H2 is rejected at a 5% significance level. Previous research also identified the same insignificant results (Hubbard & Palia, 1999; Morck et al., 1990). However, the H2 can be accepted under a 10% significance level. Healy et al. (1992) also found that industrial-related transactions have an improvement in median annual cash flow return. Analyzing all the previous results, different measurements of impact, sample size, and timing can be the reasons for the contradictory results. Thus, the relevancy of the synergy effect theory and the diversification hypothesis is questionable.

Implications and limitations

Many takeovers and mergers studies have been conducted in developed countries of Europe, the United States of America, and East Asia. Also, Indian authors are interested in takeovers and mergers as they are emerging aspects. However, only a few studies have been completed in Sri Lanka. Among them, the least number of studies are conducted from a financial perspective. The conclusions of the studies in developed economies cannot be applied to the Sri Lankan context due to wide-ranging differences in external factors. Therefore, this study fills the gap in the literature by providing country-specific evidence. Ultimately it helps Sri Lankan economists to plan takeovers effectively and efficiently. Also, the findings indicated that two or more companies in the same industry will certainly not generate value gain, and some other determinants need to be checked before moving to the decision of takeovers and mergers.

The enterprise value multiple helps to overcome the limitations of event and accounting methods and gives a better overview of the results. Thus, the present study contributes to the takeover and merger literature by measuring the results more accurately. Also, this study will act as motivation to conduct research in other countries or even explore other determinants besides industry-relatedness that may affect takeover returns.

Regardless of the significance, this study has many limitations that can be dealt with by future researchers. The main drawback is that this study only focused on the acquirers' side, which is listed in CSE. Hence, future researchers can include unlisted companies and target companies in their analysis. Further, the present study examines the impact on the firm value in the short-term and the medium-term. So, future studies can be carried out to investigate the long-term impact. Furthermore, the analysis is conducted based on enterprise value multiple. Since it is a mix of event study and accounting data methods, it may include the drawbacks of both methods. Thus, future researchers can find a better operationalization to measure the impact of takeovers and mergers.

References

Andrade, G., Mitchell, M. and Stafford, E. (2001). New evidence and perspectives on mergers. *Journal of Economic Perspectives*, 15(2), 103-120.

Bianconi, M. and Tan, C.M. (2019). Evaluating the instantaneous and medium-run impact of mergers and acquisitions on firm values. *International Review of Economics & Finance,* 59, 71-87.

Corhay, A. and Rad, A.T. (2000). International acquisitions and shareholder wealth Evidence from the Netherlands. *International Review of Financial Analysis*, 9(2), 163–174.

Dickerson, A.P., Gibson, H.D. and Tsakalotos, E. (1997). The impact of acquisitions on company performance: Evidence from a large panel of UK firms. *Oxford Economic Papers,* 49(3), 344-361.

Golubov, A., Petmezas, D., & Travlos, N. G. (2013). Empirical mergers and acquisitions research: A review of methods, evidence and managerial implications. *Handbook of research methods and applications in empirical finance, 287.*

Gregory, A., (1997). An examination of the long run performance of UK acquiring firms. *Journal of Business Finance & Accounting,* 24(7-8), 971-1002.

Healy, P.M., Palepu, K.G. and Ruback, R.S. (1992) ‘Does corporate performance improve after mergers?’, *Journal of Financial Economics*, 31(2), 135–175.

Herman, E. and Lowenstein, L. (1988). The efficiency effects of hostile takeovers (pp. 211-240). *New York: Oxford University Press*.

Hubbard, R.G. and Palia, D. (1999). A reexamination of the conglomerate merger wave in the 1960s: An internal capital markets view. *The Journal of Finance,* 54(3), 1131-1152.

Leepsa, n., and Mishra, C. S. (2016). Theory and Practice of Mergers and Acquisitions: Empirical Evidence from Indian Cases. *Journal of Management Science,* 7(2), 79.

Morck, R. A., Shleifer, A., and Vishny, R. W. (1990). Do managerial objectives drive bad acquisitions? *Journal of Finance,* 45(1), 31–48.

Piloff, S., and Santomero, A. (1998). The value effects of bank mergers and acquisitions. Klult'er Academic Publishers.

Sudarsanam, S., and Mahate, A. (2006). Are Friendly Acquisitions Too Bad for Shareholders and Managers? Long-Term Value Creation and Top Management Turnover in Hostile and Friendly Acquirers. *British Journal of Management,* 17(S1), S7-S30.

Tuch, C. and O'Sullivan, N. (2007). The impact of acquisitions on firm performance: A review of the evidence. *International Journal of Management Reviews*, 9(2), 141-170.

Walker, M.M. (2000). Corporate takeovers, strategic objectives, and acquiring-firm shareholder wealth. *Financial management,* 53-66.

Determinants of Free Cashflows of Stock Corporations

Maheesha Liyanage* & Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

liyanagemaheesha@gmail.com*, emil@wyb.ac.lk

Abstract

Free cash flows encompass the surplus of cash flow generated by a company, which exceeds the amount required to fund projects yielding positive net present values when discounted at the appropriate cost of capital. This study aims to investigate the determinants of free cash flows out of the ten variables we considered in the regression analysis namely, leverage dividend payout, administration expenses, asset utilization, capital expenditure, Tobin's Q, Return on assets (ROA), Return on equity (ROE), firm size and age. In the research, it analyse a dataset comprising 188 publicly listed companies on the Colombo Stock Exchange from 2011 to 2019, since the study does not focuses on the impact of COVID-19 on financial data. This data set serves as a vital component of our methodology. We begin with descriptive statistics to gain fundamental insights into the dataset's variables, providing a foundational understanding of its characteristics. We then employ a correlation matrix to summarize observations and identify patterns among variables. The core of our approach involves regression analyses, including various techniques like Pooled OLS and fixed/random effect models, focusing on Free Cash flows and additional variables with control variables. This rigorous data set clustered standard error and robustness test includes 1692 firm-year observations, enabling a comprehensive analysis of complex variable relationships. Our research yields valuable insights into the complex relationship between financial variables and free cash flows in corporate settings. Notably, we find a significant positive link between leverage, administration expenses efficiency, asset utilization, and return on assets (ROA) with free cash flows. Conversely, capital expenditure shows a significant inverse relationship, while dividend payout has a negative, yet statistically insignificant association. Tobin's Q, return on equity (ROE), firm size, and age exhibit positive but statistically insignificant relationships with free cash flows, underscoring the multifaceted nature of these interactions. In summary, our study discerns the determinants of free cash flows among stock corporations listed on the CSE. From our rigorous statistical analysis, we establish that leverage, administration expenses, asset utilization, capital expenditure, and return on assets (ROA) significantly influence free cash flows. These factors underscore the importance of financial and operational efficiency in shaping cash flow dynamics. In contrast, our analysis does not find sufficient evidence to identify dividend payout, Tobin's Q, return on equity (ROE), firm size, and age as determinants of free cash flows. These findings offer valuable insights for corporate decision-makers and investors, facilitating a more informed approach to financial resource allocation and management.

Keywords: *Agency cost, Dividend payout, Free cash flows, Leverage*

Introduction

In 1986, Michael C. Jensen introduced the concept of free cash flows in his seminal article titled "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." (Jensen, 1986) Jensen's definition of free cash flows encompasses the surplus of cash flow generated by a company, which exceeds the amount required to fund projects yielding positive net present values when discounted at the appropriate cost of capital. This study focuses on establishing the intricate relationship between free cash flows and several key financial metrics, including leverage, dividend payout, administration expenses, asset utilization, and capital expenditure.

The primary objective of this research is to discern the associations between free cash flows and the aforementioned financial variables within a specific context. To achieve this, the study examines a dataset consisting of 188 firms listed on the Colombo Stock Exchange over the sample period spanning from 2011 to 2019. In addition to the main variables of interest, the research also incorporates firm size, age, and return on assets (ROA), return on equity (ROE), and Tobin's Q as control variables.

By considering these control variables, the study aims to account for potential confounding factors and provide a more comprehensive understanding of how free cash flows interact with leverage dividend payout, administration expenses, asset utilization, and capital expenditure. This analysis contributes valuable insights to the field of corporate finance and enhances our understanding of the factors that influence a company's utilization of its available cash resources.

Existing literature has primarily focused on Free cash flows (FCF) within western corporate settings, often overlooking the distinctive factors that shape financial decision-making in emerging economies (Nazliben, Renneboog & Uduwalage, 2023). Consequently, a critical research gap emerges concerning the nuanced impact of cultural dimensions and the institutional environment on FCF determinants within the Sri Lankan context.

Objectives

The primary objective of this research is to identify and analyze the key determinants that influence the levels of Free Cash Flows in publicly traded stock corporations. Specifically, we aim to

Investigate the relationship between FCFs and various financial and non-financial variables.

Determine the impact of these determinants on a corporation's financial performance and overall health.

Methodology

Our sample comprises companies listed on the Colombo Stock Exchange (CSE) during the period spanning from 2011 to 2019. We specifically chose to conclude our dataset at the end of 2019 to mitigate any distortions in financial data that may have arisen due to the unprecedented impact of the COVID-19 pandemic on businesses. The data used in our study were meticulously collected by hand from the financial reports of these companies, which include the mandatory disclosures prescribed by the Companies Act No. 07 of 2007. We constructed a comprehensive panel dataset encompassing both financial and non-financial firms listed on the CSE over the aforementioned time-frame. Initially, our sample encompassed all 205 listed firms in Sri Lanka. To ensure the integrity of our study, we first excluded firms with missing data for the period spanning from 2011 to 2019. Our selection criteria were stringent, focusing exclusively on companies for which complete datasets and annual reports were accessible. Consequently, our final dataset comprises a total of 188 firms, resulting in a robust sample consisting of 1692 firm-year observations.

This initial step serves the purpose of providing fundamental insights into the dataset, offering basic information about the various variables under consideration. It lays the foundation for a comprehensive understanding of the data's characteristics. Subsequently, we proceed with a correlation matrix. This matrix serves to succinctly summarize our extensive set of observations and is instrumental in discerning patterns and relationships among the variables in our study. This step is pivotal in identifying potential inter-dependencies among the variables and forms a crucial part of our analytical approach.

The core of our methodology involves several regression analyses, encompassing various techniques such as Pooled OLS, fixed effect models, random effect models, clustered standard error methods, and robust tests. These regression analyses are conducted with a primary focus on our central variable of interest, namely Free Cashflows, alongside five additional variables and a set of control variables.

Results

Table 1: Descriptive Statistics

Variable	Mean	SD	Variance	25%	75%	Median
Free cashflows	0.02	0.29	0.09	-0.07	0.12	0.28
Leverage	0.79	3.28	10.78	0.13	0.99	0.42

Dividend payouts	-0.01	11.54	133.18	0.00	0.54	0.19
Administration expenses	1.09	11.64	135.59	0.06	0.39	0.14
Asset utilization	0.54	0.62	0.39	0.07	0.78	0.35
Capital expenditure	0.03	0.06	0.00	0.00	0.03	0.01
Tobin's Q	1.53	1.62	2.63	0.77	1.67	1.08
Return on assets	0.05	0.18	0.03	0.01	0.09	0.04
Return on equity	0.05	0.93	0.86	0.01	0.14	0.07
Firm size (log)	21.85	1.42	2.00	21.01	22.18	21.99
Age (log)	3.11	0.80	0.63	2.77	3.61	3.31

Table 2: Correlation Matrix

	1	2	3	4	5	6	7
Free cash	1						
Leve.	0.1109***	1					
	0.0000						
Divi. pay.	0.0010	0.0081	1				
	0.9672	0.7388					
Adm. expen.	-0.0028	-0.0136	-0.001	1			
	0.9088	0.5755	0.964				
Asset Utili.	0.2071***	0.0778***	0.030	-0.072***	1		
	0.0000	0.0014	0.2053	0.003			
Cap. expen.	-0.0873***	0.0278	0.0116	-0.029	0.1434***	1	
	0.0003	0.2526	0.6345	0.232	0.0000		
Tobins Q	0.0507**	-0.0393	0.0026	-0.016	0.1428***	0.0130	1
	0.0370	0.1063	0.9133	0.506	0.0000	0.5936	

ROA	0.3382***	-0.0744***	0.0163	-0.229***	0.1369***	0.0142	0.2289***
	0.0000	0.0022	0.5030	0.000	0.0000	0.5591	0.0000
ROE	0.2083***	-0.3160***	0.0057	-0.0469*	0.0548**	0.0164	0.0883***
	0.0000	0.0000	0.8152	0.053	0.0241	0.5001	0.0003
Firm Size	0.0348	0.0823***	-0.0028	-0.0406*	0.0100	0.0730***	-0.0796***
	0.1521	0.0007	0.9075	0.094	0.6817	0.0026	0.0011
Age	0.0533**	-0.0052	-0.0222	0.026	0.0201	-0.1049***	0.1078***
	0.0285	0.8313	0.3607	0.275	0.4089	0.0000	0.0000

	1	2	3	4
ROA	1			
ROE	0.6380***	1		
	0.0000			
Firm size	0.0825***	0.0507**	1	
	0.0007	0.0372		
Age	0.0200	0.0167	-0.028	1
	0.4112	0.4927	0.247	

This table shows whether FCF are significantly associated with leverage and the relationship between two variables. Results under Model 1 to 5 represents the different regression analysis models used in arriving at the following regression results under Pooled OLS, Random Effects, Fixed Effect, Clustered S.E and Robust S.E respectively. Appendix A provides definitions and measurements for the variables. ***, ** and * denote statistical significance based on a t-statistic at the 1%,5% and 10% levels respectively.

Table 3: FCF and Leverage

	1	2	3	4	5
Leverage	0.0121	0.0125	0.0122	0.0122	0.0121
	(0.0021)	(0.0023)	(0.0021)	(0.0094)	(0.0086)
Intercept	-0.3972	-0.2343	-0.0892	-0.4041	-0.3972
Controls	yes	yes	yes	yes	yes
R - squared	0.2128	0.1574	0.1857	0.2126	0.2128

Prob > F	0.000	0.000	0.000	0.195	0.162
Prob > Chi2			0.000		
Groups	188	188	188	188	188
Observations	1692	1692	1692	1692	1692
Pooled OLS	yes	no	no	no	no
Fixed-effect	no	yes	no	no	no
Random-effect	no	no	yes	no	no
Clustered SE	no	no	no	yes	no
Robust SE	no	no	no	no	yes

Discussion

Our research findings provide valuable insights into the intricate relationships between financial variables and free cash flows within the corporate landscape offering a nuanced understanding of these dynamics. Notably, our investigation uncovers statistically significant and positive associations between several key variables and free cash flows.

Firstly, we identify a compelling link between leverage and free cash flows, demonstrating that companies with higher leverage tend to experience increased free cash flows (Myers and Majluf, 1984). This finding underscores the pivotal role of leverage in influencing a firm's cash flow dynamics, potentially providing insights into capital structure decisions. Additionally, our research reveals that efficient administration expenses management is correlated with heightened free cash flows. Similarly, companies demonstrating enhanced asset utilization and greater Return on Assets (ROA) tend to generate increased free cash flows. These findings underscore the crucial significance of operational efficiency and profitability in shaping a firm's cash flow performance. Conversely, our analysis unveils a statistically significant inverse relationship between capital expenditure and free cash flows. This highlights the intricate balance between allocating resources towards long-term asset investments and maintaining immediate cash availability, illustrating a fundamental trade-off faced by corporations.

In contrast, we observe a negative relationship between dividend payout and free cash flows, albeit one that does not attain statistical significance. This suggests the presence of a correlation between these variables, but the practical implications of this connection remain uncertain, emphasizing the need for further exploration. Finally, Tobin's Q, Return on Equity (ROE), firm size, and age exhibit positive relationships with free cash flows; however, these relationships do not reach statistical significance. While these variables may exert some influence on free cash flows, their impact remains elusive, hinting at the intricate and multifaceted nature of these interactions.

Implications and limitations

In conclusion, our study has provided valuable insights into the determinants of free cash flows for stock corporations listed on the CSE. Through rigorous statistical analysis, we have identified several key factors that play a significant role in shaping a company's free cash flow dynamics. Firstly, leverage, administration expenses, asset utilization, capital expenditure, and Return on Assets (ROA) have emerged as robust determinants of free cash flows. These findings underscore the critical importance of these factors in influencing a firm's ability to generate and manage excess cash. Specifically, higher leverage, efficient administration expense management, enhanced asset utilization, and greater ROA are associated with increased free cash flows, highlighting the multifaceted nature of financial decisions and operational efficiency in cash flow generation.

Additionally, the inverse relationship between capital expenditure and free cash flows emphasizes the delicate balance companies must strike between long-term investments and maintaining immediate cash reserves, a crucial consideration in financial management. On the other hand, our analysis reveals that dividend payout, Tobin's Q, Return on Equity (ROE), firm size, and age do not qualify as determinants of free cash flows based on the evidence gathered from our statistical analysis. While these variables may exhibit some correlations with free cash flows, their statistical insignificance suggests that they do not play a substantive role in shaping the availability of excess cash in stock corporations listed on the CSE.

These findings have significant implications for corporate financial decision-makers and investors, providing them with a clearer understanding of the factors that influence a company's free cash flow position. Moreover, our research underscores the need for a nuanced approach to financial management, where attention to leverage, operational efficiency, and prudent capital expenditure allocation is crucial in optimizing free cash flows. Overall, our study contributes to the existing body of knowledge in finance and offers practical insights for firms seeking to enhance their financial performance and resource allocation strategies in the dynamic corporate landscape of the CSE.

References

Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329.

Myers, S.C. and Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221.

Nazliben, K.K., Renneboog, L. and Uduwalage, E. (2023). Corporate Governance from colonial Ceylon to post-civil war Sri Lanka. *Journal of Management and Governance*, pp.1-71.

Ownership Concentration and Dividend Policy: Evidence from Sri Lankan Listed Companies

Naura M R M F* & Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

nauraroofin@gmail.com*, emil@wyb.ac.lk

Abstract

The primary objective of this study was to investigate the relationship between ownership concentration and dividend policy of 100 listed companies in Sri Lanka. Dividend policy was proxied by dividend payout ratio (DPR) and dividend yield ratio (DYR). Study gathered secondary data from published annual reports spanning from 2011 to 2019. The Herfindahl index (HHI) was employed to measure ownership concentration. Pairwise correlation analysis was applied to explore the relationships between ownership concentration, DPR, and DYR. Regression analysis was conducted to explain the impact of ownership concentration on dividend policy, considering firm size, profitability, firm age, and external directorships as control variables. It revealed a significantly poor dividend distribution pattern among the studied companies, coupled with notably low ownership concentration. Pairwise correlation analysis demonstrated a weak negative correlation between HHI and both DPR and DYR, indicating that higher ownership concentration is associated with lower dividend payouts. Regression analysis further supported these findings, highlighting a statistically significant negative impact of ownership concentration on dividend policy. While, the study provides valuable insights, it is not without limitations. The sample size of 100 companies might limit the generalizability of the findings. Additionally, the study focused on a specific measurement of ownership concentration (HHI) and selected control variables, potentially overlooking other pertinent factors influencing dividend policies. Future research could explore diverse ownership categories, employ broader measurements, and consider larger sample sizes to enhance the robustness of the findings. This study contributes to the existing literature by comprehensively analyzing the interplay between ownership concentration and dividend policy within the context of the CSE-listed companies. The findings shed light on relationship dynamics and emphasize the importance of transparent dividend policies in balancing profit distribution and organizational growth. The research underscores the value of government oversight to protect minority shareholders' interests and enhance the overall efficiency of the capital market.

Keywords: *Agency cost, Corporate governance, Dividend policy, Ownership concentration*

Introduction

Corporate governance is the system of rules, practices, and processes that ensure that businesses are managed and monitored effectively. It includes all of the procedures, structures, and management techniques that goes into running a business (Alabdullah et al., 2022). Scholars, practitioners, and policymakers have all paid close attention to how ownership concentration and dividend policy interact in the current dynamic environment. The scope of this study is to investigate ownership concentration and dividend policy in Sri Lankan business context, by focusing on CSE listed companies within the time frame of 2011 to 2019.

Ownership concentration and dividend policy are regarded as the study's independent and dependent variables, respectively. The distribution of ownership contributes among shareholders within a corporation is referred to as ownership concentration (Harada & Nguyen, 2011). Agency theory places a strong emphasis on ownership concentration because it can be more successfully aligned with the interests of major shareholders with those of the company and to cut agency costs. This assumption was based on the idea that the majority of shareholders might use their majority holdings to choose, oversee, and appoint management in a manner favorable to their interests. However, the existence of management committed to advancing the interests of the majority of the shareholders could possibly result in agency conflicts, especially conflict between the interests of the majority and the interests of the minority. The dividend policy, on the other hand, deals with decisions made by a company's management about the distribution of earnings to its stakeholders by means of dividend payments (Kouki & Guizani, 2009). Dividend policy is very important since it affects a company's capital structure and financing. Undoubtedly, dividend payments have an impact on the market value of the company. The dividend policy determines the composition of the shareholders.

Corporate finance has recently paid a great deal of attention to the connection between ownership concentration and dividend policy. However, there are several academic arguments in the literature that support the link between dividend policy and ownership concentration. According to some academics, the association between ownership concentration and dividend policy is positive (Arora & Srivastava, 2019; Thanatawee, 2013). A different set of academics has established a negative association between ownership concentration and dividend policy (Harada & Nguyen, 2011; Kouki & Guizani, 2009; Kulathunga & Azeez, 2016). These opposing viewpoints on the connection between ownership concentration and dividend policy highlight a significant knowledge gap in the literature and emphasizes the need for additional research. Furthermore, the studies concerning combined impact of ownership concentration by using the Herfindahl index as the measurement of ownership concentration are rare in literature.

Objectives

Research objective is to assess the effect of ownership concentration on dividend policy of listed companies in Sri Lanka and the researcher aims to answer the research question of “is there a significant relationship between ownership concentration and dividend policy of listed companies in Sri Lanka?”

Methods

The research study is conducted to examine the ownership concentration and dividend policy among CSE listed companies. As the concerned social entities are existing in reality independently of social actors, the study is built upon the objectivism philosophy (Saunders, Lewis, & Thornhill, 2007). Since both ownership concentration and dividend policies are accounting concepts that can be measured numerically, the researcher decided to design the study according to the quantitative approach. Ownership concentration and dividend policy were the independent and dependent variables respectively. Further the researcher assesses the firm size, firm age, firm profitability, and external directorship as the control variables of the study. The acceptable measure of Herfindahl index (Demsetz, & Lehn, 1985) is used to measure the ownership concentration and dividend payout ratio (Harada & Nguyen, 2011) and dividend yield ratio were used as the measures of dividend policies of the companies. Total assets, number of years since the company was listed, ROE (Firer and Williams, 2003) percentage of external directorship were the measurement scales of the control variables of firm size (Sardo & Serrasqueiro, 2018), firm age (Ritter, 1991), firm profitability, and external directorship respectively.

The study encompassed a population of 289 companies listed on the CSE. Utilizing the stratified random sampling technique, the researcher selected a sample of 100 companies for the study. Data for the research were exclusively derived from the annual reports of the selected companies, covering the period from 2011 to 2019. The collected data were subjected to a comprehensive analysis using STATA. The techniques employed in the study included descriptive statistical analysis, pairwise correlation analysis, and multiple regression analysis. Descriptive statistical analysis examined the average behavior of the variables. Pairwise correlation analysis and regression analysis facilitated to assess the relationship between two variables and explanation ability of one or more variables on another respectively. The mathematical equations built for the regression models are:

$$DPR_{it} = \partial + \beta 1\ HHI_{it} + \beta 2\ SIZE_{it} + \beta 3\ ROE_{it} + \beta 4\ AGE_{it} + \beta 5\ EXD_{it} + \varepsilon_{it} \quad (1)$$

$$DYR_{it} = \partial + \beta 1\ HHI_{it} + \beta 2\ SIZE_{it} + \beta 3\ ROE_{it} + \beta 4\ AGE_{it} + \beta 5\ EXD_{it} + \varepsilon_{it} \quad (2)$$

As the researcher aims to assess the relationship between ownership concentration and dividend policy these two analysis techniques were used as the key analysis techniques of the study.

Results

Table 1: Pairwise Correlations

Variables	1	2	3	4	5	6	7
Dividend Payout	1						
Dividend Yield	0.0545	1					
	0.1020						
Herfindahl index	-0.0385*	-0.0233*	1				
	0.0488	0.0050					
SIZE	0.0375	0.0124	-0.2140*	1			
	0.2613	0.7110	0.0000				
ROE	0.0083	0.0258	-0.0257	-0.0060	1		
	0.8045	0.4402	0.4417	0.8585			
AGE	-0.0255*	-0.1269**	-0.0555	0.0769*	0.0423	1	
	0.0453	0.0001	0.0964	0.0211	0.2049		
External Directorship	0.0417	-0.0728*	0.0469	0.0925*	-0.0173	0.1097*	1
	0.2116	0.0291	0.1596	0.0055	0.6043	0.0010	

Table 2: Regressions

Model 1: Dividend Payout Ratio				Model 2: Dividend Yield Ratio			
Number of obs.			900	Number of obs.			900
F- test			3.95	F- test			4.02
Prob > F			0.0015	Prob > F			0.0013
R-Squared			0.0053	R-Squared			0.022
Adj R- Squared			-0.0003	Adj R- Squared			0.0165
	β	t	P value		β	t	P value
HHI	-0.033	-1.06	0.041	HHI	0.053	0.81	0.419
SIZE	0.089	0.82	0.41	SIZE	0.225	0.99	0.324

ROE	0.037	0.29	0.77	ROE	0.244	0.93	0.354
AGE	-0.009	-1.04	0.3	AGE	-0.064	-3.66	0
EXD	1.017	1.33	0.185	EXD	-3.044	-1.89	0.059
Constant	-1.027	-0.4	0.686	Constant	0.924	0.17	0.863

Discussion

The findings of the descriptive statistical analysis identified unsatisfactory level of dividend distribution within the mean values of 0.5 (*Std. Deviation* =4.104) percent for DPR and 4.048 (*Std. Deviation* =8.705) for DYR among the sampled listed companies. And the descriptive statistics for HHI showed low level of ownership concentration within the concerned companies. Control variables of SIZE, ROE, AGE and EXD presented showed mean values as 22.229, 0.111, 28.910 and 0.276 respectively.

The pairwise correlation analysis found statistically significant weak negative correlation between HHI and DPR with the coefficient value of -0.0385 (*P*= 0.0488). The pairwise correlation analysis also found statistically significant weak negative correlation between DYR and HHI within the coefficient value of -0.0233 which is significant at 1 percent of significant level with the P value of 0.0050. The control variable of AGE presented statistically significant weak negative correlation with both DPR and DYR with the coefficient values of -0.0255 (*P*= 0.0453) and -0.1269 (*P*=0.0001). Furthermore, EXD also presented weak negative correlation with DYR by the coefficient value of -0.0728 (*P*=0.0291) and rest of the control variables did not present any significant association with the dependent variables of DPR and DYR. The overall findings suggested statistically significant weak negative correlation between ownership concentration and dividend policy among the Sri Lankan listed companies.

The R-squared value of 0.0053 (*P*= 0.0015, *F*= 3.95) for model 1 denoted significant weak explanation ability of all variables together on DPR and the R-squared value of 0.022 (*P*=0.0013, *F*=4.02) for model 2 revealed significant weak variation of independent variables together on the dependent variable of DYR. The beta coefficient value of model 1 presented significant negative impact of HHI on DPR with the coefficient value of -0.033 (*P*= 0.041). Regression model 1 did not reveal any significant explanation power of control variables of DPR. As per the beta coefficient values in model 2, HHI did not present any significant impact on DYR. Furthermore, only the control variable of AGE denoted significant negative impact on DYR within the beta coefficient value of -0.064 (*P*= 0.000). As per the afore mentioned facts, the majority of the evidence provided by the regression analysis revealed statistically significant negative impact of ownership concentration on dividend policy in Sri Lanka.

Accordingly, the majority of the evidence revealed statistically significant negative correlation between ownership concentration and dividend policy and this overall finding of the study has been supported by numerous empirical studies in literature. Kouki and Guizani (2009) discovered a strongly significant negative association between institutional ownership and dividend per share as well as a strongly negative relationship between state ownership and the amount of dividend paid to shareholders. In their analysis, Kulathunga and Azeez (2016) also found that negative correlation between ownership structure and dividend payout in Sri Lankan listed companies. According to information provided by Kulathunga and Azeez (2016), corporate ownership reduces the use of dividends as an indicator of strong company performance. It said that higher degrees of ownership concentration cause dividend payments to decline.

Implications and Limitations

Accordingly, it was concluded that statistically significant negative correlation can be seen between ownership concentration and dividend policy in Sri Lanka. The need to utilize dividends as an indicator of strong business performance may decline as the number of major shareholders in the company increases. Further, significant shareholders' preference for obtaining rewards that benefit them personally over dividends that benefit all shareholders equally also influences the number of dividends distributed among shareholders. As a result, it was anticipated that they would choose lower payout rates and that major shareholders would have more authority over minor shareholder rights, influencing managerial decisions. previous research in the field has also suggested a correlation between ownership concentration and dividend policy. For instance, (Arora & Srivastava, 2019; Thanatawee, 2013) found evidence of a similar trend in emerging markets, particularly in India, where major shareholders exhibited a preference for lower payout rates. This aligns with the anticipation that increased ownership concentration may lead to such a choice.

It implies that larger shareholders could influence managerial decisions with higher monitoring cost than small holding investors above the distribution of dividends among shareholders based on their own preferences This influence poses a significant risk to retail investors, accentuating the need to address the negative impact of key players on decision-making processes. The introduction of unjust practices not only places small shareholders at a disadvantage, lacking influence, and legal protection, but also undermines the integrity of the market.

Recognizing this, there is a critical role for robust corporate governance in mitigating adverse effects and ensuring fair decision-making.

As highlighted in the introduction, the study underscores the importance of scrutinizing the influence of key players and the role of corporate governance in safeguarding the interests of all stakeholders in the Sri Lankan capital market. These unjust practices put small shareholders at risk as they have no influence over management and are not legally protected. Further, it can lead to conflicts between controlling and minority shareholders. Thus, it is recommended for the management identify the most effective dividend policy for the company on its own by following the practical and theoretical procedures. Further the study encourages the state policy makers to oversee the dividend policies among companies to maintain the quality over the Sri Lankan capital market. Additionally, the investors also can use these findings for their investment decisions. The findings will contribute to existing literature by becoming a new source of literature.

References

Alabdullah, T. T. Y., Ahmed, E. R., & Jebna, A. K. (2022). Corporate Governance System and Firm Financial Performance. *Acta Scientific Computer Sciences*, *4*(6), 97-103.

Arora, R. K., & Srivastava, A. (2019). Ownership Concentration and Dividend Payout in Emerging Markets: Evidence from India. *Pacific Business Review International*, 11(2), 63-71.

Demsetz, Harold and Kenneth Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy*, 93, 1155–1177

Firer, S. and Mitchell Williams, S. (2003). Intellectual capital and traditional measures of corporate performance, Journal of Intellectual Capital, 4(3), 348–360.

Harada, K., & Nguyen, P. (2011). Ownership concentration and dividend policy in Japan. *Journal of Managerial Finance, 37*(4), 362-379.

Kouki, M., & Guizani, M. (2009). Ownership Structure and Dividend Policy Evidence from the Tunisian Stock Market. *European Journal of Scientific Research, 25*(1), 42-53.

Kulathunga, K. M. K. N. S., & Azeez, A. A. (2016). The impact of ownership structure on dividend policy: Evidence from listed companies in Sri Lanka. *International Journal of Economics, Commerce and Management*, 4(7), 22-30.

Ritter, J. R. (1991). The long-run performance of initial public offerings. *The Journal of Finance*, 46(1), 3-27.

Saunders, M., Lewis, P. H. I. L. I. P., & Thornhill, A. D. R. I. A. N. (2007). Research methods for *business students, Pearson Education Limited, England*.

Thanatawee, Y. (2013). Ownership structure and dividend policy: Evidence from Thailand. *International Journal of Economics and Finance, 5*(1), 121-132.

Factors Influencing Internal Auditors' Fraud Detection Capabilities

Shehani Roshe* & Raveendra Kuruppuarachchi

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

roshel.kaveesha@gmail.com*, raveendra@wyb.ac.lk

Abstract

This research study was mainly focused on searching the factors, which influence for internal auditors' fraud detection capabilities based on internal auditors who are working in big four audit firms in Sri Lanka, To resolve this research problem, the independent variables were used including knowledge factor, problem solving ability, interpersonal skills and time budget pressure. To overcome research problem, main research objectives that needed to achieve with the findings of this research using sample responses. Determine the factors that influence internal auditor's fraud detection capability and examine the most significant factors that influence to internal auditor's fraud detection capabilities are the main research objectives. This research, mainly focused on internal auditors who working in big four audit firms in Sri Lanka. 194 responses were collected out of 354 population. Such 194 responses were carried forward in order to examine the factors influencing internal auditors' fraud detection capability. Especially the questionnaire method was used in order to collect the information from selected sample respondents and it was consisted of two parts including demographic factors and items for analysis part. The key conclusions represented the solutions for research questions that were developed at the initial stage of this research. The Mui model variables of knowledge factors, problem solving ability and interpersonal skills and time budget pressure were used in order to measure the fraud detection ability. As per the results of the analysis, two factors were identified as having significant influence with fraud detection ability of internal auditors including knowledge factor and interpersonal skills. But other 2 hypotheses were rejected by showing that there were a no significant influence with fraud detection capability. Those 2 components were time budget pressure and problem-solving ability. According to the findings, the final conclusion was that the independent variable of knowledge factor & interpersonal skills have significant influence with internal auditors' fraud detection capabilities who work in big four audit firms in Sri Lanka.

Keywords: *Fraud detection, Internal auditor, Knowledge factor, Problem solving ability, Interpersonal skills*

Introduction

Fraud poses a significant threat to the financial stability and reputation of organizations across the globe. Internal auditors are crucial in the effort to mitigate these risks by assessing and evaluating an organization's internal control framework and financial process. Internal audit plays a vital role in contemporary business operations as it contributes significantly to an organization's goal attainment through the adoption of a systematic and rigorous approach to evaluating and enhancing the effectiveness of risk management, control and governance procedures (Ebaid, 2011). Internal auditors need to possess a certain level of understanding when it comes to assessing the potential for fraud risk within an organization and how the organization handles it. Internal auditors should have enough knowledge to recognize and evaluate the possibility of fraud within the organization and how it's being managed, but their main focus is not being experts in actively uncovering or probing fraudulent activities. As a result, research is required to identify factors that influence internal auditors' fraud detection capabilities based on internal auditors who are working in big four audit firms in Sri Lanka. The big four are the four largest professional service networks in the world: Deloitte, Ernst & Young (EY), KPMG and Price Waterhouse Coopers (PWC). According to revenue they are the four biggest accounting networks worldwide. Since this will help to increase fraud detection capability of internal auditors and management decision making, it is crucial to understand the factors that affect fraud detection capability.

Study examined through identifying five drivers that influencing internal auditors' fraud detection capability. Mui Model (2010) factors of Knowledge factor, problem solving ability and interpersonal skills have been proposed to systematically examine the study (Mui, 2010). Literature revealed another two factor of demographic factors and time budget pressure.

Objectives

The general objective of this research is to determine the factors influence internal auditor's fraud detection capability. Further as a specific objective, examine the most significant factors need to be identified as a part of the main research objective. After properly analysing this study using gathered data, it is expected to reach the research objectives and also the findings can be used to predict the fraud detection capability of internal auditors.

Theoretical Background

The theoretical framework of this study comprises agency theory, attribution theory and cognitive approach theory. The Agency theory is used in this study to show the basis of establishing internal audit in an organization whereas the Cognitive Approach Theory and Attribute Theory have been used to provide determinants of fraud detection.

Research framework was created to represent the independent and dependent variables of this study. Independent variables of this study were knowledge factor, problem solving ability, interpersonal skills and time budget pressure and dependent variable was fraud detection capability.

Methods

Positivist research philosophy is used as a philosophical system for this study, because this study will be done independently and obtained verifiable information via observation. Quantitative research approach will be adopted in this research study.

In order to address research questions of “What are the factors influence internal auditor’s fraud detection capability” and “What are the most significant factors influence internal auditor’s fraud detection capability”, data was collected from the internal auditors who working on big four audit firms in Sri Lanka (Deloitte, EY, PWC, KPMG) which consist of 354 internal auditors. Using Morgan table derived sample size of 186. Sample size proportionate among four audit firms based on population and take sample size for each and every audit firm. The questionnaires that have been sent to the internal auditors have been used to collect the data. The replies of the participants will be used as the major data source for this study The convenience sampling technique was used in the selection of the sample. The number of internal auditors that were included in the study sample (N) was 186.The outcome of data analysis of the study has been abstracted, that presents the findings of the study's data analysis as well as a discussion of those findings. In order to test the hypotheses, the Statistical Package for the Social Sciences (SPSS) version 26 was used for the analysis of the processed data to measure means, standard deviations, correlations, and regression equations.

Reliability and validity testing is a special part when it comes to the context of questionnaire. Under reliability, it is tested by using Cronbach Alpha value for each variable as a high priority for the continuity of this research and the KMO test and Bartlett’s test are used to assess the suitability of data for factor analysis. Regression analysis will be conducted to answer the research questions with the hypothesis testing in order to assess the factors influence internal auditor's fraud detection capabilities.

Results

In this study, data was gathered from internal auditors. Their response rate was 100% for the data collection instrument.

The KMO test used to assesses the suitability of the data for factor analysis by measuring the degree of coherence or inter-correlation between the variables in the dataset. KMO test values should be greater than 0.6 for an acceptable analysis. According to table 1, for this study Kaiser-Meyer-Olkin value is 0.919 which indicate high sampling adequacy. Bartlett's test is appropriate when the significance value is less than 0.05 (Bartlett, 1954). Table 2 shows that, Bartlett test of sphericity is significant (p<=0.000) in this study.

Table 1: KMO and Bartlett's Test Result

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.919
Bartlett's Test of Sphericity	Approx. Chi-Square	7626.495
	Df	630
	Sig.	0.000

The Cronbach alpha values are calculated to test the reliability of selected questions for the study. According to table 2, Cronbach Alpha values for all independent and dependent variables are shown with their strengths towards the reliability.

Table 2: Reliability Statistics

	Reliability Statistics		
Variables	Cronbach's Alpha	Items	Reliability
Knowledge factor			
In-service training	0.897	3	Reliable
Mentoring	0.912	3	Reliable
Knowledge of IT	0.908	3	Reliable
Problem solving ability			
Data analysis skill	0.928	3	Reliable
Analytical reasoning	0.968	8	Reliable
Interpersonal skills			
Ability to communication	0.921	4	Reliable
Ability to work in team	0.947	6	Reliable
Fraud detection	0.924	5	Reliable

In regression analysis, R value shows the coefficient of determination between selected independent variables and fraud detection and it is 0.652 (Table 3). The R-square value is depicted that 42.5% of the variants in fraud detection were predicted from independent variables.

Table 3: Model Summery

Model Summary Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.652[a]	0.425	0.413	0.405

As per the table 4, the sig. value is p < 0.000 the results demonstrate there is highly significant variance between independent variables and fraud detection.

Table 4: ANOVA Table

ANOVA Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.767	4	5.692	34.744	0.000[b]
	Residual	30.798	188	0.164		
	Total	53.565	192			

Table 5: Coefficients

Coefficients Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	0.085	0.416		0.205	0.838
Knowledge factors	0.296	0.089	0.280	3.342	0.001
Problem solving ability	0.079	0.073	0.085	1.087	0.278
Interpersonal skills	0.370	0.086	0.355	4.290	0.000
Time budget pressure	0.193	0.409	0.026	0.473	0.637

The table 5 shows the Beta values and significance (p-values) for each and every independent variable. P value indicate the significance level of the components, if

P < 0.05, it is considered as a significant component. According to table 6, knowledge factor and Inter personnel skills factor are the significant factors on fraud detection while two factors of problem-solving ability and time budget pressure becoming insignificant.

Based on the outcomes, following hypotheses are tested.

Table 6: Hypothesis Testing

Hypotheses	Significance level	Prob.	Beta	Decision
There is a significant influence of knowledge factors on internal auditor’s fraud detection capabilities (H1)	0.05	0.001	0.296	Accept
There is a significant influence of problem-solving ability on internal auditor’s fraud detection capabilities. (H2)	0.05	0.278	0.079	Rejected
There is a significant influence of interpersonal skills on internal auditor’s fraud detection capabilities. (H3)	0.05	0.000	0.370	Accept
There is a significant influence of time budget pressure on internal auditor’s fraud detection capabilities. (H4)	0.05	0.637	0.193	Rejected

Discussion

With the intension of measuring internal consistency, the Cronbach alpha values are calculated for each variables its good if the dependability is (0.9 > 0.8). It is acceptable if (0.8 > 0.7). Since every variable in this is more than 0.7, study can be concluded that all variables have a good reliability. The examination of the KMO test values should be greater than 0.6 for an acceptable analysis, study Kaiser-Meyer-Olkin value is 0.919 which indicate high sampling adequacy. In the data model, R-square value is 0.452. This shows that the individual variable has described 45.2% of the dependent variable. The adjusted R-square also shows that the individual variable can explain 41.3% of the dependent variables. The significance level for the ANOVA model is 0.000, which is less than 0.05, making it a significant model. Knowledge factor and Interpersonal skills are the most significant out of the four elements that can really affect fraud detection capability.

The Beta values of the four independent variables are positive that indicate all variables have a favourable impact on fraud detection capabilities.

In order to evaluate this significance of the components, the P-value was used under multiple regression analysis. If P-value less than 0.05 ($P<0.05$), its identify as a significant variable. The P values of the four independent variables, namely knowledge factor, problem solving ability, interpersonal skills and time budget pressure, are as follows: 0.001, 0.278, 0.000 and 0.637 respectively. According to this, the most significant factor that influence on fraud detection capability is knowledge factor and interpersonal skills but these two factors of problem solving ability and time budget pressure were identified as having insignificant relationship with fraud detection capability in the analysis of previous objective. However, this model is a significance model to predict internal auditor' fraud detection capabilities.

Implications

This study aims to examine factors influence internal auditors' fraud detection capabilities. In order to address research objective, in initial stage we developed 4 hypotheses. Among developed hypotheses that were created, the significant relationship between independent variables including knowledge factor, problem solving ability, Interpersonal skills and time budget pressure and dependent variable are tested. According to SPSS analysis data, out of four independent variables that supposed to fraud detection capability, two factors of knowledge factor and interpersonal skills factor have a significant impact towards the fraud detection capability while other two factor of problem-solving skills and time budget pressure were identified as having insignificant relationship with internal auditor's fraud detection capability in the analysis of previous objective.

The overall results demonstrate that, knowledge factor and interpersonal skills had been important factors that influence internal auditor's fraud detection capability. This research might propose that audit firms and individuals of internal auditors should focus on improvements of knowledge factors and interpersonal skills with ultimate objective of enhancing fraud detection capability. Under knowledge factor variable, we assessed about in-service training, mentoring and knowledge of IT. As a result, this research might propose that audit firms should organize in-service training programmes, mentoring sessions and auditing software or IT application training sessions for their internal auditors. Under interpersonal skill, I recommend to management of audit firms to arrange programmes that improve team working ability and communication ability. The effectiveness of internal audit function can enhance by improving quality of internal audit, the competence of internal audit team, the independence of internal audit and management support. (Drogalas et al., 2015)

While doing this research, there were several problems that had to be faced as well as other researchers. Mainly those limitations and problems were related with time, cost and scope of the study. Because of the quantitative study, it was hard to operate in some stages compared with the qualitative study. A qualitative study would have provided greater insights into fraud detection capability of internal auditors, however due to the study's quantitative character, this was not possible. When takes big four audit firms in Sri Lanka, there are large number of internal auditors working. But in this study, it had to be limited to small sample because of the time limitation and some other issues. In finding literature, it was hard to find some previous findings relating to internal auditors who work in big four audit firms in Sri Lanka. It created a lot of gaps between previous researches and this research article.

References

Creswell, J.W. and Clark, V.L.P. 2017. *Designing and conducting mixed methods research*. Sage publications.

George, D., Theofanis, K. and Konstantinos, A. (2015). Factors associated with internal audit effectiveness: Evidence from Greece. *Journal of Accounting and Taxation*, *7*(7), 113-122.

El-Sayed Ebaid, I. (2011). Internal audit function: An exploratory study from Egyptian listed firms. *International Journal of Law and Management*, *53*(2), 108-128.

Mui, G.Y., 2010. Auditor expert performance in fraud detection: The case of internal auditors. Available at: https://espace.library.uq.edu.au/view/UQ:211780

Impact of Knowledge Management on Shareholder Value Creation

Dushanthi Kumari* & Jayendrika Wanigasekara

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

dushanthikumari56@gmail.com*, kaushalya@wyb.ac.lk

Abstract

In the dynamic landscape of modern business, effective knowledge management has emerged as a significant driver of corporate success in the context of shareholder value creation. This paper investigates intricate relationship between knowledge management practices and their influence on shareholder value of Sri Lankan firms. At present, firms struggle with the challenge of harnessing their internal knowledge effectively, driven by the ever-increasing volume of data, the necessity for innovation and the need to remain agile in uncertainty. This study aims to investigate how knowledge management can strategically identify these challenges and lead to the creation of shareholder value. The paper establishes a theoretical framework referring to resource-based theory, knowledge-based theory and shareholder value theory. Empirical insights from previous research underline that the significant role of knowledge management in enhancing financial performance metrics, consisting return on assets, return on equity and overall profitability. This study fills a significant gap in the Sri Lankan context and provide insights into the relationship in between knowledge management and shareholder value creation. The research design of the study employs a cross sectional approach, surveying a representative sample of 80 listed companies using a structured questionnaire. Correlation and regression analysis are used for achieving study's objectives. The findings suggest that a positive relationship between knowledge management and shareholder value creation with knowledge acquisition and creation exhibiting strong correlations. Firms emphasize that effective knowledge management, documentation, transfer and application demonstrate a commitment to enhancing shareholder value. Practical implications suggest that optimizing documentation, facilitating knowledge transfer and encourage sharing while future research should explore cross industry variations, long-term impacts, and the relationship between knowledge management and innovation. The research study underscores the criticality of knowledge management in fostering sustainable growth and success Sri Lankan firms.

Keywords: *Knowledge management, Shareholder value creation, Sri Lankan listed companies, Financial performance*

Introduction

The dynamic landscape of modern business has brought forwarded knowledge management to the lead as a significant driver of organizational success. In today dynamic world, the effective management of knowledge resources can become critical for firms to create and sustain shareholder value. Then, this paper investigates into the field of knowledge management and influence on shareholder value creation.

This paper focuses on the relationship between knowledge management practices and the creation of shareholder value and seeks to explore the multifaceted ways in which knowledge assets in both explicit and tacit, can be controlled and leveraged to enhance a financial performance of firm and market position of firm

Hence, the purpose of this study to assess how knowledge management impact on shareholder value creation in the listed companies in Sri Lanka. This study is guided by following specific objectives to achieve the overall objective. The main objective is to investigate the impact of the knowledge management process on value creation in the firm. The specific objectives of this research are to assess the level of the knowledge management process of the firm, to assess the value creation of the measuring financial value derives. In today's highly dynamic and complex business environment, organizations face the challenge of utilizing and applying their internal knowledge effectively and efficiently. This stems from the ever-increasing volume of data and information available, the need for Innovation, and the imperative to remain agile in the face of uncertainty. Then, the problem is understanding how knowledge management can be strategically employed to identify these challenges and, in doing so, it can lead to the creation of share shareholder value.

Theoretical Background

The brief review of pertinent literature, the literature review provides a comprehensive understanding of the theoretical foundations which underline the relationship between knowledge management and shareholder value creation. Then, this is drawing from knowledge-based theory, resource-based theory, and shareholder value theory and it establish a theoretical framework for subsequent analysis in the research study.

More generally, the knowledge-based approach sheds new light upon current organizational innovations and trends and has far-reaching implications for management practice (Grant, 1996). Whereas, Leading RBV (Resource- Based View) proponents (Barney, 2005) while recognizing, integrating resources base concepts provides a comprehensive framework for understanding the complex relationship between knowledge management and shareholder value creation.

Several attempts have been undertaken to identify and define the different Knowledge Management (KM) Processes (Gold et al., 2001; Lee et al., 2005; Chen & Huang, 2009). Based on the review of the existing literature, it was found that there are discrepancies in more inert the number and labeling of the processes (Alavi & Leidner 2001) but at least we must consider five key processes of KM comprising knowledge acquisition (KA), knowledge documentation (KD), knowledge transfer (KT), knowledge creation (KC), knowledge application (KA) (Seleim & Khalil, 2007).

After a review of the existing literature the importance of value for firm success was proven. According to Argandona (2011), value creation is measured through ‘economic value generated’, which equals the total of consumer surplus and the producer surplus. Several financial value drivers which are existing in the value creation literature, such as economic value added, balanced scorecard, enterprise value, total contribution, total economic value, and total value (International Integrated Reporting Council, 2013). Seven value drivers within a business can be managed to create value (Rappaport, 1998) financial value drivers or generic strategies to increase value have been identified by Pandey (2015), such as revenue enhancement, cost reduction, asset utilization, and cost of capital reduction.

Additionally, the literature review examines into the empirical findings and representing how effective knowledge management practices positively impact different kinds of facets of organizational performance that include financial metrics, risk management, Innovation and employee engagement also. When considering about empirical insights, empirical research reveals that effective knowledge management practices yield various kinds of benefits for organizations and these practices are positively correlated with financial performance metrics such as Return on Assets (ROA), Return on Equity (ROE) and overall Profitability (Seleim & Khalil, 2007). Then, these findings underscore the significant and critical role of knowledge management in driving shareholder value of the organization.

The research gap is identified as the limited understanding of knowledge management's impact on shareholder value creation, particularly within the Sri Lankan context. Researcher concludes by highlighting the need to address this gap and contribute to the knowledge in this area.

Methods

This research paper aims to investigate the impact of knowledge management on shareholder value creation within the listed companies in Sri Lanka.

This research paper assessed how knowledge management processes, including knowledge acquisition, knowledge creation, knowledge documentation, knowledge transfers and knowledge application, influence indicators of shareholder value creation based on the conceptual model proposed by Seleim & Khalil (2007). These indicators encompass revenue enhancement, cost reduction, assets utilization and cost of capital reduction according to Pandey (2015).

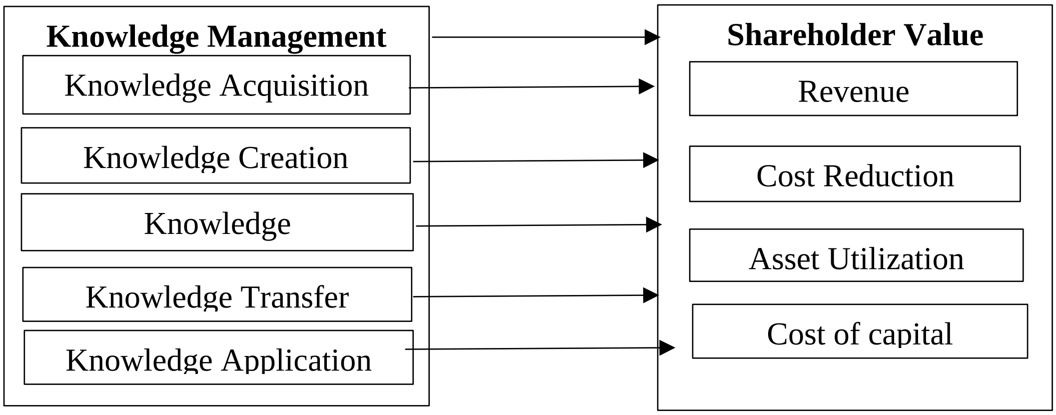

Figure 1: Conceptual Framework

This research paper provides theoretical and practical aspects and it contributes to knowledge management theory through focusing on its specific influence on shareholder value creation, aligning with shareholder value maximization principles. It provides valuable insights to Sri Lankan listed companies and similar contexts, guiding knowledge management Strategies for improved financial performance in practice.

The Researchers have selected only higher market capitalization companies listed in Colombo Stock Exchange as at 31st of December 2022. Thus, the final Sample of 80 Companies was selected for examining the impact of knowledge management on Shareholder Value Creation.

The structured questionnaire was administered via Google forms. The questionnaire included demographic questions and questions related to knowledge management practices and their impact on shareholder value creation using a five-point Likert scale.

The data analysis method includes descriptive statistics which are maximum, minimum, mean, standard deviations to summarize the data set and inferential statistics which are correlation and regression analysis to evaluate the relationships and for that SPSS software is used.

Results

The arguments and findings are described in detail in this section and the relationship between knowledge management and shareholder value creation within Sri Lankan listed companies are considered.

When considering about knowledge acquisition, the mean value of 3.3328 indicates a moderate emphasize on acquiring new knowledge. Then, acquiring new knowledge is very critical and significant.

According to the Knowledge creation, the mean value is 3.1875 and companies demonstrate a moderate emphasize on generating new knowledge and fostering innovation. Then, this suggests a recognition of the value of creating new knowledge with potential for developing innovation processes.

The mean value of knowledge documentation is 3.3661 and this shows a moderate to moderately high emphasize on documenting knowledge and this indicates that acknowledgement of the criticality and importance of capturing and organizing knowledge, preserving institutional knowledge for future use.

When it comes to knowledge transfer, the mean value of 3.2670 indicates a moderate emphasis on Knowledge transfer. There are opportunities to enhance mechanisms for effective knowledge sharing within the organization while there is recognition of the criticality and significance of knowledge sharing within the organization.

And also the mean value of Knowledge application is 3.4250 and it indicates that companies exhibit a moderately high emphasize on applying knowledge and this indicates a focus on utilizing Knowledge to drive value creation and business outcomes.

Correlation analysis was conducted to identify relationships between knowledge management dimensions and shareholder value Creation. Then, the significance level (p value) was set at 0.05.

First hypothesis is there is a relationship between knowledge management and shareholder value creation. The positive relationship in between knowledge management and shareholder value creation is significant and the correlation Coefficient suggest a weak positive relationship.

There is a relationship between knowledge acquisition and shareholder value creation is the second hypothesis of the study. A strong correlation exists in knowledge acquisition and shareholder value creation.

Third hypothesis is formulated as; there is a relationship between knowledge creation and shareholder value creation. It was found a strong correlation in between knowledge creation and shareholder value creation.

When it comes to hypothesis four, there is a relationship between knowledge documentation and shareholder value creation. A weak correlation exists in between knowledge documentation and shareholder value creation.

The hypothesis five of the study is; there is a relationship between knowledge transfer and shareholder value creation. There is a weak positive correlation between knowledge transfer and shareholder value creation.

And also, hypothesis six; there is a relationship between Knowledge application and shareholder value creation. The value indicates that there is a weak positive correlation is observed in between creation and shareholder the value creation

Discussion

This research study investigated the effects of knowledge management on shareholder value in Sri Lankan listed companies.

As per the principles and generalization, companies display moderate to high commitment to knowledge management and it correlates positively with shareholder value of the organization.

Exceptions and limitations of the research study, this study is limited to stock exchange firms in Sri Lanka and self-reported data can contain bias and scale reliability varies.

And also come to theoretical and practical implications, this study indicate that strong knowledge management can enhance shareholder value and strategies should optimize documentation, facilitate transfer and encourage knowledge sharing.

Conclusions and Recommendations

It indicates that effective knowledge management can enhance shareholder value. When comes to recommendations, this research study indicate that improving documentation, fostering knowledge sharing, invest in employee training and continuous evaluation is very critical and significant. Future research should explore cross industry variations, long term impacts and the relationship between knowledge management and innovations also. This research adds to the growing body of knowledge on the relationship in between knowledge management and financial performance, with specific relevance to Sri Lankan listed companies. The findings underscore the practical significance of effective knowledge management strategies in enhancing shareholder value, making a case for organization to invest in knowledge management initiatives. Companies can achieve sustainable growth and success through fostering a culture of knowledge sharing and leveraging knowledge management applications.

Implications and Limitations

This study examines the research limitations and implications, while the research study offers valuable insights, it is not without limitations. Then, the findings pertain to a specific context and might not be universally applicable. Then, future research can consider cross industry comparisons and longitudinal studies to further explore the dynamics of knowledge management and shareholder value creation. In additionally, exploring the impact of knowledge management on non-financial aspects like corporate social responsibility, would broaden the scope of research in this area.

References

Alavi, M., & Leidner, D. E. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 107-136.

Alavi, M., & Denford, J. S. (2012). Knowledge management: Process, practice, and web 2.0. *Handbook of organizational learning and knowledge management*, 105-124.

Argote, L. and Ingram, P. (2000). Knowledge Transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150-169.

Argandoña, A., Stakeholder Theory and Value Creation (May 21, 2011). IESE Business School Working Paper No. 922, Available at

SSRN: https://ssrn.com/abstract=1947317 or http://dx.doi.org/10.2139/ssrn.1947317

Chen, C.-J. and Huang, J.-W. (2009). Strategic human resource practices and innovation performance - The mediating role of knowledge management capacity. *Journal of Business Research*, 62(1), 104–114.

Gorelick, C., & Tantawy-Monsou, B. (2005). For performance through learning, knowledge management is the critical practice. *The Learning Organization*, *12*(2), 125-139.

Gold, A., Malhotra, A. and Segars, A. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18, 185-214.

Grant, R.M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, 33(3), 114-135.

Grant, R.M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal* , 17(22), 109-122.

International Integrated Reporting Council. (2013) Value creation: Background paper for IR

Barney, J. B., & Mackey, T. B. (2005). Testing resource-based theory. In *Research methodology in strategy and management* (pp. 1-13). Emerald Group Publishing Limited.

Lee, K. C., Lee, S., & Kang, I. W. (2005). KMPI: Measuring knowledge management performance. *Information & Management*, *42*(3), 469-482.

Pandey, I.M. (2015). *Financial management*, Vikas publishing House (Pvt) Ltd. Noida, India.

Porter, M. E., & Kramer, M. R. (2011). Creating shared value: Redefining capitalism and the role of the corporation in society. *Harvard Business Review*, *89*(1/2), 62-77.

Seleim, A., & Khalil, O. (2007). Knowledge management and organizational performance in the Egyptian software firms. *International Journal of Knowledge Management (IJKM)*, *3*(4), 37-66.

Sekaran, U. (2003). *Research Methods for Business: A Skill-building Approach*. New York: Wiley.

Harnessing Inventory Management for Improved Profitability: A Sri Lankan Perspective

Dilki Samarasinghe* & Harshani Wijesinghe

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka, Sri Lanka

dilkisamarasinghe99@gmail.com*, harshani@wyb.ac.lk

Abstract

This scholarly investigation evaluates the influence of inventory management on the performance of firms from two perspectives: financial performance and market performance, focusing on entities listed on the Colombo Stock Exchange (CSE) in Sri Lanka. Since the study focused on inventory management, 51 manufacturing companies were meticulously selected for analysis from a diverse array of sectors, including Capital Goods, Apparel, Food, Beverage, and Tobacco sectors, covering a period from 2017 to 2022. The regression analysis yielded significant findings, revealing that inventory turnover, inventory conversion, and inventory leanness significantly influence the financial performance of firms. Notably, inventory turnover and inventory leanness also exhibited a substantial effect on market performance. Firm size, the control variable, also significantly affects both financial and market performances. The study concludes that efficient inventory management plays a pivotal role in facilitating uninterrupted operations which results in maintaining firm profitability while enhancing the corporate value. Light of these findings, it is suggested that future research should expand the scope beyond listed companies to include a broader spectrum, such as non-listed entities and small and medium-sized enterprises (SMEs). This expansion would enhance the robustness and applicability of the research. Additionally, future studies are encouraged to integrate a mix of both primary and secondary data sources, thereby enhancing the reliability and depth of the research outcomes.

Keywords: *Inventory management, Financial performance, Market performance*

Introduction

The presence of working capital (WC) is crucial for the functioning of any organization, as it has a direct influence on the company's liquidity and profitability. The efficient management of working capital is of paramount importance for ensuring seamless corporate operations, including the effective administration of both current assets and current liabilities. Inventory management is a crucial component of working capital since it constitutes a larger proportion compared to other existing assets.

Stevenson (2010) defines inventory management as a strategic framework that organizations use to regulate their investment in inventory. The process includes documenting and examining inventory levels, forecasting future demand, and making decisions on the timing and method of procurement. Alternatively, Deveshwar & Dhawal (2013) put up the proposition that inventory management is a strategic approach used by organizations to effectively arrange, store, and replenish inventory, with the aim of maintaining an optimal stock of products while simultaneously minimizing expenses.

Nestor et al. (2021) highlight that the inventory is an essential component of the current assets, and enormous sums of money are allocated to the inventory to guarantee a continuous flow of production and satisfy the customers' requirements. It is difficult to strike a balance between the supply of inventory and the demand for it. To get optimal results, a corporation should strive to maintain sufficient inventory to meet the requirements of its clientele. On the other hand, due to the expense of keeping inventory, the corporation does not want to have excessive inventory on hand at any one time.

According to the past literature, developing countries tend to allocate limited attention to the issue of inventory management. Accordingly, existing research on this topic has predominantly focused on developed countries, leaving gaps in empirical reviews, including contradictions among researchers' findings. Furthermore, it is worth noting that there exists a dearth of scholarly investigations pertaining to this topic within the context of Sri Lanka. Specifically, the examination of the effects of inventory management on both financial and market performance remains an area that has not been extensively explored. These gaps contribute significantly to the research problem, specifically examining the impact of inventory management on both the financial and market performance of listed companies in Sri Lanka.

Objectives

This research, which is focused on a particular aspect of inventory management, aims to achieve two specific objectives as outlined below.

To examine the impact of inventory management on the financial performance of listed companies in Sri Lanka.

To examine the impact of inventory management on the market value of listed companies in Sri Lanka

Theory

The primary purpose of inventory management is to minimize costs associated with holding stocks, while simultaneously ensuring that the organization maintains sufficient and continuous supply to facilitate the continuation of operations (Mpwanya, 2005). According to Routroy & Bhausaheb (2010), organizations have a strong interest in effectively managing their inventory in order to save expenses, increase service quality, optimize product availability, and ultimately achieve customer happiness. Rosenfield and Simchi-Levi (2010) indicate that the management of inventory has significant financial consequences for both customer happiness and the financial success of a business.

Milgrom & Roberts (1988) and Dudley & Lasserre (1989) indicated that timely and informative customer demand data can result in improved firm performance through reduced inventories. Huson & Nanda (1995) proved that the improvement of inventory turnover led to an increase in earnings per share. Deloof (2003) documents a significant negative relation between gross operating income and the number of inventory days for a sample of non-financial Belgian firms during the period 1992-1996, suggesting that managers can create value for their shareholders by reducing the number of inventory days to a reasonable minimum. Additional evidence from Belgium is provided by Boute et al. (2004), who found no overall decrease in inventory ratios despite an increased focus on inventory reduction. Boute et al. (2007), concluded that companies with very high inventory ratios have more possibility of being bad financial performers. Chen et al. (2007) by examining how the market values the firms with respect to their various inventories policies, reported that firms with abnormally high inventories have abnormally poor stock returns, firms with abnormally low inventories have ordinary stock returns while firms with slightly lower than average inventories perform best over time.

Furthermore, in a more recent study, Shah & Shin (2007) examined the empirical associations among three constructs – inventory, IT investments, and financial performance – using longitudinal data that span four decades, where they concluded that reducing inventories has a significant and direct relationship with financial performance. Koumanakos (2008) studied the effect of inventory management on firm performance. 1358 manufacturing firms operating in three industrial sectors of Greece, food, textiles, and chemicals were used in the study covering the period of 2000-2002. The hypothesis that lean inventory management leads to an improvement in a firm's financial performance was tested. The findings suggest that the higher the level of inventories preserved by a firm, the lower the rate of return. Prior empirical research has yielded contradictory findings, indicating a research vacuum that requires attention and justifying further inquiry in this domain.

Methods

The empirical scope encompasses entities listed on the CSE totaling 290 companies as of 31 August 2023 and 51 manufacturing companies were chosen using convenient sampling. The sample was selected from a variety of sectors, including Capital Goods, Apparel, Food, Beverage and Tobacco industries since this study is based on Inventory Management. Data were collected from 2017 to 2022 from the annual reports of listed companies.

The primary guiding concepts of the research were inventory management, which served as the independent variable, and company performance, which served as the dependent variable. The Inventory Turnover (ITR), Inventory Conversion Period, and Inventory Leanness were employed to assess inventory management. The financial performance was evaluated using the Return on Assets (ROA) metric, whereas the market performance was assessed using Tobin's Q ratio.

Two distinct models are used in this research to examine the effects of inventory management on financial performance (Model 1) and market performance (Model 2).

$$FP = \beta_0 + \beta_1 ITR + \beta_2 ICP + \beta_3 ILN + \beta_4 FSZ + U \quad \text{……………………………(1)}$$

$$MP = \beta 0 + \beta 1 ITR + \beta 2ICP + \beta 3ILN + \beta 4FSZ + U \quad \text{…………………………(2)}$$

Where,

FP: Financial Performance

MP: Market Performance

ITR: Inventory Turnover Ratio

ICP: Inventory Conversion Period

ILN: Inventory Leanness

FSZ: Firm Size

β_0: Constant

β_1-β_4: Slope Coefficients

U: Error term

In order to conduct the investigation, the following hypotheses were set up.

H1: There is a significant impact of inventory turnover on the financial performance of listed companies in Sri Lanka.

H2: There is a significant impact of the inventory conversion period on the financial performance of listed companies in Sri Lanka.

H3: There is a significant impact of inventory leanness on the financial performance of listed companies in Sri Lanka.

H4: There is a significant impact of inventory turnover on the market performance of listed companies in Sri Lanka.

H5: There is a significant impact of the inventory conversion period on the market performance of listed companies in Sri Lanka.

H6: There is a significant impact of inventory leanness on the market performance of listed companies in Sri Lanka

Results

Table 1: Correlation Analysis

Variable	MP	ITR	ILN	ICP	FSZ	FP
MP	1					
ITR	0.99113	1				
ILN	-0.03747	-0.069408	1			
ICP	-0.02823	-0.044956	0.217616	1		
FSZ	-0.14631	-0.115943	0.156392	0.071517	1	
FP	-0.96712	-0.971546	0.01686	-0.055743	0.073467	1

The correlation statistics shown in Table 1 indicate the absence of multicollinearity concern among the variables.

According to the Hausman test for Models 1 and 2, the significant value is 0.0000 and it is less than 5%. Therefore, in examining the impact between inventory management and financial and market performances fixed effect model would be the most appropriate model for performing the panel regression. The regression results of Models 1 and 2 are shown below.

Table 2: Regressions

	Model 1		Model 2	
Variable	Coefficient	Probability	Coefficient	Probability
Constant	-0.582106	0.0006	15294.11	0.0000
ITR	0.007385	0.0000	136.2756	0.0000
ICP	-9.49E-05	0.0000	-0.086106	0.6449
ILN	0.257143	0.0328	2402.357	0.0193
FSZ	0.040353	0.0000	-872.7539	0.0000
R-squared		0.9821		0.9961
Prob (F-statistic)		0.0000		0.0000

Discussion

The results indicate that Hypothesis 01 is supported, suggesting that there is a significant positive impact of inventory turnover on financial performance. It implies that managers make decisions by compromising between inventory turnover and profitability. Consequently, in the case of a low gross profit rate, a significant quantity of trading transactions is necessary to generate adequate overall profits. This consists of the work of Sitienei & Memba (2016), which reveals a significant positive impact of inventory turnover on financial performance.

The return on assets is negatively impacted by the inventory conversion period, accepting Hypothesis 2. This suggests that a company's financial performance will be negatively impacted by the number of days it takes to convert raw materials purchased into completed goods and sell them to customers. The higher the days it takes a company to acquire inventory, sell it, and convert the proceeds into cash lower the firm’s profitability. This agrees with the findings of Obeidat (2020), which demonstrates a considerable negative influence on inventory conversion period and financial performance.

Hypothesis 03 is accepted while revealing that inventory leanness has a positive impact on financial performance. This suggests that the quantity of unsold inventory held by a company at the conclusion of its financial year has a favorable influence on its profitability. This result consists of Eroglu & Hofer (2011) though it contradicts some previous studies like Sunday & Joseph (2017).

On the other hand, findings imply that there is a significant positive impact of inventory turnover on the market performance where Hypothesis 04 is accepted. However, this finding does not conform to Folinas & Shen (2014) and Vastag & Whybark (2005).

Nevertheless, the results suggest that Hypothesis 05 cannot be supported, implying that the inventory conversion period does not have a substantial effect on market performance. This indicates that there is no impact on the market performance from the time it takes to convert inventories.

Moreover, it is found that Hypothesis 06 is supported, implying that inventory leanness has a significant adverse effect on market performance. According to this, the higher quantity of unsold inventory that is kept in the warehouse at the end of the financial year is likely to have a favorable effect on the overall performance of the market. This finding is in line with the findings of Eroglu & Hofer (2011).

Implications and Limitations

This research investigates the influence of inventory management on the performance of firms in Sri Lanka throughout the period spanning from 2017 to 2022. The study specifically focuses on two dimensions of performance, namely the financial performance and market performance of businesses listed in the CSE. The study concludes that optimal inventory levels are essential for financial success, with inventory turnover and inventory leanness having a significant positive impact on financial performance. However, the inventory conversion period has a significant negative impact on profitability. Accordingly, the findings imply that the effective management of inventory has a substantial impact on the profitability of companies. In terms of market performance, both inventory turnover and inventory leanness have a significant positive impact. Overall, the study emphasizes the importance of effective inventory management to improve financial and market performance.

In summary, the implementation of efficient inventory management practices is of utmost importance in order to maintain profitability, support day-to-day operations, and enhance market valuation for enterprises. Hence, businesses should maintain a level of working capital that allows them to produce at a given capacity while maximizing their return on fixed asset investments.

The study provides some suggestions to improve a company's financial and market performance by accelerating the process of turning inventory into sales, adopting contemporary manufacturing technology to reduce the time needed to convert inventories, recognizing and eliminating waste in the processing of materials, managing labor and time, and continually improving production processes. The study also concludes that firm size has a beneficial impact on the financial success of the organization, therefore they should take the initiative to grow their firms.

The research recommends further study on the relationship between inventory and firm performance for small and medium-sized businesses (SMEs) and the moderating effect of industry in this relationship. Companies create their own strategies to match the inventory system to organizational settings, which differ based on the stage of the company's life cycle, and the design of the inventory system is a dynamic process that changes and emerges based on the interests and power of the stakeholders. Therefore, it would also be helpful to investigate how resistant the results are to the use of a multifaceted inventory management efficiency metric and how the relationship between inventory and business success changes throughout the course of a company's life cycle.

References

Boute, R., Lambrecht, M. and Lambrechts, O. (2004). Did just-in-time management effectively decrease inventory ratios in Belgium?. *Tijdschrift voor Economie en Management*, *49*, 441-456.

Boute, R., Lambrecht, M., Lambrechts, O., & Sterckx, P. (2007). An analysis of inventory turnover in the Belgian manufacturing industry, wholesale and retail and the financial impact on inventory reduction. *Wholesale and Retail and the Financial Impact on Inventory Reduction*. Available at SSRN: https://ssrn.com/abstract=1089005 or http://dx.doi.org/10.2139/ssrn.1089005

Chen, H., Frank, M.Z. and Wu, O.Q. (2007). US retail and wholesale inventory performance from 1981 to 2004. *Manufacturing & Service Operations Management*, *9*(4), 430-456.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms?. *Journal of Business Finance & Accounting*, *30*(3-4), 573-588.

Deveshwar, A. and Dhawal, M. (2013). Inventory management delivering profits through stock management. *World Trade Centre, Dubai: Ram University of Science and Technology*.

Dudley, L. and Lasserre, P. (1989). Information as a substitute for inventories. *European Economic Review*, *33*(1), 67-88.

Eroglu, C. and Hofer, C. (2011). Inventory types and firm performance: Vector autoregressive and vector error correction models. *Journal of Business Logistics*, 32(3), 227-239.

Folinas, D. and Shen, C.Y. (2014). Exploring links among inventory and financial performance in the agricultural machinery. *International Journal of Food and Agricultural Economics (IJFAEC)*, *2*(4), 1-12.

Huson, M. and Nanda, D. (1995). The impact of just-in-time manufacturing on firm performance in the US. *Journal of Operations Management*, *12*(3-4), 297-310.

Koumanakos, D.P. (2008). The effect of inventory management on firm performance. *International Journal of Productivity and Performance Management*, *57*(5), 355-369.

Milgrom, P., & Roberts, J. (1988). Communication and inventory as substitutes in organizing production. *The Scandinavian Journal of Economics*, 275-289.

Mpwanya, M.F. (2007). *Inventory management as a determinant for improvement of customer service* (Doctoral dissertation, University of Pretoria).

Nestor, A., Uche, E.P, Ezechukwu, B., & Chinyere, J. (2021). Inventory management and financial performance: Evidence from brewery firms listed on NSE. *Journal of Research in Business, Economics and Management*, *2*(3)

Obeidat, M. (2021). Inventory conversion period and profitability relationship of the listed pharmaceutical firms of Jordan. *Accounting*, *7*(7), 1731-1740.

Rosenfield, B. and Simchi-Levi, D. (2010). *Designing and managing the supply chain: Concepts, strategies and case studies*. New York: McGraw-Hill/Irwin

Routroy, S. and Bhausaheb, N.A. (2010). Evaluation of inventory performance for perishable products through simulation. *IUP Journal of Operations Management*, *9*(1/2), 71.

Shah, R. and Shin, H. (2007). Relationships among information technology, inventory, and profitability: An investigation of level invariance using sector level data. *Journal of Operations Management*, *25*(4), 768-784.

Sitienei, E. and Memba, F. (2016). The Effect of inventory management on the profitability: An empirical analysis of Indian cement companies. *International Journal of Management and Commerce Innovations*, *3*(2), 111-119.

Stevenson, W.J., Hojati, M., Cao, J., Mottaghi, H. and Bakhtiari, B. (2007). *Operations Management*. Boston: McMcGraw-Hill Irwin.

Sunday, O. and Joseph, E.E. (2017). Inventory management and SMEs profitability. A study of furniture manufacturing, wholesale and eatery industry in Delta State, Nigeria. *Journal of Finance*, *5*(3), 75-79.

Vastag, G. and Whybark, D.C. (2005). Inventory management: Is there a knock-on effect?. *International Journal of Production Economics*, *93*, 129-138.

Impact of Corporate Governance on Financial Performance: A Case of Licensed Commercial of Sri Lanka (2012 - 2021)

Fernando AL* & Tharanga BB

Department of Banking and Finance, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

lorenzilfernando@gmail.com*, buddhinith@wyb.ac.lk

Abstract

The purpose of the study is to analyze the relationship between corporate governance and the financial performance of 11 Domestic Licensed Commercial Banks in Sri Lanka for the time period from 2012 to 2021. Data for the study has been obtained from published annual reports of the banks, especially the Statement of comprehensive income and the Statement of Financial position for the specific years. Return on Assets (ROA) and Return on Equity (ROE) are considered as two variables, which are the key measures of a bank's profitability. Board size, board independence, gender diversity and board meeting frequency are considered as corporate governance components. The impact of corporate governance components on ROA and ROE is measured using multiple regression analysis. The study results indicate that ROA is the appropriate measure to analyze the impact of corporate governance on bank's financial performance. Accordingly, there is a negative relationship between the dependent variable, ROA and board size, board independence and gender diversity, and a positive relationship between board meeting frequency and ROA. The study indicates that good corporate governance mechanism is crucial for the financial performance of banking sector. The study includes 11 domestic licensed commercial banks of Sri Lanka for a time period from 2012 to 2021.

Keywords: *Corporate governance, Return on assets, Return on equity, Board size, Board independence*

Introduction

With the legal formation of limited liability companies, the theory of "Agency Problems" gained prominence. It necessitated the institution of monitoring mechanism. According to Shleifer and Vishny (1997), effective Corporate Governance reduces "control rights", stockholders and creditors confer on managers, which would help to increase the probability that managers invest in positive net present value projects. Owners use two ways to overcome this issue: inside ownership or monitor the managers. The set of such mechanisms employed by a firm is referred to as Corporate Governance. In Sri Lanka, corporate governance laws have been reformed since 1990s.

Research Problem

Khan (2011) explained that corporate governance is an eclectic term, which describes the processes, customs, policies, laws and institutions that governs the organizations in the way they act, administer and control their operations. Due to poor corporate practices in the 1980s and stock market crashes around the world, corporate governance gained prominence, and this created a change of attitude towards higher performance expectations by ensuring good corporate governance. Corporate Governance initiatives in Sri Lanka commenced in 1997 with the introduction of a voluntary code of best practice, and Central Bank of Sri Lanka made the Corporate Governance standards mandatory for all listed companies for the financial year commencing on or after 1st April 2008. Corporate scandals and the regulatory measures taken by regulatory bodies in protecting the interest of the shareholders, has created a renewed interest about the Corporate Governance in Sri Lanka. Banking industry is a backbone to any economy and it has much more significance for an economy of a developing country like Sri Lanka. In Sri Lankan context, only few researches have been conducted related to this topic (Kajananthan, 2012; Ajanthan et al., 2013) on Sri Lankan banking industry, however, there are evidences of both existence and non-existence of relationship between corporate governance and financial performance; hence, the continuing debate about corporate governance and its relationship with financial performance is still unresolved. Therefore, this study is an attempt to analyze the financial impact of corporate governance on the domestic Sri Lankan banks for the time period 2012 -2021, based on board size, board independence, gender diversity and board meeting frequency as corporate governance components and Return on Assets (ROA) and Return on Equity (ROE) as financial performance measures.

The roots of the modern corporate governance movement dates back to the publication of "The Modern Corporation and Private Property", by Berle and

Means in 1932. They studied the separation between ownership and control in corporations and identified the basic elements of corporate governance. The importance of corporate governance arises in modern corporations due to the separation of management and ownership control in the organizations, where the interests of shareholders are conflicting with the interests of managers. Shleifer & Vishny (1997) define corporate governance as “the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”. Jensen & Meckling (1976), who developed a theory of the ownership structure of a firm, analyze the theoretical motives for these agency problems. Hendrik (2003) states that moral hazard theory is based on the agency theory and refers to hidden actions or opportunistic behaviour of managers. On the other hand, Stewardship theory considers managers as good stewards who will act in the best interest of the owners, which is contrast to agency theory (Donaldson & Davis, 1991). Freeman (1984) developed the stakeholder theory, which was embedded in the management discipline in 1970 by incorporating corporate accountability to a broad range of stakeholders. An effective and good corporate governance cannot be explained by one theory but it is best to combine a variation of theories. Though corporate governance might have been originally developed to protect shareholder’s interest, it has gradually gained importance for other stakeholders and society as well (Jizi et al., 2014).

Objective

Considering the importance of corporate governance and the importance of banking sector for the Sri Lankan economy, this research is to help Sri Lankan banks develop their performance through the development of corporate governance and its components in order to help them to formulate and evaluate their strategy, to improve decision making and management practices. This study can assist banks in expansion and dimension and provide the real value of bank to their external stakeholders in an attempt to achieve their goals, objectives, vision and mission. An adequate level of corporate governance knowledge can lead to good credit culture, reasonable exposure concentration, good management of interest risk and exchange risk, and reduce the inadequacies in the connected exposures. Therefore, this study attempts to analyze the impact of corporate governance on the financial performance of 11 domestic licensed commercial banks in Sri Lanka from 2012 to 2021.

Methodology

This study has chosen 11 domestic licensed commercial banks with the exception of Amana Bank PLC and Cargills Bank Ltd, for the period 2012 to 2021. Variables used for the analysis include financial performance and corporate governance measures. Financial performance is operationalized using two commonly based accounting measures, return on asset (ROA) and return on equity (ROE). ROA is used as an indicator of financial performance in numerous studies, since it measures the profit of a company against the assets that the company used to generate such profit for a specific year and ROE is a measure of financial effectiveness of the organization in creating profit using the company's equities. To analyze the corporate governance Board size, Board independence, Gender diversity and Board meeting frequency are taken as independent variables. These variables are used in similar studies to analyze the corporate governance of the organizations (Ajanthan et al., 2013; Kajananthan, 2012; Al-Manaseer et al., 2012). Accordingly, following hypothesis is developed to test the impact of corporate governance on financial performance of the commercial banks of Sri Lanka.

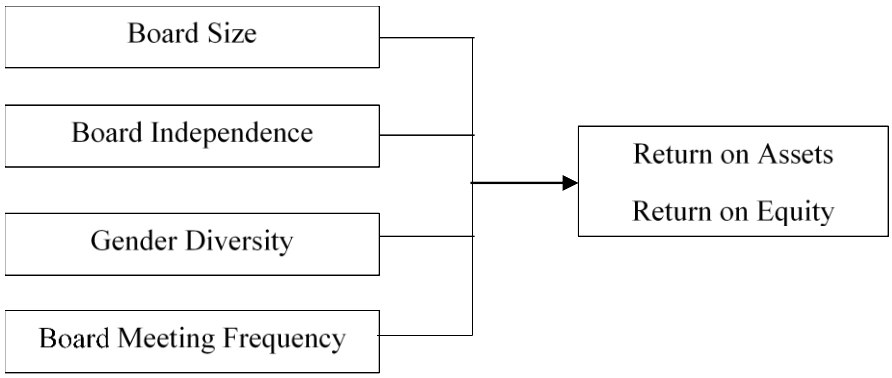

Figure 1: Conceptual Framework

This study has chosen 11 domestic licensed commercial banks with the exception of Amana Bank PLC and Cargills Bank Ltd, for the period 2012 to 2021. Variables used for the analysis include financial performance and corporate governance measures. Financial performance is operationalized using two commonly based accounting measures, return on asset (ROA) and return on equity (ROE). ROA is used as an indicator of financial performance in numerous studies, since it measures the profit of a company against the assets that the company used to generate such profit for a specific year and ROE is a measure of financial effectiveness of the organization in creating profit using the company's equities.

To analyze the corporate governance Board size, Board independence, Gender diversity and Board meeting frequency are taken as independent variables. These variables are used in similar studies to analyze the corporate governance of the organizations (Ajanthan et al., 2013; Kajananthan, 2012; Al-Manaseer et al., 2012). Accordingly, following hypothesis is developed to test the impact of corporate governance on financial performance of the commercial banks of Sri Lanka.

H1.: There is a significant positive relationship between board size and the financial performance of commercial banks of Sri Lanka

H2: There is a significant positive relationship between board independence and the financial performance of commercial banks of Sri Lanka

H3: There is a significant positive relationship between gender diversity and the financial performance of commercial banks of Sri Lanka

H4: There is a significant positive relationship between board meeting frequency and the financial performance of commercial banks of Sri Lanka

Thus, the following type of linear modulations are used:

$$\mathrm{ROA}_i = \alpha + \beta_1 \,\mathrm{BDSIZE}_i + \beta_2 \,\mathrm{BDIND}_i + \beta_3 \,\mathrm{GENDIV}_i + \beta_4 \,\mathrm{BDMF}_i + \mu_i$$

$$\mathrm{RO}E_i = \alpha + \beta_1 \,\mathrm{BDSIZE}_i + \beta_2 \,\mathrm{BDIND}_i + \beta_3 \,\mathrm{GENDIV}_i + \beta_4 \,\mathrm{BDMF}_i + \mu_i$$

Findings

Hypothesis testing is done through simultaneous influence testing (F-test), partial effect testing (t-test), and determination coefficient analysis. The statistical values of the coefficient of determination, F-test, and t-test are presented in Table 1 & 2. According to the ROA results, board size, board independence and gender diversity has a negative relationship with financial performance and board meeting frequency has a positive relationship with the financial performance of the banks. However, based on the results of ROE, board size and board independence have a negative relationship with financial performance and gender diversity and board meeting frequency has a positive relationship with the financial performance of banks. When considering the significance values, under ROA, board size and gender diversity indicate values below 0.05. In contrast, under ROA, board independence and board meeting frequency indicate values below 0.05. When the overall model is taken into account, both R squared value and adjusted R squared values are low for ROE. Therefore, it can be concluded that ROA is the most appropriate variable to analyze the impact of corporate governance on financial performance of banks.

Table 1: Regressions

	Dependent Variable: ROA		
	Coefficient	t - Statistic	P- value
Constant	2.062149	3.611087	0.0005
BDSIZE	-0.094483	-1.989030	0.0499
BDIND	-0.160381	-0.427268	0.6703
GENDIV	-1.612339	-2.552061	0.0125
BDMF	0.042665	1.568053	0.1205
	Dependent Variable: ROE		
	Coefficient	t - Statistic	P - value
Constant	14.18085	2.441460	0.0163
BDSIZE	-0.467881	-1.108160	0.2703
BDIND	-7.132476	-2.065171	0.0414
GENDIV	7.442675	1.204650	0.2310
BDMF	0.542617	2.353665	0.0205

Table 2: Model Significance

	ROA	ROE
R square	0.573175	0.105552
Adjusted R square	0.459025	0.071477
F-statistic	5.021212	3.097697
Significance Value	0.000000	0.018721

Conclusion

The banking sector is considered as crucial to the modern economy, especially for developing countries like Sri Lanka. As discussed in the findings, this study validates the importance of corporate governance in the banking and finance industry. According to the study, ROA is established as the most appropriate variable among the two, to study the impact of corporate governance on financial performance of banks. According to the mean values, board meeting frequency can be considered as the most importance corporate governance component in the banking sector of Sri Lanka. The regression analysis conducted on ROA, reveals that gender diversity component has the highest level of negative impact on the ROA, and board independence has the second-highest negative impact on ROA, closely followed by board size. The component board meeting frequency is the only component of corporate governance, which has a positive impact on the ROA of banks. This study is conducted only on the domestic licensed commercial banks of Sri Lanka hence, future researchers can conduct an extended study considering the whole banking & financial sector. The developments in Corporate Governance that are taking place all over the world are increasingly complex. It is crucial that full-time studies are made on the subject to keep pace with these developments. Promoting and applying good corporate governance principles and practices in our banking and financial sectors, will be beneficial for our economy, which is in a dire need of development.

References

Ajanthan, A., S. Balaputhiran, and B. Nimalathashan. (2013). Corporate governance and banking performance: A comparative study between private and state banking sector in Sri Lanka. *European Journal of Business and Management*, 5(20), 92-100.

Al-Manaseer, M.F.A., Al-Hindawi, R.M., Al-Dahiyat, M.A. and Sartawi, I.I. (2012). The impact of corporate governance on the performance of Jordanian banks. *European Journal of Scientific Research*, *67*(3), 349-359.

Berle, A.A. and Means, G.G.C. (1991). *The modern corporation and private property*. Transaction publishers.

Freeman, R.E. (1984). *Strategic management: A stockholder approach*. Pitman.

Jensen, M.C. and Meckling, W.H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance* (pp. 77-132). Gower.

Jizi, M.I., Salama, A., Dixon, R. and Stratling, R. (2014). Corporate governance and corporate social responsibility disclosure: Evidence from the US banking sector. *Journal of Business Ethics*, *125*, 601-615.

Kajananthan, R. (2012). Corporate governance practices and its impact on firm performance: Special reference to listed banking institutions in Sri Lanka. *Global Journal of Management and Business Research*, *12*(21), 15-21.

Khan, H. (2011). A literature review of corporate governance. In *International Conference on E-business, management and Economics* (pp. 1-5). Singapore: IACSIT Press.

Shleifer, A. and Vishny, R.W. (1997). A survey of corporate governance. *The Journal of Finance*, *52*(2), 737-783.

The Impact of Corporate Governance on Shareholder Value Creation: Evidence from Sri Lanka

Piumi Mampitiya* & Jayendrika Wanigasekara

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

Piumimampitiya98@gmail.com*, kaushalya@wyb.ac.lk

Abstract

This empirical study focuses on the impact of corporate governance on shareholder value creation in the Sri Lankan context. Corporate governance indicators in this study are the company's capital participation, managerial ownership, board size and CEO duality and those are independent variables. The dependent variable of shareholder value creation is measured by Market Value Added. When testing the relationship among those independent and dependent variables population would be the all the listed companies in the Colombo Stock Exchange (CSE) as of 31st December 2022 and the sample filtered by this population depends on top fifty market capitalized companies listed in Colombo Stock Exchange as at 31st December 2022, according to the CSE publications and data have collected over the period 2013 - 2022 from the annual reports published on CSE website. Data analysis of this study contains descriptive statistics, correlation analysis, diagnostic tests, and regression analysis. The diagnostic test is pivotal in Ordinary Least Squares (OLS) method using the Jarque-Bera test as a test of normality, as well as it includes Variance Inflation Factor (VIF) as a multicollinearity test, Breusch-Pagan test as a test for heteroscedasticity, Langrange Multiplier (LM) test as test for autocorrelation and test for specification biasness are used as other analysis methods. Regression analysis includes the Husman test and Fixed Effect Model. Testing Hypothesis using the above analysis methods findings are derived as there is a significant positive impact of company's capital participation on market value added, the significant positive impact of managerial ownership on market value added, the significant negative impact of board size on market value added, the insignificant impact of CEO duality on market value added and final conclusion suggests that there is significant positive impact of corporate governance on shareholder value creation.

Keywords: *Colombo stock exchange, Corporate governance, Market value added, Shareholder value*

Introduction

The study delves into examining how Corporate Governance influences the creation of shareholder value within the Sri Lankan setting. Key Corporate governance metrics analyzed encompass the company's capital participation, managerial ownership, board size, and CEO duality, serving as the independent variables. The dependent variable of shareholder value creation is measured by Market Value Added. To conduct this analysis, a sample size of 50 companies, possessing the highest market capitalization as of 31st December 2022, within the period from 2013 to 2022, has been selected based on data sourced from the Colombo Stock Exchange.

Corporate governance is the set of regulations, methods, and procedures that guide the direction and management of a company. It involves the interactions among different stakeholders, including shareholders, management, employees, customers, suppliers, and the community. The primary goal of corporate governance is to ensure that a company operates with integrity, openness, and responsibility, while also aiming to maximize the long-term value for its shareholders. Corporate governance is a significant wayto enhance shareholder value and satisfy other stakeholders (Chenuos et al., 2014). There are many theories related to corporate governance but agency theory is based on this research.

Shareholder value creation involves enhancing the worth of a company for its shareholders, who are the rightful owners of the business holding shares or stocks. The primary goal is to maximize the shareholders'wealth by generating profits and increasing the market value of the company's shares. Shareholder value isthe value delivered to shareholders due to successful business operations and management's ability to growearnings, dividends, and share prices (Stout, 2013).

Few of study focused on the impact of corporate governance on shareholder value creation in internationalreview as well as the Sri Lankan context (Toksal, 2004; Marouan & Moez, 2015). Therefore, there is a huge research gap in Sri Lankan context. So, in this study provides a better understanding by filling the gaps founded in previous studies by answering the following research problem. It is required to observe that "Is there any impact of corporate governance on shareholder value creation in Sri Lankan public listed companies (PLCs)?"

Objectives

The objectives of this study are,

To identify the impact of corporate governance on shareholder value creation in Sri Lankan publicly listed companies.

To determine the impact of companies' capital participation on Market Value Added.

To examine the impact of managerial ownership on Market Value Added.

To recognize the impact of board size on Market Value Added.

To determine the impact of CEO duality on Market Value Added. Listed companies

Theory

Agency theory

Agency theory is a theoretical framework used in economics, finance, and management to examine the connection between two parties such as the principal and the agent. It holds particular significance in scenarios where one party (the principal) entrusts decision-making power to another party (the agent) to act on their behalf. This principal-agent relationship is encountered in diverse settings, such as corporate governance, contract negotiations, government relations, and various other contexts.

The principal is the person or organization that grants the agent the power to carry out particular assignments or make decisions in their place. The principal could be a business owner, a shareholder of a corporation, a government body, or any other entity seeking support from another party to accomplish specific goals. The agent is the person or organization entrusted with the duty of acting on behalf of the principal. This could include managers, executives, employees, or any other authorized representative. The agent is obligated to act in the principal's best interests and diligently fulfill the tasks or responsibilities assigned to them. The relationship between the principal and the agent is defined by a formal contract or legal agreement that specifies the terms, responsibilities, and duties of the agent. However, this relationship can lead to conflicts of interest because the objectives and motivations of the principal and the agent may not constantly align.

Shareholder value theory

The Shareholder Value Theory is sometimes referred to as Shareholder Value Maximization or Shareholder Primacy. It is a concept in corporate finance and management that asserts that the primary goal of a company should be to maximize the wealth of its shareholders. Shareholder value theory explains that the company's primary responsibility is to increase the value of its shares and, consequently, the wealth of its shareholders. According to this theory, the primary objective of a company is to generate profits and returns that benefit shareholders. This is usually measured by metrics such as share price, dividend payouts and total shareholder return.

Methods

Research methodology is of utmost significance in a research project as it deeply influences all aspects of the research. The research onion, which was introduced by Saunders et al. (2007) and presents a theoreticalmodel that illustrates various phases or levels of research design and methodology. This study uses positivism as a research philosophy. In this study, deductive approach has been used as research approach. According to deductive approach research begins with a specific hypothesis development and the deductive approach tries to the test hypothesis. Simply the researcher is going to follow a theory and then build up a hypothesis and test a hypothesis. Hypotheses were built based on related previous research studies. This study uses secondary data to gatherall the necessary data for research. Secondary data means already collected data or already existing data collected by others. This study focuses on the survey strategy as a research strategy.

In this study, corporate governance is an independent variable. Corporate governance indicators in this study are the company's capital participation, managerial ownership, board size, and CEO duality and those are independent variables. Shareholder value is a dependent variable and it measured by Market Value Added.

This study aims to supply responses to the following questions gathering evidence from a sample of Sri Lankan public companies there listed on the Colombo Stock Exchange.

How does the impact of corporate governance on shareholder value creation in Sri Lankan public listedcompanies (PLCs)?

Is there any impact relationship of companies' capital participation on Market Value Added?

What is the impact of managerial ownership on Market Value Added?

Is there any impact of board size on Market Value Added?

Is there any impact of CEO duality on Market Value Added?

To interpret data, gathered through secondary data statistical methods have been used. E-Views statistical analysis package will be used to analyze the collected quantitative data to identify the impact of corporate governance on shareholder value creation, with descriptive statistics such as mean, standard deviation, median, maximum, minimum, skewness, and kurtosis being used to present the results. Correlation analysis provides valuable insights into the relationship between variables, but it does not establish a cause-and-effect connection. As well test for normality, test for multicollinearity, test for heteroscedastic, test for autocorrelation, test for specification biasness are used as diagnostic tests. Not only will that, before running the regression analysis, this study use Hausman test to assess the appropriateness of using fixed-effects or random-effects models. For regression analysis, a fixed-effects model was suggested by Hausman test to determine the impact of independent variables on dependent variable.

Results

Table 1: Fixed Effect Model

Dependent Variable	MVA			
Fixed-Effect Model				
Period	2013-2022			
	Coefficient	Std. Error	t- statistics	Prob.
C	156.2356	22.9896	6.7959	0.0000
CCP	55.3451	1.4066	39.3467	0.0000
MO	16.6642	7.9555	2.0947	0.0368
BS	-13.1782	2.2058	-5.9743	0.0000
CD	-6.8622	48.9098	-0.1403	0.8855
R-squared	0.9583			
Adjusted R-squared	0.9534			
Durbin-Weston Stat	1.7553			
Prob.(F-Statistic)	0.0000			

The Company's Capital Participation (CCP) has a positive coefficient of 55.3451 indicating a positive effectof CCP on Market Value Added (MVA). It signifies that for every one-unit increase in the companies' capital participation, MVA is expected to increase by approximately 55.35 units. The coefficient for Managerial Ownership (MO) is 16.6642 indicating a positive effect of MO on MVA. It signifies that for every one-unit increase in managerial ownership, MVA is expected to increase by approximately 16.66 units. The Board Size (BS) has a negative coefficient of -13.1782 indicating a negative effect of BS on MVA. It signifies that for every one-unit increase in the board size, MVA is expected to decrease by approximately 13.18 units. The coefficient for CEO Duality (CD) is -6.8622 indicating a negative effect ofCD on MVA. It signifies that for every one-unit increase in CEO duality, MVA is expected to decrease byapproximately 6.86 units. The coefficient of 156.2356 for the constant term indicates the expected change in MVA when all other independent variables are held constant.

$$MVA = 55.35\,CCP + 16.66\,MO - 13.18\,BS - 6.86\,CD$$

The hypothesis summary table is as follows. According to the P values derived from the Fixed effect model.

Table 2: Testing Hypotheses

No.	Hypothesis	P-value	Decision
H1	There is a significant positive impact of Companies'capital participation on Market Value Added.	0.0000	Accepted
H2	There is a significant positive impact of managerial ownership on Market Value Added.	0.0368	Accepted
H3	There is a significant negative impact of board size on Market Value Added.	0.0000	Accepted
H4	There is a significant impact of CEO duality on Market Value Added.	0.8855	Rejected
H5	There is a significant positive impact of corporate governance on Market Value Added.	0.0000	Accepted

Discussion

Overall findings have indicated that corporate governance positively and significantly influences the shareholders' value creation. This finding is in line with Toksal (2004), who revealed the positive impact of corporate governance on shareholder value.

Firstly, the findings substantiated the positive impact of Companies' Capital Participation (CCP) on Market Value Added (MVA). And there is a strong positive relationship between Companies' Capital Participation and Market Value Added. It suggests that an increase in companies' capitalparticipation correlates with enhanced shareholder value creation. Secondly, the positive impact of Managerial Ownership (MO) on MVA was confirmed. The correlation and regression analyses demonstratedthat higher managerial ownership corresponds with increased shareholder value creation. The positive associations between CCP, MO, and MVA resonate with previous studies emphasizing the importance of good governance practices in driving shareholder value. Confirming the same findings of Kaserer & Moldenhauer (2005) and Boubakri (2005) identified that there is a positive influence of capital concentration on the presence of controlling shareholders' value on firm performance. Making arguments on the findings, Kirchmaier & Grant (2006); Thomsen, Pedersen, & Kvist (2006) revealed that capital concentration has a negative impact on the firm performance.

Board Size (BS) was found to have a negative impact on Market Value Added. The results indicate that larger board sizes areassociated with reduced shareholder value creation. This highlights the complexities of decision-making processes within larger boards and underscores the need for more in-depth research into the dynamics of board composition. The negative impact of board size on MVA aligns with the same findings of Yermack (1996). However, Sulimany et al. (2021) revealed that there is a positive relationship between Board size and share price.

Finally, CEO Duality (CD) has found an insignificant impact on MVA, suggesting thathaving the same individual as the CEO and chairman does not necessarily influence shareholder value creation. It might be influenced by other governance mechanisms. According to the Ahmad et al., (2017), a positive relationship is established between chairman independence and shareholder value. Moreover, consistent with Boyd (1994), uncovers a significant negative correlation between dual management and value creation. However, intriguingly, our analysis deviates from the norm, as CEO duality's impact on Market Value Added (MVA) remains statistically insignificant.

Implications and Limitations

The strengths of this study lie in its comprehensive analysis using a diverse set of data analysis techniques. The research drew upon data from annual reports of a substantial sample size, enhancing the robustness of the findings. However, limitations include the reliance on secondary data, which might not capture all relevant variables, and the potential for endogeneity in the relationships studied. Additionally, the study focused on a specific context (Sri Lanka) and a limited time frame (2013-2022), which might limit the generalizability of the findings.

References

Boubakri, N., Cosset, J. C., & Guedhami, O. (2005). Postprivatization corporate governance: The role of ownership structure and investor protection. *Journal of Financial Economics*, *76*(2), 369-399.

Boyd, B. K. (1994). Board control and CEO compensation. *Strategic Management Journal*, *15*(5), 335-344.

Chenuos, N. K., Mohamed, A., & Bitok, S. K. (2014). Effects of corporate governance on micro finance institutions financial sustainability in Kenya. *European Journal of Business and Management*, *6*(30), 71-81.

Kaserer, C., & Moldenhauer, B. (2008). Insider ownership and corporate performance: evidence from Germany. *Review of Managerial Science*, *2*, 1-35.

Kirchmaier, T., & Grant, J. (2005). Corporate ownership structure and performance in Europe. *European Management Review*, *2*(3), 231-245.

Marouan, K., & Moez, D. (2015). Impact of corporate governance on shareholder value creation: evidence from Tunisian Context. *International Business Research*, *8*(5), 262.

Saunders M, Lewis P, Thornhill A. (2007). *Research methods for business students*, Pearson Education Limited.

Soloman J, (2007). *Corporate governance & accountability*. John Wiley & Sons Limited Hobocon.

Sulimany, H. G., Ramakrishnan, S., Chaudhry, A., & Bazhair, A. H. (2021). Impact of corporate governance and financial sustainability on shareholder value. *Studies of Applied Economics*, *39*(4).

Thomsen, S., Pedersen, T., & Kvist, H. K. (2006). Blockholder ownership: Effects on firm value in market and control based governance systems. *Journal of Corporate finance*, *12*(2), 246-269.

Toksal, A. (2004). *The impact of corporate governance on shareholder value* (Doctoral dissertation, Universität zu Köln).

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, *40*(2), 185-211.

The Impact of Corporate Governance on Earnings Management of Listed Manufacturing Companies in Sri Lanka

Hansamali RDP & Priyadarshanie WAN

Department of Accountancy, Faculty of Business Studies and Finance,

Wayamba University of Sri Lanka

Piyumihansamali1999@gmail.com, nadeesha@wyb.ac.lk*

Abstract

The main purpose of this research study is to examine the relationship between selected corporate governance mechanisms and the degree of earnings management in selected listed manufacturing companies in Sri Lanka. The study was carried out by using quantitative methodology and using secondary data primarily obtained through published annual reports of thirty listed manufacturing companies in the Colombo stock Exchange (CSE) during 2019 to 2022 representing the different industry groups under Global Industry Classification Standard (GICS). This study examined the relationship between seven selected corporate governance characteristics and level of earnings management which measured through discretionary accruals. Data were analyzed using descriptive statistics, correlation and regression analysis and examined how these selected corporate governance characteristics impact on the level of earnings management in selected listed manufacturing companies in Sri Lanka. It was found that most of the corporate governance mechanisms considered in this study have complied with the baseline stipulations of corporate governance best practices and that earnings management practices via discretionary accruals were observed in the selected firms. In this study was found that selected corporate governance mechanisms did not affect the level of absolute discretionary accruals. These findings are expected to have significant policy implications.

Keywords: *Corporate governance, Earning management, Manufacturing companies*

Introduction

The larger business failures and accounting scandals revealed all over the world during the past few decades have dented investor confidence and have raised several questions on the effectiveness of a firm's internal control system, enterprise risk management and governance structure. Sseveral large-scale firms such as Enron and WorldCom collapsed as a result of ineffective governance practices and financial frauds (Leventis & Dimitropoulos, 2012). In Sri Lanka, Pramuka Savings and Development bank and Golden Key Credit Card Company (Edirisinghe, 2015) collapsed as a result of poor corporate governance mechanisms. Due to these sort of corporate failures, policy makers, regulators, investors and other market participants have become increasingly aware of the need to have sound corporate governance policies and procedures. According to Hemathilake & Chathurangani (2019), corporate governance system is the governance of company by the board of directors and shareholders. That can be considered as an action which help to mitigate corporate collapses, failures and accounting frauds. Agency problem is one of the reasons for arise need of corporate governance. On the other hand, earnings management can be described as using judgements and provisions by the management in financial reporting and in structuring transactions to alter financial reports either mislead some stakeholders about the underlying performance of the company or motivate stakeholders based on outcomes that depend on reported accounting numbers (Hypo, 2004). According to the previous researches have done in Sri Lankan context, It is identified that scandals, frauds and corporate failures have been grown in Sri Lankan capital market basically, due to the poor management and control system. Therefore, it has been arisen need of healthy guidance for mitigating this kind of problems and various risks derive in organizations. Earnings management can undermine corporate governance by manipulating an organization's profit in order for managers to obtain private benefits. In addition to that political intervention plays a huge impact on corporate governance. Due to the pressure of politicians focus significant influence at the execution of regulations and rules. Accordingly, there are two main research objectives are identified for the study. Therefore, this study basically tries to investigate the degree of earnings management practices in listed manufacturing companies in Sri Lanka as well as examine how corporate governance affected on earnings management.

The poor governance system in an organization automatically creates an opportunity for accounting frauds. Because of that most of the managers tend to alter financial statements, manipulation of earnings for the personal interest. As a result, investors and other stakeholders who are obtaining accounting information are misled. Therefore, creating good governance system helps to reduce earning management. This can be identified through prior research studies. Kang et al.,

(2013) have considered impact of earning management related to the before and after adaptation of corporate governance. In here board independence, participation of audit committee, director's share ownership and presence of remuneration committee have considered as corporate governance attributes. Finally found that selected corporate governance variables create significant impact on earnings management. De Silva et al. (2017) have identified that most of the corporate governance mechanisms considered in this study have complied with the base line stipulations of corporate governance best practices. Further examined that there was a negative relationship between the board's financial and accounting expertise and the degree of earnings management while other selected corporate governance characteristics (board size, board independency, CEO chairman duality, board meetings, audit committee size, audit committee independency, audit committee meetings) did not affect to the level of absolute discretionary accruals. A recent study of (Evbuomwan, 2021) has revealed that there is no significant effect of corporate governance variables such as board meeting frequency, board gender diversity, board size and audit committee meeting frequency on earnings management. As well as Rajapaksha (2020) has described that there is a negative relationship between CEO duality and earnings management while board meetings and earnings management are positively related. Subhasinghe & Kehelwalatenna (2021) established that there is no significant impact with board size, board independence, CEO chairman duality, frequency of board meetings and audit committee independence on earnings management. Accordingly, prior research studies were provided mixed evidence on certain corporate governance practices and earnings management to assess the relationship.

Methodology

The conceptual framework summarized the relationship between the dependent variable and independent variables that are used as the fundamental basis for the study. Since this study investigates the relationship between selected corporate governance characteristics and degree of earnings management, a quantitative approach was followed. Thirty listed manufacturing companies in the Colombo Stock Exchange (CSE) were selected as the sample by using random sampling method for the period covering 2019 to 2022 which represents the different industry groups under Global Industry Classification Standard (GICS). Secondary data were collected from the CSE annual reports and analyzed using E-views8 software. This study used discretionary accruals as a proxy for earnings management and measured through the cross-sectional Modified Jones Model. The data were analyzed using descriptive statistics, correlation and regression analysis.

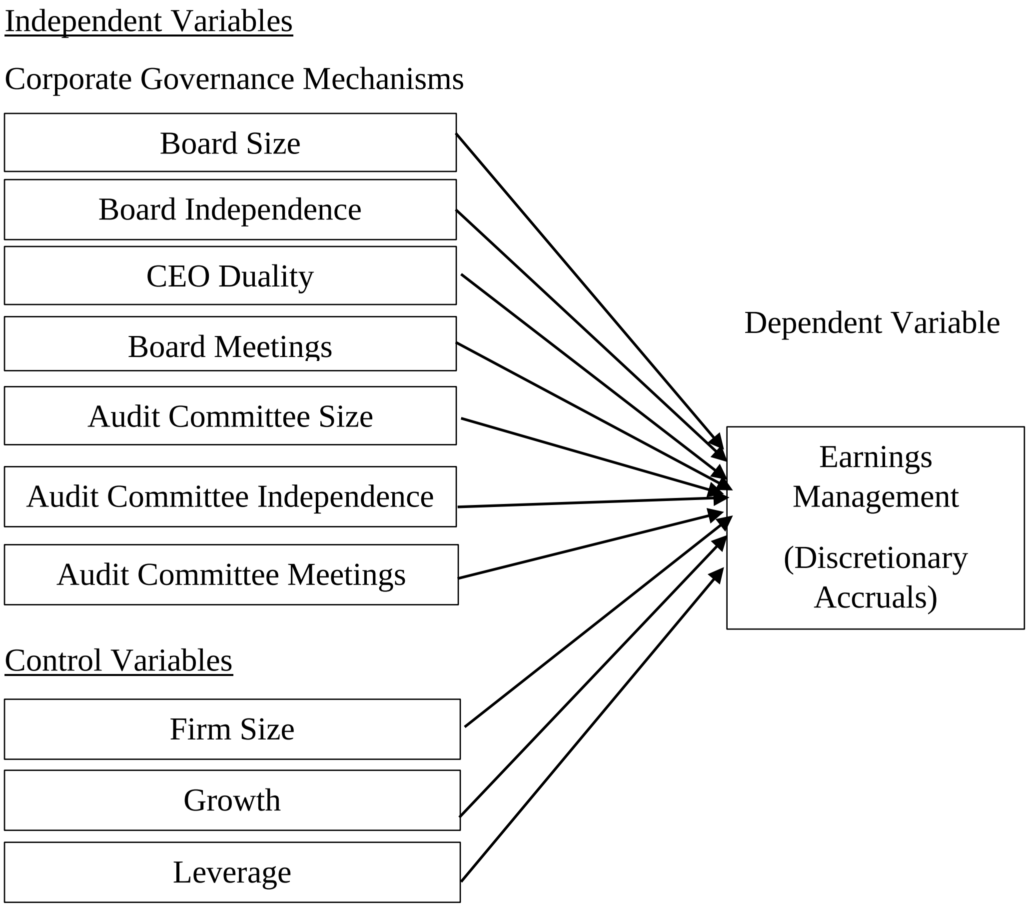

Figure 1: Conceptual Framework

According to the conceptual framework, researcher developed hypotheses as follows.

H1: There is a negative relationship between board size and earnings management.

H2: There is a negative relationship between board independence and earnings management.

H3: There is a negative relationship between CEO duality and earnings management.

H4: There is a negative relationship between board meetings and earnings management.

H5: There is a negative relationship between audit committee size and earnings management.

H6: There is a negative relationship between audit committee independence and earnings management.

H7: There is a negative relationship between audit committee meetings and earnings management.

Findings

The study collected data for four-year periods and observations of the research is 30. Using E-views8 software data were analyzed. The findings are presented as statistical tools and techniques which include summarized in form of tables. Correlation, regression, and descriptive statistics were used to analyze the information in collected from annual reports in CSE.

Table 1: Panel Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.069	0.257	-0.268	0.789
BDSIZE	0.007	0.008	0.787	0.433
BDIN	-0.011	0.014	-0.801	0.425
CD	0.013	0.044	0.290	0.772
BDMEET	-0.005	0.004	-1.257	0.212
ACSIZE	-0.041	0.026	-1.615	0.109
ACIN	0.035	0.025	1.405	0.163
ACMEET	0.014	0.010	1.329	0.187
FSIZE	0.006	0.012	0.489	0.626
LEV	0.007	0.072	0.096	0.924
GROWTH	0.070	0.016	4.454	0.000
Weighted Statistics				
R-squared	0.214	Mean dependent var		0.087
Adjusted R-squared	0.142	S.D. dependent var		0.097
S.E. of regression	0.090	Sum squared residuals		0.888
F-statistic	2.965	Durbin-Watson stat		1.902
Prob(F-Statistics)	0.002			

As per the regression results in the above table, there is a positive insignificant relationship between board size and the earnings management. Which is confirmed by the positive coefficient of 0.007 and the probability value of 0.433 that is greater than the 5%. Also, there is a negative insignificant relationship between board independence and the earnings management which is recorded by negative coefficient of -0.011. Same as the board independence, board meetings and audit committee size indicate that there is a negative insignificant relationship with earnings management and the probability values are 0.212 and 0.109 respectively. The results further explained that there is a positive insignificant relationship between CEO duality and the earnings management. Which indicates by the positive coefficient of 0.013. The audit committee independence and audit committee meetings confirm the positive insignificant relationship between the earnings management with positive coefficient and probability value which is greater than 5%. Considering the control variables, firm size and leverage represent an insignificant positive relationship between the earnings management. Which shows the positive coefficient and the probability value which is greater than 5%. There is a positive significant relationship between sales growth and the earnings management. Which is confirmed by the positive coefficient of 0.070 and probability value of 0.000 that is less than 5%. This suggests that a firm with high sales growth is more likely to engage in earnings management.

Conclusion

The main purpose of this research was to examine the impact of corporate governance on earnings management in listed manufacturing companies in Sri Lanka. This study examined seven selected corporate governance characteristics (board size, board independence, CEO duality, board meetings, audit committee size, audit committee independence, audit committee meetings) with the level of earnings management using absolute value of discretionary accruals.

The results of the descriptive statistics indicated that most of the selected corporate governance variables complied with the corporate governance best practices in the selected listed companies. According to the regression analysis the impact of corporate governance on earnings management were revealed that in contrast to the results of most previous research studies, the findings of this research study are not found to have a significant impact between corporate governance variables and level of earnings management. Policy makers and regulators should examine why the majority of the corporate governance characteristics did not have a significant impact on reducing the levels of earnings management in the listed manufacturing companies and take remedial measures. As well as this study has only considered certain board and audit committee characteristics. Hence, future research could incorporate other corporate governance characteristics in order to examine their relationship to earnings management.

References

Burgstahler, D. and Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics, 24*(1), 99-126.

De Silva, A. S., Manawaduge, A. and Ajward, R. (2017). The relationship between selected corporate governance mechanisms and degree of earnings management in selected Sri Lankan listed companies. *CA Journal of Applied Research*, *1*(1), 38-56.

Edirisinghe, A. (2015). *Corporate governance of banks: A critical analysis of Sri Lankan law and practice*. 8th International Research Conference, KDU, Colombo, Sri Lanka.

Evbuomwan, I. (2021). *Corporate governance and earnings management in listed Nigerian manufacturing companies* (Doctoral dissertation, Dublin, National College of Ireland).

Hemathilake, D. H. U. and Chathurangani, H. B. P. (2019). Corporate governance and earnings management: A Sri Lankan perspective. *International Journal of All Research Writings*, *2*(4), 82-93.

Hypo, I. (2004). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, *24*(1), 99-126.

Kang, H., Leung, S., Morris, R.D. and Gray, S.J. (2013). Corporate governance and earnings management: An Australian perspective. *Corporate Ownership and Control*, *10*(3), 95-113.

Leventis, S. and Dimitropoulos, P. (2012). The role of corporate governance in earnings management: Experience from US banks. *Journal of Applied Accounting Research*, *13*(2), 161-177.

Rajapaksha, R. A. S. and Thilakasiri, K. K. (2020). *The influence of corporate governance on earnings management in listed manufacturing companies in Sri Lanka*. International Conference on Business and Information, University of Kelaniya, Colombo, Sri Lanka.

Subhasinghe, J. and Kehelwalatenna, S. (2021). Impact of corporate governance on earnings management: Evidence from Sri Lankan listed companies. *Global Review of Accounting and Finance*, *12*(1), 58-74.

Effects of Financial Literacy and Self-control on Savings Behavior: Special Reference to Executive Officers of Licensed Commercial Banks in Sri Lanka

Priyabandu KSYP* & Gunaratna AGDLK

Department of Banking and Finance, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

yayomi.priyabandu@gmail.com*, lahiru@wyb.ac.lk

Abstract

Financial literacy and self-control are essential because they equip individuals with the knowledge and discipline needed to make wise financial decisions, set and achieve savings goals, and ultimately build a solid financial foundation This study focuses on examining the impact of financial literacy and self-control on savings behavior, with a specific emphasis on executive officers within Licensed Commercial Banks in Sri Lanka. Various dimensions, including financial literacy, financial attitude, financial knowledge, financial behavior, and self-control have been identified as key determinants of savings behavior. The primary objective of this research is to assess how financial literacy and self-control influence the savings behavior of executive officers in Licensed Commercial Banks in Sri Lanka. Specific goals include evaluating the relative influence of financial literacy and self-control on savings behavior. To achieve these objectives, this study targets executive officers from Licensed Commercial Banks as its research population. The research sample consists of 143 executive officers, and a quantitative, positivist research approach is employed. Primary statistical methods for hypothesis testing include and correlation analysis and multiple regression analysis The findings of this research contribute to a better understanding of the impact of financial literacy and self-control on the savings behavior of executive officers within Licensed Commercial Banks. The study reveals that financial literacy has a positive influence on saving behavior, while self-control does not significantly affect saving behavior.

Keywords: *Financial attitude, Financial behavior, Financial knowledge, Financial literacy, Savings behavior, Self-control*

Introduction

One of the most renowned and influential theories in the realm of social sciences, known as Social Cognitive Theory (Bandura, 2005), has exerted a profound influence across diverse fields, including the domain of behavioral finance (Bandura, 2005). This theory accentuates the continuous interplay between an individual's cognitive attributes and environmental forces, underpinning the understanding of the process of social cognitive learning (Bandura, 1989). Of particular significance is its emphasis on observer learning (Bandura, 2009). For the purposes of this study, the authors employ the social cognitive theory as a framework, giving comprehensive consideration to all three key variables under investigation: saving behavior, self-control, and financial literacy.

In 1988, Shefrin and Thaler introduced the Behavioral Life-Cycle (BLC) hypothesis, which posits that individuals perceive money as entirely interchangeable, and a forward-thinking individual strategically manages their lifetime consumption (Modigliani & Brumberg, 1954). The BLC hypothesis is founded upon four fundamental principles: First, it underscores that, despite the inherent benefits of saving, individuals often grapple with the challenge of controlling their spending impulses. This implies that people establish their own preferences and constraints to facilitate savings. Second, it suggests that individuals exercise their personal discretion in setting choices and boundaries as a means of saving money. Third, the hypothesis assumes that individuals segregate their financial resources into distinct "mental accounts," and each of these "mental accounts" exerts an influence on their perceptions regarding resource utilization. This research draws upon the insights of the BLC hypothesis to explore the intricate interplay of these principles in the context of saving behavior, self-control, and financial literacy. By doing so, authors aim to gain a deeper understanding of how these factors shape financial decision-making, offering valuable insights into the broader realm of behavioral finance.

Financial literacy encompasses a set of educational skills designed to shape an individual's financial behavior, ultimately enhancing their financial well-being (Arnone, 2004). Drawing from various sources, including (Sebstad, Cohen & Stack, 2006), (Atkinson & Messy, 2012), and others we have integrated and tailored measures for this operationalization.

Numerous research endeavors have consistently demonstrated the substantial impact of financial literacy on savings behavior, yielding a range of findings. Financial literacy significantly influences savings decisions, serving as a strong predictor of savings behavior, particularly among young individuals. However, the literature presents variations, with some studies reporting an inconsequential relationship between financial literacy and savings behavior, while others underscore the positive and substantial effect of financial literacy on savings decisions. In certain instances, financial literacy has even been linked to a detrimental impact on savings behavior. Furthermore, research highlights the positive influence of financial literacy on both informal and formal savings, as well as a significant connection between perceived financial literacy and savings behavior. In summary, the existing body of knowledge predominantly underscores a positive and significant relationship between financial literacy and savings behavior, despite occasional contrary findings. This research aims to contribute to a deeper understanding of this relationship within the specific study context.

Objectives

The study is driven with a main objective of observing the financial literacy and self-control on savings behavior and also intends to achieve the following sub objectives;

To investigate the relative impact of financial literacy on savings behavior

To investigate the relative impact of self-control on savings behavior

Methods

The research methodology is firmly rooted in a positivist philosophy, employing a deductive and theory-testing approach. It embraces a quantitative research strategy to quantitatively assess the impact of financial literacy and self-control. The study's approach centers on gathering quantitative data and aligns with the deductive method, emphasizing the evaluation of propositions and hypotheses derived from established theories. The research adopts a cross-sectional time horizon, collecting data at a single point in time to offer a snapshot of the subject matter. The study's unit of analysis consists of 143 executive officers from licensed commercial banks, utilizing a convenience sampling technique. The research conceptualization is based on a framework that draws from existing theories and literature, with hypotheses formulated to investigate the influence of financial literacy and self-control on savings behavior. The authors have used the following conceptual framework in order to assess the behavior of the variables under study and this was constructed based on the literature review.

Hypotheses were formulated to test the impact of financial literacy and the self-control variables on the savings behavior and those are as follows;

H1: There is a significant influence of financial literacy on savings behavior

H2: There is a significant influence of self-control on savings behavior

A multiple regression analysis model has been built in order to assess the hypothesis formulated and it is depicted below;

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + U$$

Y denotes the savings behavior, X_1 is financial literacy, X_2 denotes the self-control and β_1 and β_2 represents the coefficients of the variables respectively.

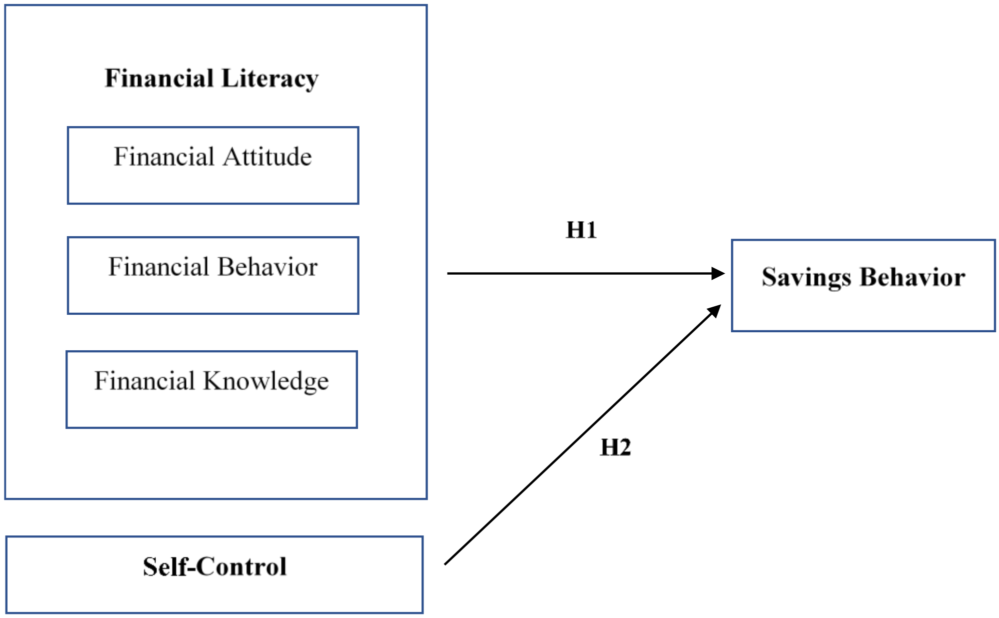

Figure 1: Conceptual Framework

Results

Based on the results of the correlation analysis, it becomes apparent that distinct relationships exist between saving behavior (SB) and financial literacy (FL), as well as between saving behavior (SB) and self-control (SC). The correlation data, significance values, and the sample size of 143, representing instances where both financial literacy and saving behavior or self-control and saving behavior were observed. In the first case, a positive and statistically significant correlation emerges with a coefficient of 0.578, while in the second scenario, a negative correlation with a coefficient of -0.082 is observed. In the former, the p-value is less than 0.01, providing robust grounds to reject the null hypothesis and affirm the significant and positive correlation between financial literacy and savings behavior. Conversely, in the latter, the p-value exceeds 0.01, compelling us to accept the null hypothesis, signifying that self-control and savings behavior are not significantly correlated.

A multiple regression model was implemented as the second phase of the study and the model has been summarized in table 01.

Table 1: Model Summary

Mode1	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig F Change
1	0.789[a]	0.638	0.629	0.27419	0.638	0.000

Predictors: (Constant), SC, FL

The provided regression output contains critical statistics for interpreting the relationship between variables. The correlation coefficient (R) of 0.789 indicates a strong positive linear relationship between the independent and dependent variables. The R Square value of 0.638 signifies that approximately 63.8% of the variance in the dependent variable is explained by the independent variable(s) in the model, suggesting a substantial degree of explanatory power. The Adjusted R Square, at 0.629, adjusts for the model's complexity and retains a high level of explanatory power while penalizing unnecessary predictors. The Standard Error of the Estimate, measured at 27419, represents the typical error between the predicted values and the actual data points. Lastly, the R Square Change, denoted as 0.638, might indicate the increase in explanatory power when adding new predictors to the model, although more context is needed to fully interpret this statistic. In summary, this regression analysis provides insights into the strong positive relationship between variables and the model's substantial explanatory power, marked by a well-adjusted R Square and a reasonable standard error of the estimate.

Table 2: Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std Error	Beta	T	Sig.
Constant	0.747	0.530		1.410	0.161
FLit	1171**	0.137	0.584	8.539	0.000
SCtrl	-0.116	0.071	-0.112	-1633	-0.105

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

The coefficients were analyzed and it has been helpful to determine the behavior of the variables under the study. The coefficients suggests that financial literacy having a positive impact towards the savings behavior and self-control is having a negative outcome on the savings behavior. The regression model for the study can be summarized as follows;

$$Y= 0.747 + 0.584 X1 + (-0.112) X2$$

Depending on the results, hypothesis tests suggest that there is a statistically significant influence of financial literacy on savings behavior and on the contrary, there is no strong statistical evidence to support a significant influence of self-control on savings behavior in this data.

Discussion

The financial literacy variable predominantly demonstrates a positive impact on savings behavior, aligning with previous research findings as reported by Pangestu & Karanadi (2020), Mpaata, Koske, & Saina (2021), Mpatta, Koske, & Saina (2020), Peiris (2021), and Murendo & Mutsonziwa (2014). These findings reinforce the notion of a favorable correlation between financial literacy and savings behavior. In contrast, the self-control variable does not seem to exert a statistically significant influence on savings behavior based on the research results.

Implications and Limitations

The study underscores the positive impact of financial literacy on savings behavior among executive officers in licensed commercial banks, highlighting the need for these professionals to possess a robust grasp of financial literacy. Conversely, the study reveals a concerning lack of influence of self-control on savings behavior within this group, implying a potential area of improvement. To address this, the study recommends a multifaceted approach, including encouraging executive officers to set clear savings goals, promoting automatic savings mechanisms, providing user-friendly budgeting tools, and employing behavioral nudges to guide them toward better saving practices. These strategies collectively aim to enhance the financial well-being of banking professionals and foster a more disciplined approach to savings.

The study is subject to several limitations. Firstly, the sample size was notably small. Additionally, the study exclusively considered three specific aspects of financial literacy: Financial Behavior, Financial Attitude, and Financial Knowledge. Furthermore, the research was confined to executive officers of Licensed Commercial Banks in Sri Lanka, restricting the generalizability of findings. Nevertheless, these limitations open avenues for future research, which may explore diverse target populations, such as students or other workforce categories. Future investigations should aim to address these limitations, incorporating larger sample sizes and categorizing research by factors like gender, age, bank affiliation, and position for a more comprehensive understanding of the subject.

References

Arnone, W. J. (2005). Educating pension plan participants. *Reinventing the retirement paradigm*, 163-72.

Atkinson, A. and Messy, F. A. (2012). *Measuring financial literacy: Results of the OECD*. OECD Publishing.

Hogarth, J.M. (2006). *Financial education and economic development*. In G8 International Conference on Improving Financial Literacy. Available at: https://web-archive.oecd.org/2012-06-15/141001-37723380.pdf

Mpaata, E., Koske, N. and Saina, E. (2021). Does self-control moderate financial literacy and savings behavior relationship? A case of micro and small enterprise owners. *Current Psychology*, 1-14.

Murendo, C. and Mutsonziwa, K. (2017). Financial literacy and savings decisions by adult financial consumers in Zimbabwe. *International Journal of Consumer Studies*, *41*(1), 95-103.

Pangestu, S. and Karnadi, E. B. (2020). The effects of financial literacy and materialism on the savings decision of generation Z Indonesians. *Cogent Business & Management*, *7*(1), 1743618.

The Impact of Credit Risk and Liquidity Risk on the Financial Performance of Licensed Commercial Banks in Sri Lanka

Sapna Perera*, Malmi Samarasinghe

Department of Banking & Finance, Faculty of Business Studies & Finance, Wayamba University of Sri Lanka

sapnakawyanjalee@gmail.com*, malmisamarasinghe27@gmail.com

Abstract

This paper aims to investigate the impact of credit risk and liquidity risk on the performance of Domestic Licensed Commercial Banks (LCBs) in Sri Lanka. Data from twelve domestic LCBs were analyzed from 2011-2021 using panel data regression analysis. Data for the study was obtained from the annual reports of the LCBs for the relevant years. The profitability was measured using Return on Equity (ROE) where credit risk was measured using Non-Performing Loan Ratio (NPLR), Capital Adequacy Ratio (CAR) and Loan to Deposit Ratio (LDR) and liquidity risk was measured using Current Ratio (CR), Loan to Deposit Ratio (LDR), Loan to Asset Ratio (LAR) & Liquidity Gap (LG). As per the findings, credit risk and liquidity risk are important determinants of the profitability of the banking sector in Sri Lanka It was found that, CAR, NPLR and LDR negatively and significantly affect ROE while LG has a negative and significant impact on ROE. Therefore, this study suggests that it is important to strengthen credit risk and liquidity risk management to preserve the profitability of the banks in Sri Lanka.

Keywords: *Credit risk, Liquidity risk, Return on equity*

Introduction

Banks play a critical role within the Sri Lankan financial system, as they are engaged in provision of liquidity to the entire economy, while transforming the risk characteristics of assets. Banks are also engaged in providing payment services, thereby facilitating all entities to carry out their financial transactions. On the other hand, banks can create vulnerabilities of systemic nature, partly due to a mismatch in maturity of assets and liabilities and their interconnectedness. Therefore, the soundness of banks is important, as it contributes towards maintaining confidence in the financial system, and any failure may have the potential to impact on activities of all other financial and non-financial entities, and finally the economy. No doubt the roles of banks in any economy are numerous and every economic activity revolves around credit or money (Adeniyi et al., 2021). Banks are generally exposed to several types of risks, i.e., credit risk, reputation risk, operational risk, liquidity risk, legal risk and market risk. Among these risks, credit risk is one of the most common causes of bank failures. Generally, credit risk refers to a situation where a borrower has failed to repay the loan and or interest when they are due (Rasika & Sampath 2015). On the other hand, liquidity risk refers to the mismatch between the maturities of assets and liabilities where liabilities have a shorter tenor than assets and can even lead to insolvency and bank runs (Maduwanthi & Morawakage, 2019).

In the Sri Lankan context, it was observed that the credit risk of the banking sector increased drastically with the impact of the pandemic. NPLs showed a steep growth with the pandemic as tourism, construction, manufacturing and agriculture industries were severely affected. This was clearly evident from the NPL ratio of the banking sector which increased to 4.5% in 2021 from 2.5% in 2017.Further, the highest ever NPL was recorded in 2020 amounting to Rs.66.4 billion. On the other hand, to face the higher levels of NPLs, the banking sector increased both the specific and general provisions, where the total loan loss provisions increased by Rs. 80.2 billion in 2021 (CBSL,2021). However, the higher provisions can ultimately adversely affect the profitability of the banking sector. On the other hand, the banking sector increased the liquidity buffers in order to face the challenges stemmed from the COVID-19 pandemic, where the banks maintained a Statutory Liquid Asset Ratio (SLAR) of around 33% in 2021 although the minimum SLAR was 20% (CBSL,2021). Overall, the profitability of the banking sector showed a slight improvement over 2019-2021 where the ROE increased from 10.3% in 2019 to 14.5% in 2021 after declining steeply from 17.6% in 2017 to 10.3% in 2019. Thus, it become vital to analyze the impact of risk factors such as liquidity risk and credit risk on the performance of LCBs in Sri Lanka as they account for nearly 74% of the total assets of the banking sector as of 2021 (CBSL, 2021). Moreover, there are multiple empirical researches conducted regarding the impact of liquidity risk and credit risk on the performance of LCBs in Sri Lanka

(Gunathilaka & Wijesinghe,2021; Weerasinghe & Dias, 2021; Rasika & Sampath,2015; Wijenayaka & Amarasinghe,2022; Perera & Perera 2020). However, most of these researches were not conducted in the recent period. Thus, they fall short of analysing the latest data. Therefore, this research seeks to address this gap and contribute to the existing literature by examining the extent of credit risk and liquidity risk impact on bank performance for the latest period.

Objectives

The main objective is to examine the impact of credit risk & liquidity risk on the performance of domestic LCBs in Sri Lanka.

Sub objectives are,

To identify the significant impact of NPLR on the banks' performance

To identify the significant impact of CAR on the banks' performance

To identify the significant impact of CR on the banks' performance

To identify the significant impact of LDR on the banks' performance

To identify the significant impact of LAR on the banks' performance

To identify the significant impact of LG on the banks' performance

Methods

This study has selected twelve LCBs based on the availability of data for the period 2011-2021.Variables employed for the study includes measures for credit risk, liquidity risk and financial performance. Credit risk was measured using Capital Adequacy Ratio (CAR), Non- Performing Loan Ratio (NPLR) and Loan to Deposit Ratio (LDR) while liquidity risk was measured using LDR, Current Ratio (CR), Loan to Asset Ratio (LAR) and Liquidity Gap (LG). Financial performance was measured using Return on Equity (ROE) which is a commonly used accounting measure which is used to measure the returns of an organization against the equity invested. These variables were selected from similar empirical research conducted to measure liquidity and credit risks (Gunathilaka & Wijesinghe,2021; Weerasinghe & Dias, 2021; Rasika & Sampath,2015; Wijenayaka & Amarasinghe,2022; Perera & Perera 2020). The researcher has used Econometrics Views software to run the panel data regression.

Unit Root test was conducted to test the stationarity of data. Panel regression was conducted to investigate the significant impact of credit risk and liquidity risk on banks' performance where Hausman test was conducted to select between fixed effect model and random effect model to conduct the regression analysis. Based on the Hausman test, random effect model was selected to conduct the regression analysis.

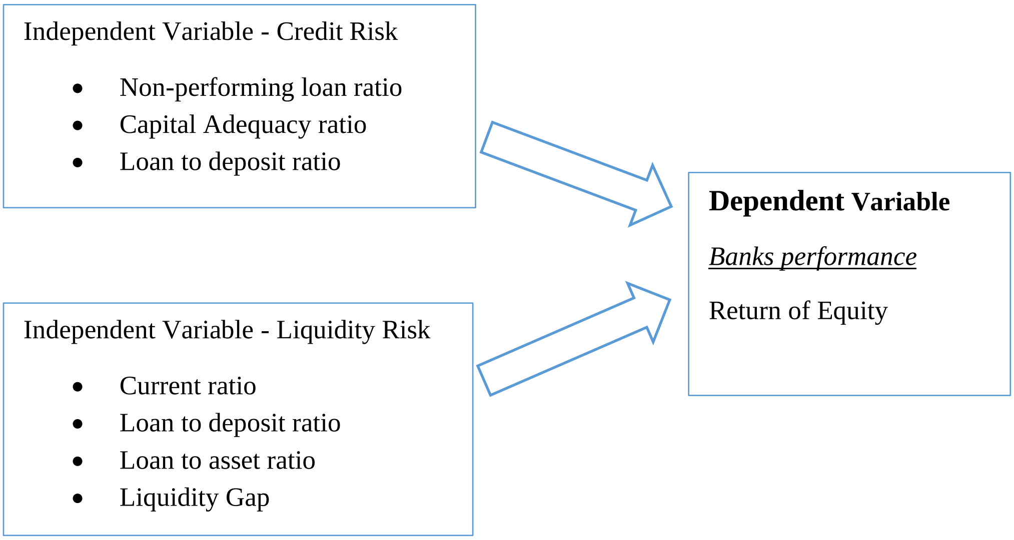

Figure 1: Conceptual Framework

The proposed dynamic models for the study are:

$$ROE = \beta_0 + \beta_1 CAR + \beta_2 NPLR + \beta_3 LDR + \varepsilon \quad (1)$$

$$ROE = \beta_0 + \beta_1 LDR + \beta_2 CR + \beta_3 LAR - \beta_4 LG + \varepsilon \quad (2)$$

β_1 to β_6 = slope coefficients

ROE = Return on equity

CAR = Capital adequacy ratio

NPLR = Non-performing loan ratio

LDR = Loan to deposit ratio

LAR = Loan to asset ratio

LG = Liquidity gap

Results

Descriptive statistics was used to provide a comprehensive idea about the data. Table 1 and 2 illustrates the descriptive statistics of credit risk and liquidity risk factors and performance indicators of LCBs in Sri Lanka respectively.

Table 1: Descriptive Statistics of Credit Risk

Variable	ROE (%)	CAR (%)	LDR (%)	NPLR (%)
Mean	15.47	15.42	92.15	4.41
Median	15.62	15.00	91.00	4.13
Maximum	44.69	40.90	156.00	15.25
Minimum	0.30	11.07	60.00	1.31
Std. Dev.	7.49	3.27	18.58	2.09

Table 2: Descriptive Statistics of Liquidity Risk

Variable	ROE (%)	CR (%)	LAR (%)	LDR (%)	LG (000 LKR)
Mean	15.47	1.18	0.68	96.15	36,923,450
Median	15.62	1.10	0.70	91.00	36,973,460
Maximum	44.69	2.50	1.00	156.00	200,759,832
Minimum	0.30	0.40	0.50	60.00	3,004,005
Std. Dev.	7.49	0.45	0.09	18.58	43,181,593

Table 3: Panel Regressions

Variables	Credit Risk		Liquidity Risk	
	Coefficient	P-value	Coefficient	P-value
Constant	21.68379	0.000	1839	0.0000
CAR	-0.360424	0.0058***		
NPLR	-0.094744	0.0258*		
LDR	-0.028334	0.0045***	-0.028268	0.3884
Current ratio			0.354604	0.0256*
LAR			-1.3358	0.6753
Liquidity Gap			-5.0000	0.0005***
R squared	0.596448		0.437728	
F - statistic	11.09202	0.0000	11.54775	0.0000

*, **, *** significant at levels of 10%, 5%, and 1%, respectively

Discussion

As per the descriptive statistics (table 1 and table 2), the highest NPLR was recorded as 15.25% while the median NPLR of the industry was around 4.13% for the period 2011-2021 mainly due to the economic and social instabilities caused by the pandemic. Due to the high uncertainties prevailing in the economy, LCBs had to maintain a higher median CAR of nearly 15.00% which is even above the government regulatory requirements. On the other hand, domestic LCBs maintain a satisfactory levels of current ratios, but the mean loan to deposit ratio (96%) shows that 96% of the deposits are given as loans, indicating lower liquidity levels. Table 03 shows the summary of regression analysis. Coefficient of determination (R^2) is used to measure the usefulness of the regression line. Accordingly, 59.6% variation of ROE can be explained by the credit risk model and 43.7% variation of ROE can be explained by the liquidity risk model. And also, the probability level of F statistics explains the suitability of the overall model, in the above two models it can be observed that the p-values are less than 0.05 indicating that both the models are suitable. Moreover, the summary of regression analysis indicates that, CAR, NPLR and LDR used to measure the credit risk have a significant negative impact on the financial performance while the liquidity risk indicators; LG shows negative and significant impact on financial performance

Implications and Limitations

The outcomes of this study suggests that the management of the banks need to pay special attention to manage both the credit risk and liquidity risk. Accordingly, banks need to manage Non- Performing Loans (NPLs) for a healthy functioning as high levels of NPLs can cause credit risk and decrease the profitability. Thus, an effective credit risk management mechanism is of great importance to the LCBs in Sri Lanka with the current situation of the country. It is important that the banks be vigilant when granting loans where they have to properly access the credit worthiness of the borrowers. Managers should pay more attention to implement modern credit risk management tools and techniques and can diversify their loan portfolios, and further diversify their income generating activities. In terms of the liquidity risk management, higher levels of liquidity help to reduce the liquidity risk but negatively impacts the profitability. Therefore, it is important that the LCBs take steps to reduce the liquidity risk, without curtailing the profitability. In terms of limitations, the main limitation was the limited sample size. Although there are twenty-four LCBs in the country and six Licensed Specialized Banks (LSBs) in the banking sector, only twelve LCBs were selected for the study due to unavailability of information on foreign LCBs. Thus, in future research LSBs can be incorporated together with foreign LCBs in order to increase the validity of the findings and get a better understanding on the banking sector.

References

Afolabi, M. A., Opeyemi, S. S., Kamar, A. K. and Emeje, S. O. (2021). Credit risk and bank performance in Nigeria: A panel analysis approach. *International Journal of Multidisciplinary Sciences and Advanced Technology*, 2(1), 44-53.

Central Bank of Sri Lanka. (2021). *Annual Report 2021.* https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2021.

Chhetri, S. B. (2023). Credit risk, liquidity risk and profitability in Nepalese commercial banks. Available at: https://www.researchgate.net/publication/369763084_Credit_risk_liquidity_risk_and_profitability_in_Nepalese_commercial_banks.

Gowthaman, M. and Kengatharan, L. (2023). Impact of credit risks on profitability: empirical evidence from licensed commercial banks in Sri Lanka. Available at: https://www.researchgate.net/publication/373717972_Impact_of_Credit_Risks_on_Profitability_Empirical_Evidence_from_Licensed_Commercial_Banks_in_Sri_Lanka.

Liyanage, N. H., Dewa, I. S. K. and Ismail, F. I. M. (2021). Credit risk management and bank performance: With special reference to specialized banks in Sri Lanka. Available at: https://doi.org/10.46977/apjmt.2021v02i01.001.

Rasika, D. G. L., Hewage, R. S. and Tmnmk, T. (2016). Does credit risk affect on financial performance of Sri Lankan commercial banks? Available at: https://www.researchgate.net/publication/323735902

Twum, A. K., Agyemang, A. O. and Sare, Y. A. (2022). Revisiting credit risk and banks performance of China's commercial banks before and after Covid 19 pandemic. *Journal of Corporate Accounting & Finance*, 33(3), 16-30.

Wijenayake, J. M. N. P. and Amarasinghe, A. A. M. D. (2022). Influence of liquidity risk on bank profitability in Sri Lankan commercial banks. Available at: https://www.researchgate.net/publication/369010654

The Impact of Financial Literacy on Enterprise Performance with Special Reference to Small and Medium Enterprises in the Divulapitiya Divisional Secretariat Division

Hewavitharana HHNH*, Jayasinghe JAGP

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

hansininikeshala@gmail.com*, gayani@wyb.ac.lk

Abstract

The Small and Medium Enterprise (SME) sector in Sri Lanka has been highlighted as a critical strategic sector. The financial literacy of the owners and managers of SMEs will guarantee the survival of their businesses. This research aims to identify the impact of financial literacy of owners and managers on enterprises' performance with special reference to small and medium businesses in the Divulapitiya secretary division. Financial attitude literacy, bookkeeping literacy, and debt management literacy were the three indicators of financial literacy in this research. Financial literacy was the independent variable, and enterprise performance was the dependent variable. Out of two hundred and fifty population registered in the Divulapitiya sectarian division, one hundred and fifty SMEs were chosen as a sample for this research. For data collection and analysis, quantitative methods are used in this research. Data were collected through a structured questionnaire. Factor analysis, reliability test, and validity test were employed as preliminary analyses of this research. Descriptive, correlation, and regression analyses were employed to analyze the collected data. Results reveal a significant positive impact of the financial literacy of owners and managers on SMEs' performance. In contrast, all three variables of financial attitude literacy, bookkeeping literacy, and debt management literacy have a significant positive impact on SMEs' performance. The results of this study will have important implications for policymakers, scholars, future researchers, and owners and managers of small and medium-sized enterprises.

Keywords: *Financial literacy, Enterprise performance, Small and medium enterprises*

Introduction

The Small Medium Enterprise (SME) sector has been identified as a critical strategic sector in the overall policy objectives of the Government of Sri Lanka (GOSL). It is seen as a driver of change for inclusive economic growth, regional development, employment generation, and poverty reduction. The Government of Sri Lanka identifies SMEs as the backbone of the economy, as they account for more than 75% of the total number of enterprises, provide 45% of the employment, and contribute to 52% of the Gross Domestic Production (GDP) and cover a wide range of industries that contribute to economic activity, including those in agriculture, manufacturing, mining, production, construction, and the service sector, among others. The potential of the SME sector's contribution to growth, particularly in developing nations, is shown by the fact that it contributes more to economic output in high-income countries than in middle- and low-income ones.

Financial literacy is the awareness, information, ability, skill, attitude, and conduct needed to make wise financial decisions and, ultimately, attain individual financial well-being (Menike, 2019). Financial literacy is an area that calls for knowledge, competence, attitude, and experience to cope with goals such as the survival of the company, profit maximization, sales maximization, snagging a specific market share, reducing staff turnover and internal conflicts, and maximizing wealth (Kimunduu, Erick, & Shisia, 2016). Enterprise performance can be defined as the company's capacity to provide desirable results and actions. Performance has several implications, including development, motivation, survival, staffing, achievement, rivalry, and the company's capacity to produce activities and results that are deemed acceptable.

According to the Sri Lankan context, some researchers use financial indicators to measure financial literacy and firm performance. Furthermore, managers and owners have limited bookkeeping literacy, resulting in minor or no growth. Some researchers argue that the success of SMEs does not depend on the financial literacy of the managers. Furthermore, in the researcher's practical knowledge, many SME owners and managers do not know about financial literacy, and Sri Lanka lacks studies about financial literacy and firm performance. Financial literacy improves a borrower's creditworthiness and promotes economic growth, stable financial systems, and eradicating poverty by making it more straightforward to make decisions like when to pay bills on time and how to handle debt properly. Additionally, it provides greater control over one's financial future, more effective use of financial products and services, and reduced susceptibility to overly aggressive traders or fraudulent schemes (Patrick, 2015). In the Sri Lanka context, according to Anuradha (2021), the study of the impact of the financial literacy of owners on the performance of small and medium-scale enterprises in Sri Lanka. The study's results According to the Women Entrepreneurs Finance Initiative, the independent variables of the case study area finance-related awareness, debt management, bookkeeping, and diversification are significant areas for recognizing the impact of financial literacy of women entrepreneurs on the performance of SMEs in Sri Lanka. The study discovered that financial literacy statistically impacted the selected sample's business performance in Sri Lanka. Based on the above arguments, the problem statement of the study is the impact of the financial literacy of owners and managers on enterprises' performance with special reference to small and medium businesses in the Divulapitiya secretary division.

The Major objective is to identify the impact of financial literacy of owners and managers on enterprises' performance with special reference to small and medium businesses in the Divulapitiya secretary division. Other objectives are to examine the impact of the financial attitude of owners and managers on enterprises' performance, the impact of bookkeeping of owners and managers on enterprises' performance, and the impact of debt management of owners and managers on enterprises' performance of with special reference to small and medium businesses in Divulapitiya secretary division.

Methodology

Financial literacy is regarded as an independent variable, and enterprise performance is the dependent variable. Quantitative methods are used in this research study for data collection and analysis. According to the information gathered from the Divulapitiya secretarial division, approximately 250 registered SMEs are registered, and no census on SMEs has been undertaken since 2014. The sample consists of 150 SMEs in both urban and rural areas that operate in the Divulapitiya secretary division, and the sample size was decided by referring to the Morgan table, and the sample was selected by convenience base.

Financial literacy is measured by financial Attitude, bookkeeping, and debt management. These variables are Enterprise performance is considered profitability.

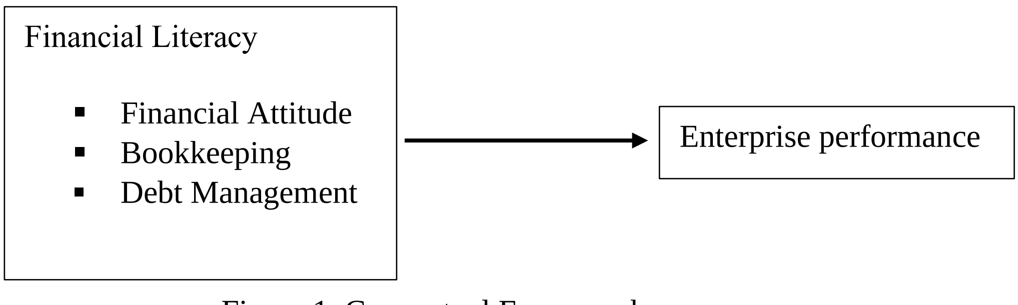

Figure 1. Conceptual Framework

The study used a survey approach and data collected through a primary source. A structured questionnaire was delivered to the owners and managers of SMEs in the target sample in the Divulapitiya secretary division.

The questionnaire included three parts. A 5-point Likert scale was used for the statements attained for the variables ranging from strongly disagree to strongly agree. Part 1 consists of 06 questions regarding demographic factors like gender, age, job position, education level, the duration of the business, and business type. Part 2 consists of questions that measure the independent variables, such as financial attitude literacy, bookkeeping literacy, and debt management literacy. Risk-taking, long-term versus short-term and social factors are used as the dimensions of financial attitude literacy. Bookkeeping skills, Financial Knowledge and Financial Statements are used as the dimensions of bookkeeping literacy. Loan instalment, repay loans and Interest rates are used as the dimensions of debt management literacy. Part 3 consists of questions that measure the dependent variable, enterprise performance. Sales, input, time, cost, waste, net income, operating income and output are used as the dimensions of the enterprise performance.

Three hypotheses were developed for this research study. The first one is that financial literacy has a significant impact on enterprises' performance of SMEs, the second one is financial attitude has a significant impact on enterprises' performance of SMEs, and the third one is that bookkeeping literacy significantly impacts enterprises' performance of SMEs.

Factor analysis, reliability test, and validity test were employed. Factor analysis was carried out to understand how underlying factors influence this variance among other variables. A reliability test was employed to examine the data set's consistency, reproducibility, dependability, and precision. Descriptive and inferential statistics were applied in this study to analyze the collected data. Descriptive statistics were used to calculate the frequency distribution, central trend values, and dispersion. Correlation analysis was utilized in the study to examine the relationship between the dependent and independent variables. The Statistical Package for Social Sciences (SPSS) version 25.0 software was used to analyze data.

Findings

Most respondents in this study are female, 81% and 69% of respondents are male. Most of the respondents are in the age group of 31-40 years, and the majority of respondents are diploma-level of education. According to the results, 81 respondents were managers, and 69 respondents were owners out of 150. The analysis revealed that the majority, 57%, of businesses have existed for 2-5 years. Most of the respondents were engaged in a cooperative society.

This study aimed to derive important conclusions about the impact of financial literacy of owners and managers on enterprises' performance with special reference to small and medium enterprises in the Divulapitiya area secretary division. The relationship between financial literacy, its dimensions, and enterprise performance was investigated using correlation analysis. According to the results, financial literacy has a clear positive relationship with enterprise performance. In contrast, financial attitude literacy, bookkeeping literacy, and debt management literacy all have positive relationships with enterprise performance. According to regression analysis, financial attitude literacy significantly affects enterprise performance.

Table 1: Summary of the Findings

Variables		The Financial Attitude & Enterprises' Performance of SMEs	The Bookkeeping Literacy & Enterprises' Performance of SMEs	The Debt Management Literacy & Enterprises' Performance of SMEs
Regression Analysis	Significance Value	0.000	0.000	0.000
	Value (Beta)	0.870	0.861	0.860
	R- squared Value	0.756	0.761	0.740
Hypotheses	All Hypotheses Accepted	Financial attitudes have a positive and significant impact on enterprise performance of SMEs (H_1)	Bookkeeping literacy positive and significantly impacts on enterprises' performance of SMEs (H_2)	Debt management literacy is positive and significantly impacts on enterprises' performance of SMEs (H_3)

Conclusion

The Major objective of this research study is to identify the impact of the financial literacy of owners and managers on enterprises' performance with special reference to small and medium businesses in the Divulapitiya secretary division. There were some other objectives to examine the impact of the financial attitude of owners and managers on enterprises' performance, the impact of bookkeeping on enterprises' performance, and the impact of debt management on enterprises' performance with special reference to small and medium businesses in Divulapitiya secretary division.

Results reveal a significant positive impact of the financial literacy of owners and managers on the enterprise performance of SMEs in the Divulapitiya secretary division. Based on the findings of the study, the implication is educational initiatives. It can explore the need for financial literacy programs tailored to the specific needs of small and medium business owners and managers in the Divulapitiya Secretary Division. Provide recommendations for educational institutions and organizations on designing effective financial literacy training programs to enhance SMEs. As the other implication, it can compare financial literacy levels and business performance in Divulapitiya Secretary Division with other nearby regions or divisions and enhance the sector or industry-specific insight. Examining if the impact of financial literacy varies across different sectors within the small and medium business landscape. Explore whether certain industries benefit more from improved financial literacy and its reasons. As the next implication, this finding can be utilized to develop or recommend practical tools and metrics for assessing financial literacy levels and business performance among SMEs. Businesses, policymakers, and researchers can use these tools. Next, the findings can offer policymakers at the municipal and federal levels evidence-based suggestions. Investigate how financially literate businesses are better prepared to address environmental and economic changes.

Researchers consider the recommendation of this study only looked at aspects of financial literacy to evaluate the success of firms. Hence, it is recommended to consider more aspects when evaluating the success of the firm. Using a broader range of independent variables that impact financial literacy is recommended. It is suggested to consider the whole of Sri Lanka to evaluate the SME's performance. and most of the respondents who were chosen for the study had little to no formal education and may even have been illiterate, making it impossible for them to provide reliable information. Hence, conducting mixed-method research using in-depth interviews and questionnaire surveys is recommended to obtain more reliable data.

References

Cherugong, P. (2015). *The effect of financial literacy on performance of small and medium enterprises in Trans Nzoia County* (Doctoral dissertation, University of Nairobi).

Kimunduu, G., Erick, O., & Shisia, A. (2016). A study on the influence of financial literacy on financial performance of small and medium enterprises in Ruiru Town, Kiambu County, Kenya. *International Journal of Economics, Commerce and Management*, *4*(11), 416-433.

Menike, L. M. C. S. (2018, December). Effect of financial literacy on firm performance of Small and Medium Enterprises in Sri Lanka. In *2019 Financial Markets & Corporate Governance Conference*. https://doi.org/10.2139/ssrn.3306719

Impact of Behavioral Factors on Investment Decisions of Undergraduates in State Universities of Sri Lanka: The Moderating Role of Financial Literacy

Weweldeniya WKAT* & Dias SNRF

[1]*Department of Banking and Finance, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka*

w.k.a.t.weweldeniya@gmail.com*, fiona@wyb.ac.lk

Abstract

Investing in the stock market remains a powerful means of wealth creation and financial security. It involves carefully selecting the most viable options among various investment alternatives as there are numerous factors influencing the investor's decision. Thus, this study investigated the key behavioral factors impacting investment decisions with special reference to the undergraduates in the state universities of Sri Lanka since they are the most potential future investors and proponents in the economy. The behavioral factors observed in the study were heuristics factors, prospect factors, market factors, and herd factors and the researcher investigated the moderating influence of financial literacy between behavioral factors and investment decisions of selected undergraduates. A structured questionnaire was used to gather data from a sample of 349 students representing 3 universities from Western and North Western Province under the convenient sampling technique. A multiple linear regression was performed using SPSS to test the study hypotheses. The findings reveal that there is a moderate to strong correlation between the investment decision of the undergraduates and the behavioral factors including the moderating factor, financial literacy. The market Factor stands out as the highest influential factor on the investment decision. The study also revealed that financial literacy moderates the relationship between behavioural factors and investment decisions highlighting the role of financial education, as those with better financial literacy exhibit more informed investment choices. These results underscore the importance of addressing behavioral biases in investing and the potential benefits of tailored financial education. This research is important for educational institutions and policymakers, suggesting a refined approach to investment education tailored to undergraduate needs.

Keywords: *Investment decision, Financial literacy, Market dynamic, Prospect thinking, herding*

Introduction

Investment is the present commitment of money for a specified period of time to obtain future returns that compensate for time, inflation, and uncertainty (Reilly and Brown, 2016). Rational investors utilize various techniques, including fundamental and technical analysis and complex models like Capital Asset Pricing Model (CAPM) and Black-Scholes, to guide their investments. However, given the challenges to some traditional model assumptions (Ackert, 2014), there's a growing interest in behavioral finance to understand investor behavior. Behavioral finance recognizes the impact of emotions and cognitive errors on such decisions, where market dynamics, herding, and overconfidence are some key factors (Luong & Ha, 2011; Kengataran, 2014; Le Phuoc & Doan, 2016). In different cultural contexts, personal characteristics, risk aversion, and brand perception influence choices (Sultana & Pardhasaradhi, 2012). Given the centrality of CSE in Sri Lanka's economic environment (Silva & Jayasekara, 2017), understanding local investment behavior can help diversify investments across sectors and use resources effectively. The stock market offers significant potential for wealth creation, but entering this domain can be challenging for many, especially undergraduates with limited financial awareness (Akhtar & Malik, 2023). The stock market offers significant potential for wealth creation, but entering this domain can be challenging for many, especially undergraduates with limited financial awareness. While global research on investment behavior is extensive, there is a gap in understanding the differential behavior of Sri Lankan undergraduates on the angle of financial independence. This demographic's potential for long-term investment and role as peer benchmarks make their choices critical. This underscores the importance of focusing on undergraduates in Sri Lanka, not only to understand their current investment behavior but also to guide their long-term financial decision-making (Tristiyono, 2023). Moreover, universities stand to benefit from such insights, refining their curricula to better cater to student needs, and steering them towards sound investment choices. Amidst the complexity of investment decisions, this study explores the key role of financial literacy in moderating behavioral effects, specifically among undergraduates in Sri Lanka's state universities. While existing researches has focused on the behavioral aspects of investment, there's a notable gap in understanding how financial literacy shapes and moderates these behaviors (Adil Singh and Ansari, 2021). This study examines the unique context of Sri Lankan undergraduate investors in an attempted to provide valuable insight into the importance of financial literacy as a moderator of investment decision making.

Objectives

The primary objective of the study is to identify the key behavioural factors impacting on the investment decisions of the undergraduates in state universities of Sri Lanka and to investigate the role of financial literacy in investment decision making. Accordingly, the study derives following specific objectives;

To find out the impact of the Herd Factor on the investment decisions of undergraduates in the stock market.

To find out the impact of the Prospect Factor on the investment decisions of undergraduates in the stock market.

To find out the impact of the Heuristic Factor on the investment decisions of undergraduates in the stock market.

To find out the impact of the Market Factor on the investment decisions of undergraduates in the stock market.

To find out how Financial Literacy moderates the relationship between investments behavioral factors and the investment decisions of undergraduates in the stock market.

Methodology

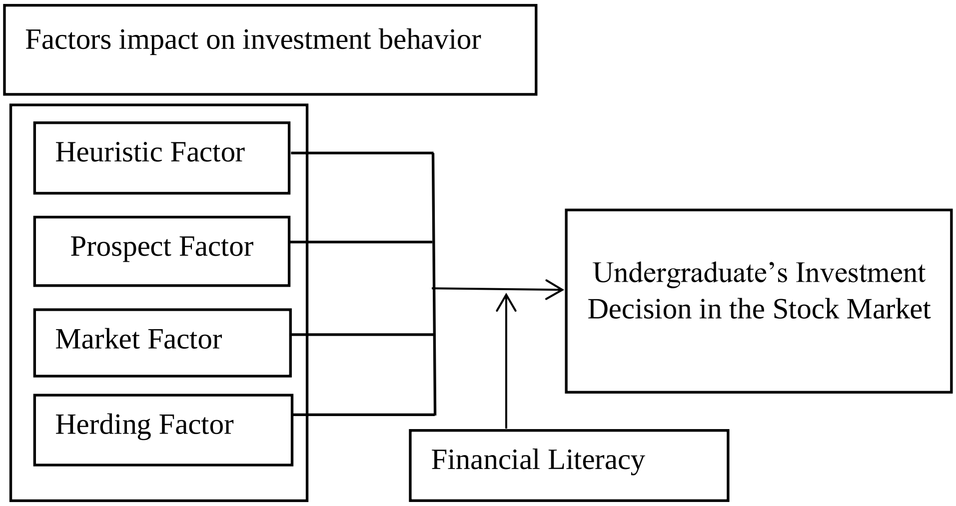

Figure 1: Conceptual Framework

This research delves into the behavioral factors impacting the stock market investment decisions of undergraduate students in Sri Lankan state universities. Adopting a quantitative approach grounded in positivism and using deductive reasoning, the study employed a structured questionnaire to gather data from a sample of 349 students representing 3 universities from Western and North Western Province out of a population of 24,225 undergraduates in the Government university system. A convenience sampling method was utilized, selecting participants based on their availability and willingness. The reliability of scales was measured by Cronbach's Alpha coefficients. Data, measured on a 5-point

Likert scale, was analyzed using SPSS. A multiple linear regression analysis along with interaction term calculation for testing the moderation was the main statistical technique used to test the hypothesis of the study along with the other relevant statistical tools. The research provides a structured understanding of the determinants of undergraduate investment behavior in the stock market, though findings should be generalized with caution due to the sampling method used.

Results

This study investigates the various factors impacting Investment Decisions (ID) among undergraduates. The Cronbach Alpha values of all the study variables lie between 0.67 to 0.89 which certify the internal consistency and reliability of the scales. Looking at the demographic factor analysis, 55. % of the respondents were male and based on the age distribution of 92.26%, fell within the 20-25 age brackets and the rest in the 25-30 age. In term of investing experience, 69.91 % have responded that they have not participated in an investing activity in stock market and fear of possible financial loss was cited by a majority of 40.98% followed by uncertainty about investment with 30.02% reporting as the second most frequently reported reason. Among the respondents with investment experience, 79% of them have been investing for a relatively short period, specifically in the 0–5-year range. Conversely, only 20.95% of these respondents have 5-10 years of investing experience.

Table 1: Correlation Coefficients

	HEF	PF	MF	HF	FL	ID
ID	.65	.73	.86	.50	.82	1.00
	.000	.000	.000	.000	.000	.000

Upon satisfying the prerequisites of multiple regression, encompassing normality, linearity, and multicollinearity, a correlation analysis was conducted to discern the substantial relationships between Investment Decisions (ID) and various independent variables: Heuristic Factor (HEF), Prospect Factor (PF), Market Factor (MF), Herd Factor (HF), and Financial Literacy (FL). The results indicate that heuristic thinking leans slightly towards positive investment decisions, with optimism amplifying the likelihood of profitable investments. A favorable perspective on market strategies correlates with improved investment choices, emphasizing the influence of market signals on financial decisions. Herd behavior exhibits a moderate association with ID. Notably, financial literacy emerges as a pivotal factor, with heightened literacy levels corresponding to superior investment behaviors. In summary, prospect factor, market factors, and financial literacy significantly influence investment choices, while heuristic and herd tendencies also contribute, albeit to a lesser extent. These findings underscore the multifaceted nature of factors influencing investment decisions among the studied variables.

Table 2: Coefficient of Determination

Model Summary									
				Std. Error	Change Statistics				
		R	Adjusted	of the	R Square	F			Sig. F
Model	R	Square	R Square	Estimate	Change	Change	df1	df2	Change
1	0.905[a]	0.819	0.810	0.246	0.819	89.528	5	99	0.000
2	0.915[b]	0.837	0.827	0.234	0.018	11.088	1	98	0.001

This research analyses the influence of various factors on Investment Decision (ID) using regression analysis. The adjusted R-Square value of the model is 0.82 which says that 82% of the Investment Decision is explained by the selected variables of the model. It is a good indication of the overall model. Further the R-Square change of the moderation impact was significant as presented in the table 2. The baseline (constant) prediction for Investment Decision is 1.049 when all influencing factors are absent. Among the variables, the Market Factor (MF) emerges as the most significant, with every unit increase in MF expected to boost the Investment Decision by 0.345 units. The Herd Factor (HF), though influential, negatively impacts the Investment Decision, decreasing it by 0.209 units for every unit increase in Herding Factor. The Prospect Factor (PF) also positively influences the Investment Decision, signifying that higher PF values lead to increased investment decisions.

Table 3: Regression Coefficients

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	S.E.	Beta	t	Sig.	Toler.	VIF
2	Constant	1.049	0.191		5.502	0.000		
	HEF	0.004	0.077	0.004	0.051	0.960	0.298	3.351
	PF	0.141	0.047	0.193	2.988	0.004	0.397	2.520
	MF	0.332	0.060	0.423	5.559	0.000	0.287	3.485
	HF	-0.209	0.076	-0.196	-2.759	0.007	0.329	3.042
	FL	0.507	0.079	0.543	6.397	0.000	0.231	4.333
	INT (IB*FL)	0.061	0.018	0.151	3.330	0.001	0.811	1.233

ID = Investment Decision HEF = Heuristic Factor PF = Prospect Factor
MF = Market Factor HF = Herd Factor FL = Financial Literacy
IB = Investment Behavior (HEF+PF+MF+HF)

ID = 1.049 + 0.004 HEF + 0.141 PF + 0.332 MF - 0.209 HF + 0.507 FL + 0.061INT(IB*FL)

However, the Heuristic Factor (HEF) didn't show a significant unique effect on Investment Decision in the regression, even if it had a notable correlation. Financial Literacy (FL) demonstrated its moderating role, signifying its variable effect on the relationship between behavioral factors and Investment Decision. In essence, while factors like MF and PF significantly boost investment decisions, HF acts as a deterrent, and the role of Financial Literacy as a moderator is confirmed and four hypotheses were accepted out of five as presented in table 4.

Table 4: Hypothesis Testing

Hypothesis	Significance	Conclusion
H1 - There is a significant impact between the Heuristic Factor and the investment decision of undergraduates in the stock market.	0.483, Relationship is not significant	H1 Rejected
H2 - There is a significant impact between the Prospect Factor and the investment decision of undergraduates in the stock market.	0.033, Relationship is significant	H2 Accepted
H3 - There is a significant impact between the Market Factor and the investment decision of undergraduates in the stock market.	0.00, Relationship is significant	H3 Accepted
H4 - There is a significant impact between the Herd Factor and the investment decision of undergraduates in the stock market.	0.022, Relationship is significant	H4 Accepted
H5 - Financial literacy moderates the relationship between investment behavioral factors and the investment decisions of undergraduates in the stock market.	0.001, Relationship is significant	H5 Accepted

Discussion

This research delved into factors impacting investment decisions among undergraduate students. The regression analysis offers very valuable insights into the complex dynamics of investment decision-making among undergraduate students. It highlights the critical function of financial literacy as a moderating factor and sheds light on the impacts of a variety of behavioral variables, such as Market, Herd, and Prospect Factors, among others, as demonstrated by the research conduct by Fitriaty (2023).

The hypothesis pertaining to the impact of the Heuristic Factor on Investment Decision was rejected. While there is a significant correlation between the Heuristic Factor and Investment Decision, this relationship may not remain robust when other factors are considered. It suggests that the Heuristic Factor may not possess a strong, unique effect on Investment Decisions. The hypotheses of Prospect Factor, Market Factor, and Herding Factor were all accepted. This implies that these factors significantly impact investment decisions among undergraduate management students. Prospect (PF), perceptions of market concepts (MF), and herd-related traits (HF) play crucial roles in shaping investment behavior. The other crucial finding of the study was that the moderating effect of Financial Literacy (FL) was accepted. Financial Literacy was found to moderate the relationship between behavioral factors and investment decisions (Hildebrandus, Hady & Nalurita, 2023; Adil, Singh & Ansari 2021). This underscores the importance of considering financial education as a means to enhance investment decision-making. Consequently, the researcher recommends a stronger emphasis on financial literacy education within academic curriculums. Addressing behavioral biases, fostering peer discussions on investments, leveraging marketing techniques in financial education, and continuously evaluating educational programs' effectiveness are other critical recommendations. In essence, promoting an in-depth understanding of finance and addressing behavioral influences can pave the way for more informed investment decisions among students.

Implications and Limitations

The findings of this research carry noteworthy implications, particularly for investment advisors operating within the academic realm and beyond. Firstly, acknowledging the pivotal role of financial literacy in shaping investment behaviors among undergraduates suggests a compelling need for targeted educational interventions. Investment advisors can play a crucial role in enhancing financial literacy programs, tailoring them to address the specific needs and challenges faced by undergraduate investors. Additionally, understanding the influence of heuristic thinking, market factors, and herd behavior provides valuable insights for advisors in crafting more informed and personalized investment strategies. Investment advisors should leverage these findings to develop nuanced approaches that consider the psychological and market-related aspects impacting investment decisions. Ultimately, the study underscores the responsibility of investment advisors in fostering a comprehensive understanding of financial literacy and behavioral dynamics, thereby empowering undergraduates to make more informed and strategic investment choices.

There is a possible bias created by the sample's mainly homogenous demography of undergraduate management students aged 20-25. This composition may limit the results' applicability to a larger range of investors. Furthermore, relying on self-reported data might add response bias since individuals may provide socially desired replies or incorrectly recollect their investing activity. To address this, future research might include more objective indicators of investing behavior. Furthermore, the study's cross-sectional approach provides just a snapshot of investing behavior at a certain point in time, implying the need for longitudinal research that follows the change of behaviors over time.

References

Ackert, L. F. (2014). Chapter 2: Traditional and Behavioural Finance. Investor Behavior: The Psychology of Financial Planning and Investing. H. Kent Baker and Victor Ricciardi, editors, 25-41. Hoboken, NJ: John Wiley & Sons, Inc., 2014.

Adil, M., Singh, Y. and Ansari, M. S. (2021). How financial literacy moderate the association between behaviour biases and investment decision?. *Asian Journal of Accounting Research*, *7*(1), 17-30.

Akhtar, M. and Malik, M. U. (2022). Personality traits and investor risk behavior: Moderating role of financial literacy. *Managerial Finance*, *49*(5), 884-905.

Fitriaty, F. (2023). Exploring the factors shaping investment decisions: Insights from financial literacy, financial behavior, and income among lecturers at the faculty of economics and business, University of Jambi. *Dinasti International Journal of Economics, Finance & Accounting (DIJEFA)*, *4*(3).

Hildebrandus, H., Hady, H. and Nalurita, F. (2023). The influence of financial literacy as a mediation of the relationship between behavioral bias and decisions in investing employees in Jabodetabek. *Journal of Social Research*, *2*(5), 1643-1654.

Kengatharan, L. and Kengatharan, N. (2014). The influence of behavioral factors in making investment decisions and performance: Study on investors of Colombo Stock Exchange, Sri Lanka. *Asian Journal of Finance & Accounting*, *6*(1), 1.

Le Phuoc, M. & Doan, S. (2016). Behavioural factors influencing individual investors’ decision-making and performance, a survey at the Ho Chi Minh Stock Exchange. *International Academic Journal of Economics and Finance*, 1(4), 48-94.

Le Luong, P. and Thi Thu Ha, D. (2011). Behavioral factors influencing individual investors decision-making and performance: A survey at the Ho Chi Minh Stock Exchange. Available at: https://www.diva-portal.org/smash/get/diva2:423263/FULLTEXT02

Reilly, F. K., & Brown, K. C. (2016). *Investment analysis and portfolio management*. Mason, OH; Thomson South West

Silva, P. A. P., & Jayasekera, R. (2017). Market responses to different exposure regimes: Evidence from the Colombo Stock Exchange. *Cogent Economics & Finance*, 5(1).

Sultana, S. T. and Pardhasaradhi, S. (2012). An empirical analysis of factors influencing Indian individual equity investors' decision making and behavior. *European Journal of Business and Management*, *4*(18), 50-61.

Tristiyono, D., Husni, T. and Adrianto, F. (2023). The effect of behavioral bias moderated by financial literacy, cognitive ability, and self-efficiency on stock investment decisions in youth generations. *Enrichment: Journal of Management*, *13*(4), 2386-2395.

Intention to Use Cloud-based Accounting: Perspective of Accounting Professionals in Sri Lanka

Fernando ERM, *Jayasinghe JAGP

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka, Sri Lanka.

rameshfdo2020@gmail.com, gayani@wyb.ac.lk

Abstract

This study aims to identify the factors affecting the intention to use cloud-based accounting among accounting professionals in Sri Lanka. Perceived usefulness, perceived ease of use, trust, and awareness were used as independent variables, and intention to use cloud-based accounting as the dependent variable. The research's target population consisted of accounting professionals in Sri Lanka, and a representative sample of 385 accounting professionals was selected for the study, despite the larger pool comprising over 12,000 accounting professionals. Data was collected through a structured questionnaire and analyzed through SPSS software. Preliminary analysis, hypothesis testing, descriptive analysis, correlation analysis, and regression analysis were employed to analyze the collected data. By rigorously testing and accepting all formulated hypotheses, the study underscores the positive effect of perceived usefulness, perceived ease of use, trust, and awareness on the intention to use cloud-based accounting among accounting professionals. There is ample room for future research to explore additional dimensions of the benefits, downsides, levels of knowledge, and practical experiences of cloud-based accounting among accounting professionals in Sri Lanka. One critical limitation of this study is the scarcity of literature on cloud-based accounting, particularly in the Sri Lankan context. The study's findings pave the way for future research and offer insights into the evolving role of technology in the accounting industry.

Keywords: *Accounting professionals, Cloud-based Accounting, Sri Lanka*

Introduction

The introduction of cloud accounting has revolutionized the accounting profession by leveraging internet-based accounting systems hosted on remote servers, resembling a Software as a Service (SaaS) model. Accounting has traditionally been the backbone of businesses, providing standardized financial information crucial for stakeholder decision-making. Cloud computing, recognized by the Association of Chartered Certified Accountants (ACCA), has emerged as a game-changing technology, driven by digitalization and widespread internet usage, allowing service providers to share computing resources remotely. Various cloud service models, such as Software as a Service (SaaS), Infrastructure as a Service (IaaS), Platforms as a Service (PaaS), and Business Process as a Service (BPaaS), have gained momentum due to their cost-efficiency and flexibility benefits. Cloud accounting, defined as software functioning like a local application but hosted on remote servers, grants accountants access to financial data from anywhere with internet connectivity. This technology is expected to address challenges posed by globalization, rapid technological advancements, big data, internet-based applications, and standardization. As cloud accounting becomes more prominent, it raises questions about the potential replacement of human involvement in accounting processes and the risks faced by accountants who resist adopting this technology. While some tasks may become automated, professionals can focus on value-added work, consolidating their roles as financial advisors. This study aims to increase Awareness and Trust of cloud accounting among accounting professionals by exploring their intention to use this technology and adding to the existing knowledge base. It also investigates the Perceived Usefulness and Perceived Ease of Use of cloud accounting from the perspective of accounting professionals, since this study focus on how these four variables are affecting on intention to use cloud-based accounting among accounting professionals which is the main objective of this study. The introduction of cloud accounting is expected to streamline accounting workflows, offering access to real-time data and enhancing transparency. It also facilitates collaboration and communication among professionals. Nevertheless, security and reliability remain top concerns in adopting cloud accounting. The Code of Ethics for Professional Accountants by the International Ethics Standards Board of IFAC emphasizes professional competence and due care (IFAC 2016). Accountants are expected to provide effective services based on the latest technological developments. Furthermore, to compete with the global technological trends it is important to adopt to latest technologies. In that case cloud accounting practices stay ahead in any organization and to reap the fruits of this technological advancement to the fullest it is vital to identify the factors determining the intention to use cloud accounting (Tharanga & Perera, 2018).

The current technological era has brought us novel methods to connect accounting professionals everywhere around the world. Accountants can use cloud computing to optimize their operations by using cloud applications (Livera, 2017). This research aims to bridge the gap in the local literature by analyzing accounting professionals' intentions to use cloud accounting within the Sri Lankan context. The research questions center around the factors that impact the intention to use cloud-based accounting among accounting professionals. Hence, the main objective of the study is to identify and understand the factors affecting the intention to use cloud-based accounting among accounting professionals in Sri Lanka.

This research holds paramount significance as it deepens the understanding of cloud-based accounting adoption among accounting professionals in Sri Lanka, providing them with the knowledge necessary to thrive in a rapidly evolving and increasingly technology-driven environment. Moreover, it lays the essential groundwork for future research in this field, offering a potential avenue to explore additional facets of cloud accounting software. In essence, this study sheds light on the transformative impact of cloud accounting on the accounting profession, both locally and within the broader context. By unveiling its implications, the research not only equips accounting professionals with insights to navigate industry changes but also underscores the pivotal role of technological adaptation in the sector. The findings carry practical implications for professionals and organizations, emphasizing the need to consider the benefits and challenges of embracing cloud-based accounting systems and make informed decisions for staying competitive in the ever-evolving field of accounting.

Methodology

The primary research question of this study revolves around the exploration of factors that influence the intention to use cloud-based accounting among accounting professionals. To address this question, a multifaceted research approach was employed, encompassing a range of methods and techniques. The conceptual framework was constructed based on an extensive review of existing literature, which informed the selection of specific factors for investigation. These factors include perceived usefulness, perceived ease of use, trust, and awareness. Hypotheses were formulated to ascertain the significance of these variables about the dependent variable, which is the intention to use cloud-based accounting. This study adheres to a positivistic paradigm and adopts a quantitative approach, aiming to establish empirical relationships between the variables under examination. The research's target population consisted of accounting professionals in Sri Lanka. Accounting Professionals is broader and can encompass a wide range of individuals who work in the field of accounting. It includes not only certified accountants but also bookkeepers, accounting clerks, financial analysts, and other professionals involved in financial and accounting-related tasks. Accounting professionals may or may not have formal accounting qualifications or certifications, but they play important roles in managing financial data and transactions within organizations.

From this pool, a representative sample of 385 respondents was selected for the study, despite the larger pool comprising over 12,000 accounting professionals (+12000 members of ACCA, CIMA, CA & others who work in the field of accounting). So according to the Morgan table, 358 or more surveys are needed to have a confidence level of 95% that the real value is within ±5% of the measured/surveyed value. And the sample has been selected on convenience sampling method. Data was collected through a google form survey questionnaire designed based on the existing literature, ensuring that the questions were aligned with the chosen variables and research objectives.

The gathered data underwent rigorous analysis using statistical tools, with SPSS software serving as a vital instrument. Several statistical techniques were employed to ensure the reliability and validity of the data, including the assessment of Cronbach's Alpha for reliability, the examination of Skewness and Kurtosis for normality, and the evaluation of multicollinearity. To discern the impact of perceived usefulness, perceived ease of use, trust, and awareness on the intention to use cloud-based accounting systems, regression analysis was employed. The choice of analytical tools in this study aligns with the research's objectives and was deemed suitable for achieving the intended outcomes.

Importantly, this research question holds relevance for both theoretical and practical domains. The study contributes to the theoretical body of knowledge by bridging gaps in the local literature, thereby enhancing the existing understanding of cloud-based accounting within the context of Sri Lanka. Doing so, not only adds value to the accounting profession but also fosters increased acceptance and adoption of cloud technology within the accounting community in Sri Lanka. This dual relevance makes the study a valuable contribution to the field of accounting and technology adoption.

Perceived Usefulness - The extent to which a person believes that using IT will enhance his or her job performance (Davis, 1989)

Perceived Ease of Use - The degree to which a person believes that using an IT will be free of effort (Davis, 1989)

Trust - The user’s beliefs or faith in the degree to which a specific service can be regarded to have no security and privacy threats (Gao et al., 2011)

Cloud-Based Accounting Awareness - The level of understanding or knowledge that individuals or organizations have regarding cloud-based accounting systems and practices (Tarmidia et al., 2014)

Intention to Use - A person's subjective probability that he will perform some behavior (Davis, 1989)

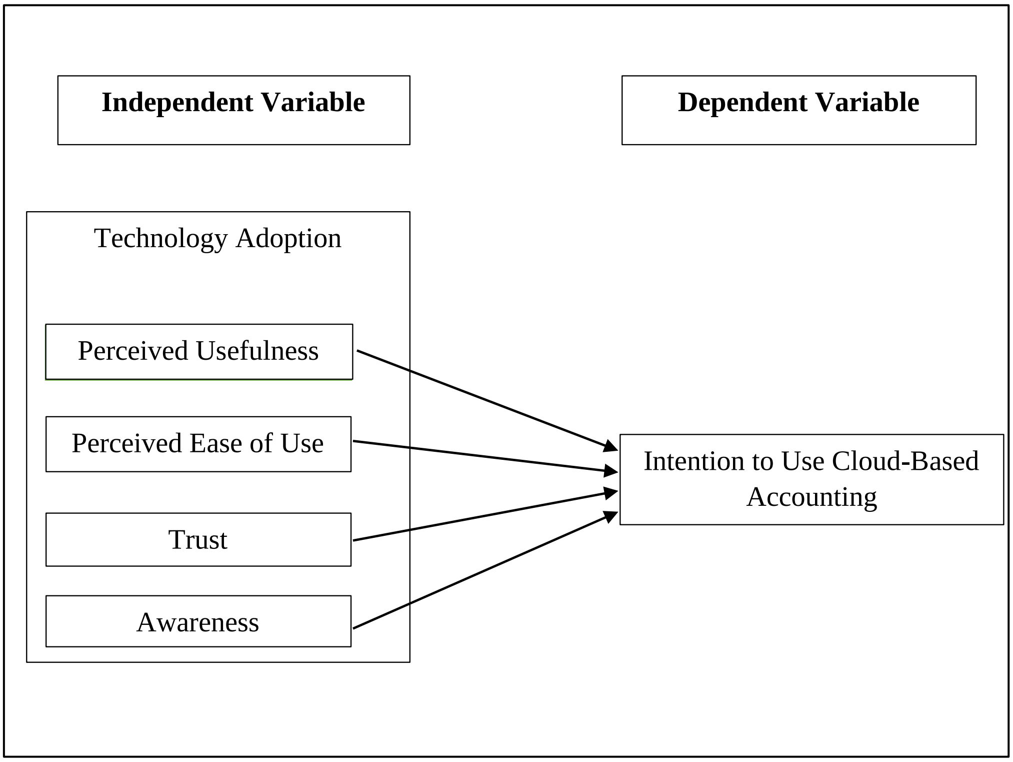

Figure 1: Conceptual Framework

Based on the above conceptualization author has derived the below four hypotheses, which will be used to explore the research objective, which is to examine the factors impacting the intention to use cloud accounting as perceived by the accounting professionals of Sri Lanka.

H1: Perceived Usefulness positively affects the Intention to use cloud-based accounting.

H2: Perceived Ease of Use positively affects Intention to use cloud-based accounting.

H3: Trust positively affects the Intention to use cloud-based accounting.

H4: Awareness positively affects the Intention to use cloud-based accounting.

Findings

The findings of this study provide valuable insights into the impact of various independent variables on the intention to use cloud-based accounting among accounting professionals. The positive influence of perceived usefulness, perceived ease of use, trust, and awareness on the intention to use cloud-based accounting, as evidenced by the acceptance of all hypotheses, is a significant outcome. These results align with previous research conducted by scholars such as Venkatesh & Davis (2000), Venkatesh & Bala (2008), Livera (2017), Tharanga & Perera, (2018) and Gao et al. (2011) reinforcing the consistency of the findings in the context of cloud accounting adoption.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PU	392	2.0	5.0	3.921	0.322
PEU	392	2.0	5.0	4.105	0.466
Trust	392	3.0	5.0	3.987	0.281
Awareness	392	3.0	5.0	4.064	0.341
IU	392	2.0	5.0	4.046	0.282

The contributions of this paper to the existing body of knowledge are noteworthy. By confirming that perceived usefulness, perceived ease of use, trust, and awareness are influential factors in driving the intention to use cloud-based accounting, this study adds substantial empirical evidence to the ongoing discourse on cloud accounting. It underscores the practical relevance of these variables in shaping the decisions and behaviors of accounting professionals, which can have far-reaching implications for the industry.

A key takeaway from this research is the emphasis on the potential for increasing the adoption of cloud accounting systems among accounting professionals. The findings suggest that by enhancing the perceived usefulness, ease of use, trust, and awareness of accounting professionals regarding cloud accounting systems, it is possible to encourage their adoption. This insight has practical implications for professionals, organizations, and policymakers seeking to leverage the benefits of cloud-based accounting. In addition, this study not only focuses on the intention to use cloud-based accounting but also aims to enhance awareness and acceptance of this technology among accounting professionals. By addressing these factors, the research contributes to the ongoing efforts to bridge the gap between awareness and actual usage of cloud accounting systems. This proactive approach is valuable for fostering innovation and progress in accounting. In conclusion, the findings of this study reinforce the importance of perceived usefulness, perceived ease of use, trust, and awareness in driving the intention to use cloud-based accounting among accounting professionals.

Table 2: Correlations

		IU	PU	PEU	Trust	Aware.
IU	Pearson Correlation	1	0.548**	0.611**	0.580**	0.643**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	392	392	392	392	392
PU	Pearson Correlation	0.548**	1	0.480**	0.430**	0.501**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	392	392	392	392	392
PEU	Pearson Correlation	0.611**	0.480**	1	0.408**	0.452**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	392	392	392	392	392
Trust	Pearson Correlation	0.580**	0.430**	0.408**	1	0.418**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	392	392	392	392	392
Aware.	Pearson Correlation	0.643**	0.501**	0.452**	0.418**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	392	392	392	392	392

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

Table 3: Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	0.318	0.274		9.446	0.000
PU	0.232	0.044	0.269	5.314	0.000
PEU	0.169	0.063	0.140	2.698	0.007
Trust	0.324	0.057	0.311	5.653	0.000
Awareness	0.117	0.040	0.141	2.945	0.003

These results are in line with prior research and enhance the empirical evidence in the domain of cloud accounting. The study's emphasis on increasing awareness and acceptance of cloud accounting systems contributes to the ongoing evolution of this paradigm and offers valuable insights for practitioners and researchers alike.

Conclusion

The study provides a comprehensive overview of the analysis conducted on the intention to use cloud-based accounting among accounting professionals in Sri Lanka. It delves into various facets of this topic and presents noteworthy findings, shedding light on the significance of cloud accounting in the evolving landscape of the accounting profession. The research methodology employed in this study, which encompassed descriptive statistics, correlation analysis, and regression analysis, offers a robust framework for understanding the dynamics of cloud-based accounting adoption. By rigorously testing and accepting all formulated hypotheses, the study underscores the positive impact of various factors on the intention to use cloud-based accounting among accounting professionals.

One of the primary takeaways from this study is the emphasis on cloud accounting awareness. It highlights that being cognizant of cloud-based accounting is not only crucial for accounting professionals to adapt to a changing world but also to thrive in their profession. This awareness can catalyze enhanced performance and competitiveness within the accounting industry.

Furthermore, the study's objective to contribute to the knowledge of cloud accounting by examining its acceptance, advantages, and risks among accounting professionals is commendable. It paves the way for a deeper understanding of the factors influencing the adoption of cloud-based accounting systems in Sri Lanka. However, it's essential to note that this study is focused primarily on the factors impacting the intention to use cloud-based accounting among accounting professionals in Sri Lanka. Therefore, there is ample room for future research to explore additional dimensions of this topic. Subsequent studies could delve into the benefits, downsides, levels of knowledge, practical experiences, and other related aspects of cloud-based accounting among accounting professionals in Sri Lanka. This broader scope would provide a more comprehensive understanding of the challenges and opportunities associated with the adoption of cloud accounting in the Sri Lankan context.

One critical limitation of this study is the scarcity of literature on cloud-based accounting, particularly in the Sri Lankan context. This limitation highlights the need for further research in this area, both in Sri Lanka and on a global scale. Future research endeavors should aim to explore additional parameters and factors that influence the adoption of cloud-based accounting systems, contributing to a more holistic understanding of this evolving landscape in the field of accounting.

In conclusion, this study serves as a valuable contribution to the field of accounting by shedding light on the intention to use cloud-based accounting among accounting professionals in Sri Lanka. It not only confirms the positive impact of tested factors but also underscores the importance of cloud accounting awareness in the contemporary accounting profession. The study's findings pave the way for future research and offer insights into the evolving role of technology in the accounting industry.

References

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-339.

Gao, S., Krogstie, J., & Siau, K. (2011). Developing an instrument to measure the adoption of mobile services. *Mobile Information Systems, 7*(1), 45-67.

IFAC. (2016). *Handbook of the Code of Ethics for Professional Accountants. https://www.icparwanda.com/download_dir/ProfessionalStandards/2016-IESBA-Handbook%20Code%20of%20Ethics.pdfzone94.com*

Livera, L. (2017). Cloud-based accounting: The perspective of accounting professionals of Sri Lanka (Undergraduate Thesis). University of Sri Jayewardenepura, Department of Accounting.

Tarmidia, M., Rasid, S. Z. A., Alrazi, B., & Roni, R. A. (2014). Cloud computing awareness and adoption among accounting practitioners in Malaysia. *Procedia - Social and Behavioral Sciences, 129*, 569-574.

Tharanga, D., & Perera, I. (2018). Factors determining the intention to adopt cloud computing by finance companies in Sri Lanka. In *International Conference on Business Research* (pp. 71-80).

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273-315.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

The Impact of Macroeconomic Indicators on Foreign Reserve Balance of Sri Lanka

Ridma Bandara* & Emil Uduwalage

Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka

*ridmarbandara@gmail.com**, *emil@wyb.ac.lk*

Abstract

This study examines the relationship between foreign reserve balance and macroeconomic stability within the context of Sri Lanka. Being a small open economy with a history of external imbalances, Sri Lanka relies heavily on its foreign reserve balance to maintain economic stability and resilience when facing external shocks. This research aims to examine how key macroeconomic indicators; inflation rate, government debt, exchange rate, external debt, trade balance, impact on foreign reserve balance of Sri Lanka. Moreover, this research implies the impact of macroeconomic variables on foreign reserve balance of Sri Lanka, providing valuable insights for policymakers in their decision-making processes. Also, this study explores the existence of a cointegrating relationship between the foreign reserve balance and chosen macroeconomic variables. And, it aims to identify which specific macroeconomic factors significantly impact the foreign reserve balance in Sri Lanka. This study has used a methodology, which includes the analysis of time-series data from year 2000 to year 2021 and econometric modeling. The study delves into historical trends in Sri Lanka's foreign reserve balance holdings and assesses the relationship with the variables. The findings indicate that no cointegrating relationship exists among the variables, while causality exists among variables. And, the statistically significant regression model demonstrates that the selected variables exert both positive and negative influences on the foreign reserve balance.

Keywords: *Foreign reserve balance, Inflation rate, Government debt, Exchange rate, External debt, Trade balance*

Introduction

Foreign reserve balance plays a vital role in shaping the macroeconomic stability of any nation. External sector stability is crucial for maintaining the overall macroeconomic equilibrium of a nation. This is because all economic sectors, including households, businesses, government, and the foreign sector, are interconnected. Consequently, instability in any one sector has a ripple effect on all other sectors within the economy (Zu & Liu, 2021). Hence, Sri Lanka is no exception to this fundamental economic principle. And, the accumulation and management of foreign reserve balances are critical components of a country's economic policy, with far-reaching implications for its exchange rate stability, trade balance, inflation rates, government debt, external debt and overall economic resilience. When considering a country like Sri Lanka, a country with a rich history and a diverse economic landscape, the impact of foreign reserve balances on country’s macroeconomic stability is a topic of significant interest and relevance.

This research endeavors seek to dig into the relationship between foreign reserve balances and macroeconomic stability in Sri Lanka. By examining the dynamics of foreign reserve balances, and how the reserves are impacted by key macroeconomic indicators. Here in this study, few macroeconomic indicators are considered; inflation rate, government debt, exchange rate, external debt and trade balance. The inflation rate and foreign reserve balance are intimately connected, with changes in inflation impacting the adequacy and stability of reserves (Ariyasinghe & Cooray, 2021). The relationship between government debt and foreign reserves is closely linked to monetary policy. Central banks may adjust interest rates in response to government debt dynamics. Higher interest rates to attract investors can influence capital flows and exchange rates, affecting foreign reserves (Adler, Lisack, & Mano, 2019). Exchange rates directly impact the cost of servicing external debt. A depreciating domestic currency can increase the real burden of debt, making it more challenging to service external obligations. This can put pressure on foreign reserves as reserves may be needed for debt servicing (Aizenman, Cheung, & Ito, 2015). The level of external debt is closely scrutinized by international investors. Unsustainable debt levels can erode investor confidence, potentially leading to capital flight, which can directly affect foreign reserves (Guzman, Ocampo, & Stiglitz, 2018). A trade deficit, where imports exceed exports, can put pressure on foreign reserves. To finance the excess imports, a country may need to use its reserves, depleting them (Ariyasinghe & Cooray, 2021).

Further, this study provides a novelty compared to existing literature in the Sri Lankan context. Where the existing literature typically incorporates only one to three of the macroeconomic variables that this study has specifically chosen to examine. In contrast, this study explores the mentioned five macroeconomic factors in conjunction with foreign reserve balance.

Objectives

This study delves into the relationship between the foreign reserve balance and macroeconomic variables of Sri Lanka. One of the key objectives is to examine whether there exists a cointegrating relationship between the foreign reserve balance and macroeconomic variables, utilizing econometric techniques. Further, this analysis examines whether these variables are interconnected in the long term. Another defined objective is to explain the impact of macroeconomic variables on foreign reserve balance of Sri Lanka. It is widely recognized that changes in macroeconomic factors can directly or indirectly affect a country's foreign reserves, and, macroeconomic variables can influence the stability and adequacy of foreign reserve balance of a country.

Methods

The used research philosophy for the study is positivism and this study relies on secondary quantitative data collected from authoritative sources. When continuing the study, it has been assumed that there is an objective reality that can be observed and measured. And, believed that changes in independent variables may cause changes in the dependent variable. Statistical analysis has been used to explore the causal relationship among variables. The study setting (case study) of this study is Sri Lankan economy. In this study, the dependent variable is considered as foreign reserve balance and the independent variables are inflation rate, government debt, trade balance, exchange rate, and external debt. As per the study, secondary data, gathered using authoritative sources; Central Bank of Sri Lanka, International Monetary Fund (IMF), and World Bank, from the year 2000 to 2021 are used to analyze the trends and relationships, and for analyzing the collected data STATA is used. Moreover, in this study, has been formulated hypotheses about the relationships between the variables and tested them using statistical methods.

H_1: Inflation rate significantly affects foreign reserve balance.

H_2: Government debt significantly affects foreign reserve balance.

H_3: Trade balance significantly affects foreign reserve balance.

H_4: Exchange rate fluctuations significantly affects foreign reserve balance.

H_5: External debt significantly affects foreign reserve balance.

This study has defined its research objectives and questions should be clearly. As well, conducted a comprehensive literature review to understand the existing theories, empirical studies and relevant concepts related to the research topic. As per the study, data should be collected using authoritative sources for the dependent and independent variables. Also, the data should be reliable, consistent and covers a relevant time frame. Further, the prepared data are processed after ensuring that the all variables are in a consistent format for analysis, and a quantitative analysis is done using STATA. Moreover, the formulated hypotheses based on the study, should be evaluated and the results should be interpreted.

Results

Unit root test results

Table 1: Augmented Dickey-Fuller test

Variables	Test Statistic Z (t)
Foreign reserve balance	-1.584
Government Debt	-0.364
Inflation Rate	-2.421
Trade Balance	-2.832
Exchange Rate	1.531
External Debt	0.625

In this analysis, we set the critical value at 5%. Critical value at 5% (-3), and ADF test results for the variables, imply the presence of a unit root in the dataset, which signifies that the dataset is non-stationary.

Table 2: Phillips-Perron Test

Variables	Test Statistic Z(t)
Foreign reserve balance	-1.586
Government Debt	-0.622
Inflation Rate	-2.425
Trade Balance	-2.728
Exchange Rate	2.003
External Debt	0.351

In this analysis, we set the critical value at 5%. Critical value at 5% (-3), and PP test results for the variables, imply the presence of a unit root in the dataset, which signifies that the dataset is non-stationary.

Akaike information criterion (AIC)

To conduct cointegration testing using the Johansen test, it is crucial to determine an appropriate lag value before initiating the test. For that Akaike Information

Criterion (AIC) is used, and the lowest amount of AIC should be considered as the efficient lag value. In this specific analysis, the lag value of 4 has been selected for further testing and analysis.

Table 3: Johansen Test

Variable	Trace statistic
Government debt	3.80
Inflation rate	3.90
Trade balance	3.49
Exchange rate	6.54
External debt	22.95

After running the Johansen test for cointegration, the critical value was determined as 15.41

Table 4: Granger Causality Test

Dependent variable	Independent Variable	p- value
Foreign reserve balance	Government debt	0.018
Foreign reserve balance	Inflation rate	0.171
Foreign reserve balance	Trade balance	0.684
Foreign reserve balance	Exchange rate	0.05
Foreign reserve balance	External debt	0.005
Foreign reserve balance	All	0.000

Table 5: Regression Test

Source	SS	df	MS		Number of obs.	22
Model	1.1387	5	2.277		Prob > F	0.000
Residual	1.6134	16	1.008		R-Squared	0.8759
Total	1.3	21	6.19		Adj. R-Squared	0.8371
					Root MSE	1

	Coef.	Std. Err.	t	P > |t|	[95% conf. Interval]	
Government debt	-1.45	3.06	-4.75	0.000	-2.10	-8.03
Inflation rate	-9.40	9.46	-0.99	0.335	-2.94	1.07
Trade balance	2.51	2.14	1.17	0.259	-2.03	7.05
Exchange rate	-6520256	2.70	-0.24	0.812	-6.37	5.07
External debt	0.118	0.05	2.27	0.038	0.0077	0.23
Constant	1.47	2.07	7.13	0.000	1.03	1.91

Y = 1.47 – 1.45 Gov. debt – 9.40 Inf. rate + 2.51 Trade bal. – 6,520,256 Exch. rate + 0.118 Ext. debt

Discussion

Causality test

A unit root test was conducted on a dataset spanning 20 years, from 2000 to 2021. This test aimed to determine the presence or absence of a unit root in the data. The outcome of the unit root test was used to ascertain whether the dataset exhibited stationary or non-stationary behavior. Stationary states that the data in which the statistical properties remain constant over time, while non-stationary states that, the data in which the statistical properties change over the time. This determination played a crucial role in establishing whether the data could be classified as a time series or not.

The study employed both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) methods as unit root tests to assess stationarity [Table 01 and Table 02]. When the test statistic value of each variable is greater than the critical value, it is considered that the unit root exists and the data set is non-stationary. It implies that the data variables; foreign reserve balance (Dependent variable) and inflation rate, government debt, exchange rate, trade balance, external debt (Independent variables) are varied throughout the time. Based on the results, it is shown that the data set is non-stationary and then got into a decision that the data set can be continued for the study as a time series data set.

Further tested the cointegration of the data set to test whether to select one of Vector Error Correction Model (VECM) or Vector Autoregressive Model (VAR) for further testing. If there is a cointegration among the variables, the study can go with VECM and if there is no cointegration further the study can go with VAR model. When the maximum eigenvalue or the trace statistics exceeds the critical value, suggests that there is a cointegrating relationship among variables. This indicates that there is no cointegration among the variables (government debt, inflation rate, trade balance and exchange rate) but, when considering the trace statistic of external debt, it has exceeded the critical value. [Table 3] However, based on the results of the cointegration test, it can be identified that there is no cointegration among most of the variables and, then decided to go further with VAR model. VAR is a statistical model that can be used for analyzing the dynamic relationships of time series variables. VAR model is used for various purposes, including forecasting and, Granger causality testing can be used to examine the causal relationship between variables.

Then the study has analyzed causality using VAR model, to delve deeper into understanding the cause-and-effect relationships between the data variables. For further testing, it has been used, and the Granger causality exists, where the p-value is less than or equal to the threshold 0.05.

Here hypotheses have been implemented to identify whether Granger causality exists;

H_0: One variable does not significantly predict the current values of the other variable. (no Granger causality).

H_1: One variable significantly predicts the current values of the other variable. (there is Granger causality).

After running the Granger causality test, first it implied that, government debt Granger-causes foreign reserve balance (0.018), it implies that there is strength of evidence against null hypothesis and has strong statistical evidence to reject null hypothesis. Therefore, there is a significant relationship between two variables. The lower the p-value, the stronger the evidence against the null hypothesis. It is not clear whether inflation rate Granger-causes foreign reserve balance (0.171), here is weaker statistical evidence against the null hypothesis and there cannot be seen a significant relationship between the two hypotheses. Here the generated p-value is relatively high, it suggests that the data do not strongly support to the existence of Granger causality and it implies that higher the "p" value, weaker the evidence against null hypothesis. It is not clear whether Trade balance Granger-causes foreign reserve balance (0.684), here is weaker statistical evidence against the null hypothesis and there cannot be seen a significant relationship between the two hypotheses. Exchange rate Granger-causes foreign reserve balance (0.05), it indicates that there is a relationship among two variables. The "p" value of 0.05 indicates that the likelihood of obtaining this result by random chance is less than 5%, which is typically considered significant. External debt Granger-causes foreign reserve balance (0.005), it implies that there is a strong relationship among two variables. Lower the "p" value stronger the statistical evidence against null hypothesis. However, when considering the overall results, it implies that the all variables Granger-cause foreign reserve balance (0.0). It reveals that, there is a relationship between the all variables and foreign reserve balance.

Regression model

Coefficients of the model indicate that; when increasing one unit of government debt while holding other variables constant, may result in decreasing the foreign reserve balance by 1.45 units. Similarly, increasing one unit of inflation rate results in decreasing the foreign reserve balance by 9.40 units, increasing one unit of trade balance may result in increasing the foreign reserve balance by 2.51 units, increasing one unit of exchange rate causes in decreasing the foreign reserve balance by 6,520,256 units, increasing one unit of external debt results in increasing the foreign reserve balance by 0.118 units. Therefore, it implies a negative relationship between foreign reserve balance and government debt, inflation rate and exchange rate, and, both trade balance and external debt have positively impacted on foreign reserve balance. Further, the intercept coefficient indicates that, when all the other variables are nil, the foreign reserve balance shows 1.47 units. [Table 5]

R^2 measures the proportion of the variance in the dependent variable; foreign reserve balance that is explained by independent variables; exchange rate, government debt, trade balance, external debt and inflation rate. The R^2 implies that 87.59% of the variance in foreign reserve balance is explained by the independent variables. Also, the adjusted R^2 implies the goodness of fit and in this case, it indicates 83.71% and still the model explains a substantial proportion of the variance. Overall model significance (Prob > F = 0.0000) does not exceed 0.05, and, it implies that the overall model is statistically significant.

Implications and Limitations

This study can be used for understanding the causal relationships between economic factors and foreign reserve balance. And, for policymakers, this can help in making informed economic decisions. Further, the model provides valuable insights into the determinants of foreign reserve balance. Also, researchers can use the regression model to make predictions and inform policy decisions. Moreover, this regression model explains a substantial proportion of the variance in foreign reserve balance. This shows that the selected independent variables have a strong explanatory power. Therefore, policymakers and analysts can rely on the regression model to understand the factors influencing on foreign reserve balance.

This study has used yearly data for 22 years, from 2000 to 2021. This limited time frame might not capture long-term trends or cycles, potentially affecting the generalizability of the findings. Therefore, extending the time frame and frequency of occurrences of the dataset to a longer period might provide a more comprehensive perspective.

References

Adler, G., Lisack, N., & Mano, R. C. (2019). Unveiling the effects of foreign exchange intervention: A panel approach. *Emerging Markets Review*, *40*, 100620.

Aizenman, J., Cheung, Y. W. and Ito, H. (2015). International reserves before and after the global crisis: Is there no end to hoarding. *Journal of International Money and Finance*, 52, 102-126.

Arshad, S. and Ali, A. (2016). Trade-off between inflation, interest and unemployment rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, 5(4), 193-209.

Ariyasinghe, A. and Cooray, N. S. (2021). The nexus of foreign reserve balances, exchange rate and inflation: Recent empirical evidence from Sri Lanka. *South Asia Economic Journal*, 22(1),29-72.

Guzman, M., Ocampo, J.A. and Stiglitz, J.E. (2018). Real exchange rate policies for economic development. *World development*, 110, 51-62.

Su, X. and Liu, Z. (2021). Sector volatility spillover and economic policy uncertainty: Evidence from China’s stock market. *Mathematics*, 9(12), 1411.

Nexus among Green Entrepreneurial Self-Efficacy, Green Entrepreneurial Orientation, Green Innovation, and Economic Performance in SMEs

Pavithra Welipitiya, Hiranya Dissanayake *

Department of Accountancy, Wayamba University of Sri Lanka

pavithranadeeshani125@gmail.com, hiranya@wyb.ac.lk*

Abstract

Increasing environmental issues worldwide have prompted organizations to focus on environmental orientation. The primary objective of this study is to explore the relationships among Green Entrepreneurial Self-Efficacy (GESE), Green Entrepreneurial Orientation (GEO), Green Innovation (GI), and Economic Performance (EP) using Resource Dependence theory. The research was conducted on a sample of 167 small and medium enterprises in the northwestern province using the convenience sampling method. The objective was investigated using a partial least squares regression model. The findings reveal a significant positive relationship, indicating that both GESE and GEO contribute to fostering green innovation, which, in turn, positively impacts economic performance. Furthermore, the research highlights the mediating role of GI in the relationship between GESE, GEO, and EP. This study holds significant theoretical and practical implications. The findings suggest that future research should contemplate expanding the sample size, integrating control variables, and exploring diverse industries to attain a more comprehensive understanding of environmentally conscious practices among SMEs.

Keywords: *resource dependence theory, Green entrepreneurial self-efficacy, Green entrepreneurial orientation, green innovation, Economic performance*

Introduction

In the pursuit of global profits, the extensive utilization of natural resources has precipitated environmental challenges (Alshebami, 2023; Chandula et al., 2023), posing risks to both the planet and human well-being. To address these issues, there is a concerted global effort to safeguard the environment, reduce carbon emissions, and promote energy conservation. Small and medium-sized enterprises (SMEs) are integral to this endeavor, contributing significantly to economic growth, job creation, and community empowerment (Alshebami, 2023).

Recognizing the pivotal role of SMEs, it is crucial to encourage and support them in developing eco-friendly products (Nguyen, and Adomako, 2022). This dual objective, encompassing economic success and ecological sustainability, represents a symbiotic relationship with potential benefits for both the business sector and environmental well-being. This article aims to explore the motivations driving SMEs to engage in the production of environmentally friendly innovations and how these efforts positively impact their economic performance.

While previous studies have provided valuable insights into the relationship between Green Innovation and Economic Performance (Hockerts & Wüstenhagen, 2019; Covin & Slevin, 2019), there is a notable gap in the literature regarding the specific dynamics of SMEs in Sri Lanka. The economic and environmental challenges confronted by SMEs in Sri Lanka in the current context set them apart from their global counterparts, rendering them a pertinent and distinctive subject of study (Sriyani, 2022). Additionally, SMEs play a pivotal role in the national economy, emphasizing the significance of understanding and enhancing their environmental and economic contributions (Dissanayake et al., 2023).

By scrutinizing the interplay between Green Innovation, Entrepreneurial Orientation, and Economic Performance within the context of Sri Lankan SMEs, this study aims to fill an empirical gap in the existing literature and provide actionable insights for policymakers, businesses, and academia. The ultimate objective is to contribute to the development of sustainable business practices that foster economic growth while concurrently addressing pressing environmental concerns.

Objectives

Accordingly, the primary objectives of this study are related to Sri Lankan SMEs including; examining the relationship between green entrepreneurial self-efficacy, green entrepreneurial orientation, and the adoption of green innovation, examining the impact of green innovation on economic performance, and examining the mediating effect of green innovation in the relationship between entrepreneurial self-efficacy, green entrepreneurial orientation, and economic performance.

Theory

This research adopts the resource-based view (RBV) theory, contending that rare, valuable, and inimitable resources significantly enhance business performance and confer sustainable competitive advantages (Alvarez, & Barney, 2017). Within this framework, the study underscores the critical roles of Green Entrepreneurial Self-Efficacy (GESE) and Green Entrepreneurial Orientation (GEO) for small enterprises striving to innovate in environmentally conscious products and services (Alshebami, 2023). GESE, representing entrepreneurial beliefs in effecting positive environmental change, is positioned as a distinctive and potentially rare resource within the RBV framework (Alshebami, 2023; Geo, 2022). Simultaneously, the emphasis on GEO recognizes the strategic value of aligning organizational mindset with green initiatives, contributing to the creation of valuable and difficult-to-replicate resources (Alshebami, 2023).

Moreover, the research extends the RBV lens to underscore the essentiality of businesses embracing green knowledge and advanced technology. These resources are positioned as indispensable for achieving sustainable development and superior economic performance, aligning with RBV's focus on leveraging valuable and rare resources. By interweaving RBV with the specific context of environmentally conscious entrepreneurship, the study offers a nuanced perspective on how strategic resource allocation, encompassing GESE, GEO, and green innovation (GI), collectively shapes the economic performance (EP) of small enterprises. This approach provides a robust theoretical foundation for understanding how distinctive resources contribute to competitive advantages and long-term viability in the pursuit of sustainable business practices.

Methodology

This study employed a positivist philosophy, a deductive approach, a quantitative method, a survey strategy, and a cross-sectional analysis. This study collected 167 responses in the North Western Province of Sri Lanka through an online questionnaire, employing a convenience sampling approach.

In this study, there are two independent variables-GESE and GEO-both of which are examined in relation to the dependent variable, the GI of SMEs. Notably, the study posits that the influence of GESE and GEO on EP is mediated by the adoption and integration of GI. The main hypotheses of this study are as follows;

H_1: There is a significant association between GESE and GI of SMEs in Sri Lanka.

H_2: There is a significant association between GEO and the GI of SMEs in Sri Lanka.

H_3: There is a significant association between GI and the EP of SMEs in Sri Lanka.

H_4: GI mediates the relationship between GESE and the EP of SMEs in Sri Lanka.

H_5: GI mediates the relationship between GEO and the EP of SMEs in Sri Lanka.

The data were analyzed using partial least squares structural equation modeling (PLS-SEM) using SMART PLS 4.0 software (Hair et al., 2021). Initially, researchers test the reliability and validity using measurement model analysis and hypothesis tests using structural model analysis.

Findings

This study initially ensured reliability through the assessment of composite reliability and Cronbach's Alpha. Subsequently, convergent validity was established using Average Variance Extracted (AVE), and discriminant validity was confirmed through the examination of the Heterotrait-Monotrait (HTMT) ratio. The study also addressed the issue of multi-collinearity by checking Variance Inflation Factor (VIF) values. Consequently, the model's validity was thoroughly verified.

Table 1: Results of Hypothesis Tests

	Relation	β	t	p	Decision	R2	F2	Q2
H_1	GESE -> GI	0.436	5.950	0.000	Supported	0.626	-0.293	EP=0.413 GI=0.360
H_2	GEO->GI	0.461	6.130	0.000	Supported	-0.26		
H_3	GI-> EP	0.792	11.001	0.000	Supported	0.825	1.687	
Mediation Analysis								
H_4	GESE->GI->EP	0.346	4.806	0.000	Mediation			
H_5	GEO->GI->EP	0.366	5.631	0.000	Mediation			

The subsequent step involved the analysis of the structural model to investigate the relationships between GESE, GEO, GI, and the association between GI and EP. The study explored how GESE and GEO may influence EP, with further insight gained by considering the mediating impact of GI in this relationship. The results of the hypothesis tests are presented in Table 1 and Figure 1.

The first and second hypotheses (H_1 and H_2) established a significant positive relationship between GESE, GEO, and GI. The third hypothesis supported the relationship between GI and EP.

Additionally, the study delves into the potential mediating role of GI in the relationship between GESE, GEO, and EP. Our analysis supports Hypothesis 4, affirming that GI mediates the relationship between GESE and EP. Additionally, Hypothesis 5 finds support in our data, indicating that GI serves as a mediator in the association between GEO and EP.

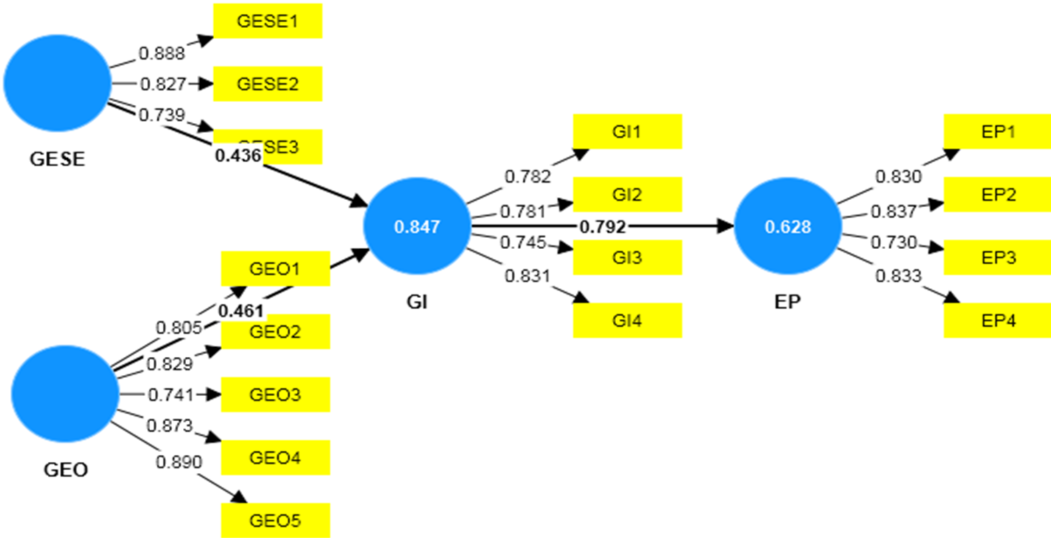

Figure 1: Structural Model

Discussion

The results of the hypotheses in this study contribute valuable insights into the intricate relationships between GESE, GEO, GI, and EP within the context of small and medium-sized businesses in Sri Lanka.

The first hypothesis (H1) establishes a substantial and positive relationship between GESE and GI. This finding supports the idea that individuals with higher levels of GESE possess key attributes such as self-assurance, capability, strength, and confidence. These qualities are instrumental in fostering the creation of cutting-edge goods and services that not only contribute to economic growth but also align with environmental protection. This result is consistent with earlier empirical tests and research, reinforcing the understanding that higher GESE positively influences engagement in green innovation (Guo, 2022; Elshaer et al., 2022).

The second hypothesis (H2) delves into the relationship between GEO and GI, revealing a significant correlation between these variables. The findings suggest that individuals with a strong inclination toward sustainability are more likely to engage in green innovation, creating innovative goods and services. This emphasis on sustainability not only encourages green entrepreneurial behavior but also facilitates overcoming obstacles to embracing novel ideas, procedures, and systems. The result is aligned with previous research, emphasizing that a proactive environmental orientation correlates with increased engagement in green innovation (Teece, 2016; Soomro, Ghumro, & Shah, 2019).

Building on these connections, the third hypothesis (H_3) establishes a favorable and substantial link between GI and EP. This logical relationship suggests that businesses incorporating green innovation techniques and offering cutting-edge goods and services tend to outperform financially. The ability to generate novel ideas, adapt to changing customer needs, outperform competitors, gain a stronger market position, and create a sustainable competitive advantage collectively contribute to increased economic performance. This result aligns with earlier studies, emphasizing the positive impact of green innovation on financial success (Battisti & Perry, 2011).

The study further explores the potential mediation impact of GI on the relationship between GESE, GEO, and EP, investigating H_4 and H_5. H_4 suggests that GI acts as a buffer, mediating the interaction between GESE and EP. The result indicates that businesses with higher levels of GESE, facilitated by self-assurance and confidence, are more likely to see improved economic performance through the mediation of green innovation. Similarly, H5 demonstrates the favorable and substantial mediating influence of GI on the association between GEO and EP. This implies that businesses emphasizing sustainability, with a proactive environmental orientation, can leverage green innovation to create unique products and services, enhancing financial performance through a larger market share and competitive advantage (Chang, 2011).

In conclusion, the study's findings, supported by previous research, provide a comprehensive understanding of the interconnected relationships between GESE, GEO, GI, and EP in the context of small and medium-sized businesses in Sri Lanka. These results emphasize the pivotal role of entrepreneurial self-efficacy, environmental orientation, and green innovation in driving economic performance. The practical implications of these findings are significant for entrepreneurs, policymakers, and researchers aiming to foster sustainable business practices and financial success in SMEs.

Conclusion

The study, conducted among small business owners in Sri Lanka, found the significance of GESE and GEO in driving GI practices. The findings underscore those businesses, where entrepreneurs exhibit high levels of GESE and embrace a strong GEO, are more inclined to engage in environmentally conscious innovation, leading to improved economic performance.

The theoretical contribution of the study is elucidated, particularly within the framework of Resource-Based Theory (RBT). GESE and GEO are identified as unique resources that align with RBT's criteria for valuable, rare, and difficult-to-replicate assets. This study underscores that businesses led by entrepreneurs with elevated GESE and a robust GEO are more apt to engage in environmentally conscious innovation, aligning with RBT's premise that effective resource utilization leads to superior economic performance. The theoretical connection emphasizes the strategic importance of fostering GESE and GEO among small business owners, highlighting a dual pathway for achieving environmental sustainability and economic prosperity.

Additionally, this study suggests that individuals with higher levels of GESE and GEO tend to generate more original ideas and contribute to the development of new products and services, resulting in lowered manufacturing costs, increased business income, and environmental preservation. This study also recommends that policymakers in Sri Lanka focus on enhancing small business owners' self-efficacy and entrepreneurial orientation through training programs provided by organizations such as training facilities, academic institutions, and research organizations, with a specific emphasis on promoting green innovation and environmental awareness. Accordingly, SMEs can improve their performance in this crisis period.

Despite offering valuable insights, the study acknowledges certain limitations. A notable drawback is the small sample size, raising concerns about the generalizability of results. The absence of control variables is another limitation, as external factors influencing the relationship between GESE, GEO, and environmental performance are not adequately considered.

To address these limitations, future research endeavors are encouraged to expand the sample size for enhanced external validity and robust generalizations. The inclusion of control variables, such as economic conditions or industry-specific factors, is suggested to provide a nuanced understanding of the complex interplay between entrepreneurial traits, environmental orientation, and business outcomes. Broadening the study's scope to encompass diverse industries and geographical regions would contribute to a more comprehensive understanding of the factors influencing environmentally friendly practices among SMEs.

References

Alshebami, A. S. (2023). Green innovation, self-efficacy, entrepreneurial orientation and economic performance: Interactions among Saudi small enterprises. *Sustainability, 15*, 1-18.

Alvarez, S. A., & Barney, J. B. (2017). Resource-based theory and the entrepreneurial firm. *Strategic Entrepreneurship: Creating a new mindset*, 87-105.

Battisti, M., & Perry, M. (2011). Walking the talk? Environmental responsibility from the perspective of small-business owners. *Corporate Social Responsibility and Environmental Management*, *18*(3), 172-185.

Chandula, A. M. T., Dissanayake, H., & Anuradha, I. (2023). Role of gender diversity on corporate social responsibility: Evidence from a developing economy. *International Journal of Academe and Industry Research*, *4*(1), 24-45.

Chang, C. (2011). The influence of corporate environmental ethics on competitive advantage: The mediation role of green innovation. *Business Ethics*, 361-370

Covin, J. G., & Lumpkin, G. T. (2011). Entrepreneurial orientation theory and research: Reflections on a needed construct. *Entrepreneurship Theory and Practice*, *35*(5), 855-872.

Dissanayake, H., Iddagoda, A., Rukshan, T., & Deshika, T. (2023). Digital financial literacy and entrepreneurial performance: A percipience from a developing economy. In *Digitalization, Sustainable Development, and Industry 5.0: An Organizational Model for Twin Transitions* (pp. 67-81). Emerald Publishing Limited.

Elshaer, I. A., Azazz, A. M., Ameen, F. A., & Fayyad, S. (2022). Sustainable horticulture practices to predict consumer attitudes towards green hotel visit intention: Moderating the role of an environmental gardening identity. *Horticulturae*, *9*(1), 31.

Fernando, S., Chirara, M., & Dharmaratne, G. (2020). Green entrepreneurship and innovation in developing countries: Evidence from Sri Lanka. *Business Strategy and the Environment*. *29*(7), 2911-2923.

Guo, J. (2022). The significance of green entrepreneurial self-efficacy: Mediating and moderating role of green innovation and green knowledge sharing culture. *Frontiers in Psychology*, *13*.

Hair Jr, J., Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Hockerts, K., & Wüstenhagen, R. (2019). Greening Goliaths versus emerging Davids - Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing, 34*(2), 327-346.

Nguyen, N. P., & Adomako, S. (2022). Stakeholder pressure for eco-friendly practices, international orientation, and eco-innovation: A study of small and medium-sized enterprises in Vietnam. *Corporate Social Responsibility and Environmental Management*, *29*(1), 79-88.

Shook, C., Priem, R., & McGee, J. (2020). Venture creation and the enterprising individual: A review and synthesis. *Journal of Management, 46*(1), 296-331.

Soomro, B., Ghumro, I., & Shah, N. (2019). Green entrepreneurship inclination among the younger generation: An avenue towards a green economy. *Sustainability*, 585-594.

Sriyani, G. T. W. (2022). Impact of economic crisis and way forward for the survival of SMEs: A Sri Lankan perspective. *Wayamba Journal of Management*, *13*(2).