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IMPACT OF INTELLECTUAL CAPITAL ON FIRMS' PROFITABILITY: EMPIRICAL EVIDENCE FROM INDUSTRIALS SECTOR IN SRI LANKA

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ABSTRACT

This study aims to explore the impact of intellectual capital on the firms' profitability of the listed industrials sector in Sri Lanka. The data comprises 155-firm-year observations of 31 companies listed under the industrials sector in the Colombo Stock Exchange for the five years from 2018 to 2022. The industrials sector consists of the listed companies under the capital goods, commercial & professional services and transportation sectors. Modified Value-Added Intellectual Coefficient has been employed to measure the intellectual capital together with the value creation efficiencies of capital employed, human capital, structural capital and relational capital of listed firms. This study used return on equity, operating profit to assets ratio, and gross profit to assets ratio as a signal of the presence of firms' profitability. The researchers used Pearson's correlation and panel data regression to investigate the impact of intellectual capital on firms' profitability. The results reveal that capital employed efficiency and human capital efficiency positively affect the firms' profitability of listed companies in the industrials sector. However, structural capital efficiency and relational capital efficiency have not significantly impacted the firms' profitability. The findings of this study are highly relevant for decision-makers, as they demonstrate the crucial role of intellectual capital in value creation. The results indicate that intellectual capital is a key driver of firms' profitability, especially for industrials sector firms in developing economies. Therefore, governments and corporations in developing economies should prioritize investments in developing intellectual capital to enhance firms' profitability and promote economic growth. It makes significant contributions by considering interaction variables and seeking consistency in results across different political regimes.

Keywords: Capital employed efficiency, Human capital efficiency, Relational capital efficiency, Structural capital efficiency

JEL Classification: O3

2.1 INTRODUCTION

In modern business, Intellectual Capital (IC) plays a vital role in developing corporate value and maintaining competitive advantages. Over the past ten years, academics have shown great interest in IC, particularly as the world increasingly focuses on the knowledge-based economy. According to Serenko and Bontis (2013), a company's IC is one of the essential elements of success. By providing accurate and comprehensive IC information, businesses can bridge the information gap between management and shareholders, reducing agency problems.

The importance of IC has increased with the growth of knowledge-based, fast-changing, and technologically advanced companies in the world economy (Petty & Guthrie, 2000; Canibano *et al*., 2000). In this dynamic economy, both tangible and intangible resources are seen as potential sources of strategic advantage (Ruta, 2009). According to the resource-based theory, an organization's resources are unique and cannot be duplicated (Marr *et al*., 2003). In recent times, the theory has garnered interest in fields such as strategic management, economics and accounting, owing to the clear link between intangible resources and performance metrics. The theory encompasses both tangible and intangible assets.

The concept of IC is relatively new but crucial for securing a competitive edge and achieving superior performance through value generation (Marr *et al*., 2003; Clarke *et al.,* 2011). As such, firms must understand, identify, develop, and utilize IC efficiently to gain a competitive advantage. Developed countries have recognized the importance of IC in the value-creation process, making it feasible to measure and report it. Unfortunately, limited research has been conducted in emerging economies like Sri Lanka on this topic.

Companies are still surviving in today's environment, which is defined by fierce rivalry brought about by globalization and the introduction of new information and communication technologies. The golden rule of globalization dictates that businesses must be highly competitive to succeed in an environment where they face numerous competitors. A combination of tangible and intangible resources, such as IC, is necessary to develop such a characteristic (Bchini, 2015; Massingham & Tam, 2015). Intangible resources, also known as knowledge assets, are currently the most important economic resource and play a crucial role in enhancing financial and organizational performance (Dalwai & Salehi, 2021).

IC can have a long-term impact on a company's financial health and credit rating (Guimón, 2005). Based on the previous studies, IC is crucial to enhancing the current economy (Lev & Gu, 2016; Beaver *et al*., 2005). According to Dumay and Tull (2007), effective management of IC can boost a company's credit ratings, lower loan payments, improve performance, and boost market value. The application of IC indicators can aid in lowering the risk of bankruptcy, which, in turn, minimizes job losses and other unfavorable societal effects. The use of IC

in bankruptcy forecasting can aid in allocating suitable financial resources and investments in businesses that manage their IC. In modern knowledge-based economies, businesses are the main drivers of economic and social growth (Cenciarelli *et al.*, 2018).

IC is a crucial component for driving a company's future growth. However, the traditional financial statement falls short in capturing the majority of IC, which encompasses hard-to-measure factors such as employees' knowledge, skills, expertise, innovation, stakeholder relationships, systems, and databases. Additionally, the traditional accounting system only takes into account tangible assets, neglecting the countless intangible assets that significantly contribute to an organization's production and value creation, except for goodwill, concessions, and licenses. As a result, some researchers argue that traditional business performance measures are insufficient in evaluating an organization's true firms' profitability. Therefore, experts have devised new tools and techniques to measure a firm's IC, allowing stakeholders to make informed decisions based on accurate information (Pulic, 1998; Bontis, 2001; Edvinsson & Malone, 1997; Sveiby, 2001).

Conversely, this study utilizes the resource-based theory because it recognizes the importance of developing and deploying internal resources through board choices, which might be more robust given gender equity (Hsu *et al*., 2019). This study adds to the body of knowledge on IC from the viewpoint of industrials sector companies, which offers crucial insights for internal and external business stakeholders. The industrials sector is a widely recognized and significant one in the developing economy.

Due to the intense worldwide rivalry in many industries throughout the world, achieving business performance is one of the primary goals of each company. Intangible assets, such as human capital (HC) and customer relationships have been determined to be the primary determinants of performance in many organizations (Edvinsson & Malone, 1997). There have been few studies in Sri Lanka on the relationship between IC and firms' profitability, and the available evidence has been contradictory. In a study conducted by Puwanenthiran *et al*. (2019), the voluntary disclosure of IC in the annual reports of Sri Lankan firms for 2016/17 was examined. The results indicated that, on average, Sri Lankan firms possess an understanding of the significance of IC disclosure, even in the absence of a definitive IC disclosure framework. Furthermore, the study highlights the necessity of a mutually agreed financial reporting framework to minimize information asymmetry and agency costs.

Dulanjani and Priyanath, (2020) examine the IC and business performance of self-employers in Sri Lanka. The study finds that HC and relational capital (RC) positively and significantly impact the business performance of self-employers except for structural capital (SC). In particular, RC has the strongest and largest contribution to business performance. Likewise, Wu and Sivalogathasan (2013)

analyzed the impact of IC on the organizational performance of the Apparel industry of Sri Lanka. The results reveal that IC has a positive relationship with the organization's performance. But Aruppalal *et al*., (2015) examine the impact of IC on the financial performance of Sri Lankan banks. The findings of this research indicate that Sri Lankan banks generally have relatively lower HC and structural capital efficiency (SCE) compared to capital-employed efficiency (CEE). So, the results depict a greater impact of CEE on financial performance compared to other IC constituents.

Thusintha (2020) analyzed the impact of IC on the financial performance of Sri Lankan-listed manufacturing companies over the period 2015 to 2019. Based on the findings, IC components have a significant and positive impact on financial performance indexes, as characterized by the findings revealed by ROA and ROE. Also, suggests that investing in human, structural and relational capital is most important to increase manufacturing firms' financial performance. Aravinth and Sritharan (2021) examine the impact of IC efficiency on firm performance and examine the relationship between intellectual capital efficiency and financial performance by using data drawn from 32 manufacturing companies listed in the Colombo Stock Exchange Sri Lanka over the five years from 2015 to 2019. Findings from the regression analysis of this research indicate that intellectual capital efficiency has significant impacts on financial performance in the case of human capital efficiency (HCE). At the same time intellectual capital efficiency in the case of HCE has a significant positive correlation with financial performance.

Despite the growing recognition of IC as a critical driver of corporate success in today's knowledge-based economy, there is a notable lack of empirical research focusing on this relationship, particularly in emerging economies like Sri Lanka. Based on prior studies, there are contradictory findings in the few studies conducted in the context of Sri Lanka, and researchers used different methods to measure the IC. There are various methods used for measuring IC, including the IC-index (Jordão & Almeida, 2017), HC, RC, innovation capital, and process capital (Scafarto *et al.,* 2016), as well as the Value-Added Intellectual Coefficient (VAIC^{TM}) (Sardo & Serrasqueiro, 2017). Among these methods, researchers commonly adopt the VAIC^{TM} which was developed by Pulic (1998). The VAIC^{TM} consists of two components: Intellectual Capital Efficiency (ICE) and CEE. The ICE is comprised of HCE and SCE. Later on, a modified version of VAICTM, known as the Modified VAIC (M-VAIC), was proposed by (Ulum *et al.,* 2014), which incorporates the Relational Capital Efficiency (RCE) variable. It's important to note that the choice of method can impact the research outcomes for measuring IC. This study considers the Modified VAIC method to measure the IC in industrials sector companies in Sri Lanka. Moreover, the traditional financial reporting frameworks often fail to adequately capture the value of intangible assets, which are essential for understanding a firm's true profitability. This gap in measurement and reporting further complicates the assessment of IC's impact on financial outcomes. By doing so, the research seeks to provide valuable

insights for practitioners, policymakers, and academics, ultimately contributing to a better understanding of how investments in intellectual capital can enhance firms' profitability in developing economies. The remainder of this study is structured as follows. Section two reviews the extant literature and hypothesis. Section three describes the methodology of the study. The fourth section presents and discusses the results. The conclusion is provided in section five.

2.2 LITERATURE REVIEW

2.1 Resource - based Theory

The resource-based theory highlights that for the resources to achieve a sustained competitive advantage, the resources must be unique which means valuable, scarce, inimitable, and difficult to substitute (Barney, 1991). The resource-based theory emphasizes that to achieve a sustained competitive advantage, resources must be unique. Wright *et al*. (1994) assert that human resource management capability is a source of sustained competitive advantage as it is embedded in the collective knowledge of the employees (inimitable), which grows throughout time (rare) and the firm processes lead to exploitation of employees' capabilities (valuable) to achieve the firm objectives, thus, create value. Wright *et al*. (1994) results conclude that having strong HC is an advantage and is critical as human resources are most difficult to imitate.

The resource-based theory has been applied in various research relevant to the understanding of the relationships between IC and firm performance (Reed, 2000; Tseng *et al.,* 2005). The theory attributes value creation potential and high firm performance to organizational resources and capabilities (Bharadwaj, 2000), and not to its industry structure (Tseng *et al.,* 2005). In other words, the resource-based theory emphasizes the usage of internal resources, both tangible physical assets and intangible assets which have been internalized and used effectively by firms to achieve competitive and profitable activities (Riahi-Belkaoui, 2003; Wernerfelt, 1984).

2.2 Intellectual Capital

Although there is still no universally accepted definition of IC, it can generally be understood as the valuable knowledge that an enterprise possesses. Edvinsson and Malone (1997) define IC as encompassing various factors such as practical experience, organizational technology, customer relationships, and professional skills. All of these elements contribute to a company's ability to gain a competitive advantage in the market.

IC is the intellectual material, knowledge, experience, intellectual property, and information that can be used to create wealth (Bontis & Fitz-enz, 2002). IC may also be defined as the sum of all of the knowledge and capabilities possessed by a company that permits it to obtain a sustainable competitive advantage (Sardo

& Serrasqueiro, 2017). Brooking (1997) defined IC as a combination of intangible market assets, intellectual property, human-centered assets, and infrastructure that enable a company to function. With rapid industrialization and technological change, IC management has redefined the traditional performance measurement system for achieving and enhancing organizational competitiveness (Edvinsson & Malone, 1997).

2.3 Intellectual Capital and Firms' Profitability

A company's competitiveness is determined by its possession of valuable and inimitable resources. This enables the company to achieve a favorable competitive position, maintain its market position, and attain superior performance. Therefore, firms need to identify, maintain, and develop their intellectual capital resources. Various studies have investigated the relationship between IC and firms' profitability, but there are still mixed results.

Human Capital Efficiency and Firms' Profitability

Human capital efficiency is considered the cornerstone of any progress in economic growth and development for any country. One effect of human capital efficiency on firms' profitability is considered in various empirical studies. Smriti and Das (2018) stated that human capital efficiency has a major impact on firm productivity. Businesses should prioritize offering their employees competitive salaries and comprehensive benefits that align with their level of commitment. They should also create opportunities for career advancement and professional development. Additionally, companies need to develop training programs, improve employee qualifications, and invest in facilities and working conditions. By doing so, employees can enhance their productivity, contribute to the overall performance of the company, and develop their skills and knowledge (Tran & Vo, 2020). According to Aman-Ullah *et al*. (2022), there exists a significant and positive correlation between a company's overall success and its human capital capacity, human capital skills and human capital knowledge. The relationship between human capital knowledge and organizational performance can be moderated by creative leadership. Based on the above, the following hypothesis has been developed,

H1: Human capital efficiency has a significant impact on firms' profitability

Structural Capital Efficiency and Firms' Profitability

According to Waseem *et al*. (2018), the structural capital of an organization provides a foundation for employees to be more creative and innovative compared to their HC, which is owned exclusively by the organization. The structural capital also creates a conducive work environment for organizational learning, knowledge growth, and the conversion of information into knowledge, ultimately leading to a highly productive firm performance (Salim & Djausin,

2020; Waseem & Loo-See,2018). Structural capital plays a crucial role in measuring and developing intellectual capital within an organization. As Bontis pointed out in 1998, in the absence of structural capital, intellectual capital would be limited to HC only. Structural capital also helps organizations minimize their costs and maximize profits per employee. It is crucial to note that the influence of structural capital on a company's performance may differ based on various factors such as industry, size, and the stage of development. Therefore, firms must manage their structural capital efficiently to maximize its impact on performance. This may involve investing in information technology, creating a culture of knowledge sharing, and developing strong processes and routines. Based on the above, the following hypothesis has been developed,

H2: Structural capital efficiency has a significant impact on firms' profitability.

Relational Capital Efficiency and Firms' Profitability

Relationships with customers, suppliers, and stakeholders that influence the company's life can be defined as relational capital. Competitive advantages are important to increase corporate performance, and for that, customer relations are a crucial factor (Arslan & Zaman, 2014). Relational capital is considered as the knowledge that is established through the firm's external relations. Relationships with agents, consumers, suppliers, competitors, partners, clients, shareholders, industry associations, members of the community, society, government, the state, and informal networks all include relational capital (Inkinen *et al.,* 2015). The value of the firm is directly related to the accumulated knowledge of relationships with third parties. The high level of relational capital and its related knowledge gathered may result in problem-solving, better planning and development, and troubleshooting for a firm, which in the long run is more likely to increase efficiencies and reduce organizational costs (Siddiqui & Asad, 2014). Moreover, the higher the level of relational capital, the better planning, problem-solving, and troubleshooting, all of which most likely increase production and service delivery efficiencies and thereby, reduce organizational costs (Youndt *et al*., 2004). Based on the above, the following hypothesis has been developed,

H3: Relational capital efficiency has a significant impact on firms' profitability.

Capital Employed Efficiency and Firms' Profitability

Capital employed is an important factor for firms to maintain good relationships with their internal and external stakeholders, including consumers, customers, government, suppliers, employees, and creditors. Efficient capital employed contributes to the ability to generate revenues, which can increase firms' profitability. It encompasses the total capital utilized in operations to generate profits, including investments in physical assets and working capital. Effective management of capital employed ensures that firms possess the necessary resources to meet stakeholder expectations, such as providing quality products

and services and investing in innovation. Moreover, prudent capital management reflects financial stability, fostering trust among creditors and investors, which can lead to improved financing terms. The efficient utilization of capital also enhances operational performance, positively impacting customer satisfaction and loyalty. Additionally, investments in human capital, such as employee training and development, contribute to workforce engagement and retention, further strengthening internal relationships. The responsible management of capital employed not only creates value for stakeholders but also ensures regulatory compliance and enhances the company's reputation within the community. Ultimately, companies that prioritize the strategic management of capital employed are better positioned to build strong stakeholder relationships, contributing to long-term success and sustainability. CEE refers to all the essential physical capital and financial funds, as highlighted by Yousaf in 2022. Based on the above, the following hypothesis has been developed,

H4: Capital employed efficiency has a significant impact on firms' profitability.

3. METHODOLOGY

3.1 Data and Sample

The study uses secondary data collected from the annual reports of companies listed on the Colombo Stock Exchange of Sri Lanka from 2018 to 2022. The population consists of 35 companies listed under the industrials sector. The industrials sector consists of the listed companies under the capital goods, commercial & professional services and transportation sectors. Based on the availability of annual reports and data for the sample period, the final sample consists of 31 companies.

3.2 Model Specification

The most widely used measurement by researchers is the VAIC^{TM} developed by Public (1998). VAIC^{TM} consists of two components: Intellectual Capital Efficiency (ICE) and Capital Employed Efficiency (CEE). ICE consists of Human Capital Efficiency (HCE) and Structure Capital Efficiency (SCE). This VAIC^{TM} was later developed by Ulum *et al*. (2014), who added the Relational Capital Efficiency (RCE) variable that is modeled as Modified VAIC. The study uses the Modified Value-Added Intellectual Coefficient (MVAIC) for measuring intellectual capital.

The VAIC^{TM} method has several advantages. Firstly, it focuses on the value added to the income statement, without conflicting with other fundamental accounting principles. Secondly, it enables companies to benchmark their performance based on the efficiency of their intellectual capital (IC) and can be applied to different levels of the business, as well as at the national level to develop strategies for improving performance. Thirdly, it is a technique that enhances cognitive

understanding and enables easy calculation by internal and external stakeholders. Fourthly, it is objective and verifiable. Fifthly, it is easy to use as ratios and data can be easily retrieved from accessible financial statements by the public. Finally, it is an appropriate tool for measuring the potential and open intellectual performance of a business (Ståhle *et al*., 2011). Figure 1 illustrates the MVAIC model.
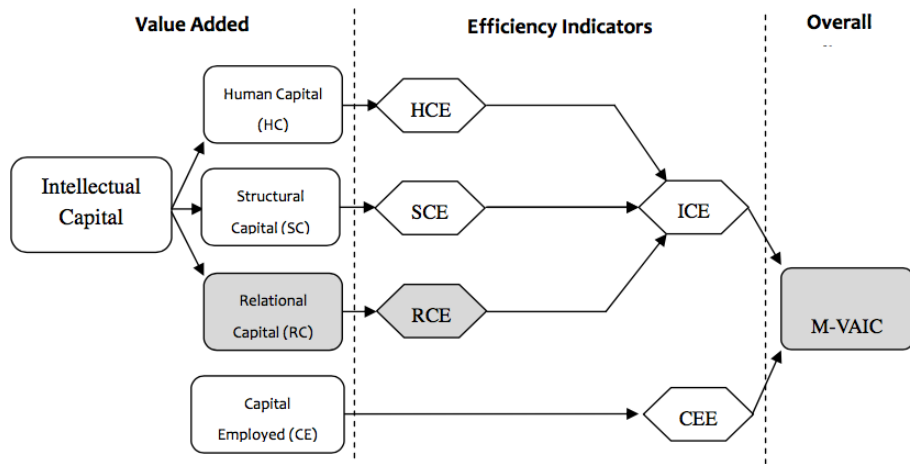
Figure 1: MVAIC model
Source: Diyanty *et al*., (2019)

MVAIC is calculated as follows:

$$VA = OP + DEP + AMOR + EC \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

$$CEE = VA/CE \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

$$HCE = VA/HC \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

$$SCE = SC/VA \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

$$RCE = RC/VA \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5)$$

$$ICE = HCE + SCE + RCE \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(6)$$

$$MVAIC = ICE + CEE \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(7)$$

VA is a value-added company, OP is operating profit, DEP is depreciation, AMOR is amortization, EC is employee cost, CEE is capital employed efficiency, and CE is measured using total assets minus intangible assets. HCE is human capital efficiency, HC is measured using total employee cost, SCE is structure capital efficiency, SC is measured using VA-HC, RCE is relational capital

efficiency, RC is measured using marketing cost, ICE is intellectual capital efficiency, and MVAIC is the modified value-added intellectual coefficient.

The dependent variable used in this research is firms' profitability. It is measured using ROE (return on equity) = net income/total equity, OPA (Operating Profit to Assets) = operating profit/ total assets, and GPA (Gross Profit to Assets) = Gross Profit/ Total Assets.

The control variables in this study used are firm size (FS) and leverage (LEV). Firm size is measured using a log of total assets and leverage is measured using the ratio of total debt to total assets.

To study the impact of intellectual capital on firms' profitability, the study specifies the following models.

Model I:

$$ROE_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 RCE_{it} + \beta_4 CEE_{it} + \beta_5 FS_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(8)$$

Model II:

$$OPA_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 RCE_{it} + \beta_4 CEE_{it} + \beta_5 FS_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (9)$$

Model III:

$$GPA_{it} = \beta_0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 RCE_{it} + \beta_4 CEE_{it} + \beta_5 FS_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(10)$$

4. FINDINGS AND DISCUSSION

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the study. Mean of profitability ratios ROE, OPA, and GPA are 0.231, 0.112 and 0.187 percent respectively, as reported in the financial statements. The human capital efficiency in terms of the sector's value-added output had a maximum ratio of 78.056, the least ratio was 0.534 and the mean value stood at 5.770. This indicated that many companies exhibit higher efficiency levels in terms of HC usage. Similarly, the capital employed efficiency exhibited the minimum returns of 0.010 to the value-added, while the maximum efficiency ratio was 5.831, and the mean efficiency capital employed ratio was 0.508. This indicated that HC is better used than capital employed. Structural capital efficiency had a maximum ratio of 1, the least ratio was -0.872 and the mean value stood at 0.523. Furthermore, relational capital has a maximum ratio of 3.813, and the lowest ratio was 0.000 with the mean value of 0.186.

Comparison of capital employed efficiency, human capital efficiency, relational capital, and structural capital efficiency values implies that value added in the industry generated resulted more from human resources than from tangible and structural assets during the study period.

Table 1: Descriptive Statistics

	HCE	SCE	RCE	CEE	FS	LEV	ROE	OPA	GPA
Mean	5.770	0.523	0.186	0.508	8.107	0.519	0.231	0.112	0.187
Med	2.441	0.590	0.034	0.234	7.955	0.449	0.148	0.065	0.115
Max	78.056	1.000	3.813	5.831	10.784	1.128	2.467	1.738	1.187
Min	0.534	-0.872	0.000	0.010	5.776	0.091	-1.116	-0.067	0.001
S.D	12.450	0.383	0.525	0.849	1.283	4.316	0.538	0.246	0.222

Source: Developed by authors

4.2 Correlation Statistics

Table 2 shows the correlation matrix of the variables used in the study. The correlation between HCE and ROE is 0.544 and significant at 5%. SCE and ROE have a positive relationship at a 5% significant level. HCE and SCE have significantly positively correlated with the OPA of industrials sector companies in Sri Lanka. CEE has a significant positive relationship with GPA at a 5% significant level. However, HCE, SCE and RCE are not significantly correlated. The control variables LEV has significant positive relationship with ROE and FS is not correlated with firms' profitability.

Table 2: Correlation Matrix

Prob / Corr	HCE	SCE	RCE	CEE	FS	LEV
ROE	0.544[**]	0.299[**]	-0.092	-0.012	0.103	0.484[**]
OPA	0.894[**]	0.384[**]	-0.085	0.214	0.174	0.079
GPA	-0.227	-0.238	0.004	0.289[**]	-0.174	0.087

Source: Developed by authors

4.3 Unit root test

Table 3 displays the results of the Augmented Dickey-Fuller (ADF) test, which is used to determine the stationary nature of data. The P-values for all variables are less than 0.05, indicating that all variables are stationary and not dependent over time. Therefore, it can be concluded that the data does not have any unit root at zero lag with no time and no drift trend.

Table 3: Augmented Dickey-Fuller Test

Variables	Probability
HCE	-13.59678 (0.0000)
SCE	-5.136367(0.0001)
RCE	-6.762543 (0.0000)
CEE	-3.98745 (0.0033)
FS	-3.597847 (0.0091)
LEV	-6.160813 (0.0000)
ROE	-8.357046(0.0000)
OPA	-18.10272(0.0000)
GPA	-5.339433(0.0000)

Source: Developed by authors

4.4 Multicollinearity Test

Table 4 summarizes the variance inflation factor for both the explanatory and control variables used in this study. The VIF test is conducted to identify multicollinearity issues in the regressive model, where the set of regressors is used with the dependent variable. If the VIF is greater than 10, then there is a multicollinearity problem (Hair *et al*., 1995). However, in this study, there was no multicollinearity problem detected among the IC and control variables as all VIFs were less than 10.

Table 4: Multicollinearity Test

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.007675	59.33149	NA
HCE	1.91E-06	2.740744	2.248507
SCE	0.001190	3.840301	1.326407
RCE	0.000524	1.237918	1.098007
CEE	0.000431	3.217479	2.356173
FS	9.75E-05	50.75523	1.216708
LEV	1.96E-05	2.791372	2.775919
ROE	0.001250	3.268587	2.749096
OPA	0.000103	2.777759	2.761371
GPA	0.004203	2.720645	1.579367

Source: Developed by authors

4.5 Hausman and Lagrange Multiplier Test

The study has utilized the Lagrange multiplier technique to determine the best model between the Pooled Regression Model (PRM) and Random Effect Model (REM). The PRM hides any diversity among the variables since the observations are combined (Nwakuya & Ijomah, 2017). To decide between the Fixed Effect Model (FEM) and REM, the study has used the Hausman test.

Table 5: Hausman and Lagrange Multiplier Test

Models	Lagrange Multiplier	Hausman Test	Appropriate Model
Model I	1.739265 (0.0410)	3.684085 (0.7193)	REM
Model II	1.040497 (0.0212)	12.397107 (0.0537)	REM
Model III	1.740242 (0.0409)	6.893468 (0.3308)	REM

Source: Developed by authors

This test decides on the most suitable model based on a fundamental dissimilarity between static and random effects to confirm whether the independent variables are genuinely independent and not endogenous. Table 5 shows the outcomes of these tests. Both the Lagrange multiplier and Hausman tests have indicated that the REM is the most appropriate model to estimate models in this study.

4.6 Panel data Regression Analysis

The table displays the results of a random effect regression model. According to these results, human capital efficiency has a positive influence on firms' profitability in terms of ROE and OPA. This indicates that companies should prioritize investments in HC and talent management to improve their firms' profitability. It is supported by previous studies of AlMomani et al., (2023), Tran and Vo (2022), and Sonali and Kowsala, (2022).

Table 6: Panel Data Regression Results

Variables	Model I (ROE)	Model II (OPA)	Model III (GPA)
HCE	0.022049**	0.016968**	-0.003611
SCE	0.123349	0.046899	-0.089806
RCE	-0.000466	0.010199	-0.006339
CEE	0.216243**	0.067653**	0.123182**
FS	-0.026574	-0.014311	-0.027982
LEV	0.087195**	0.010930**	0.022381**
Constant	0.118396		0.414195
F Statistics	11.43340(0.0000)	42.24242(0.0000)	2.678591(0.0259)
Adjusted R Squared	0.546249	0.826351	0.162257

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Developed by authors

Additionally, capital-employed efficiency has a positive impact on firms' profitability in terms of ROE, OPA, and GPA. This suggests that companies can achieve success by investing their capital in a way that creates value-added, resulting in positive ROE, OPA, and GPA. This finding is supported by Xu and Liu (2020), and Chukwu and Egbuhuzor (2017). However, structural capital

efficiency and relational capital efficiency did not show any significant impact on firms' profitability. This finding is supported by Xu and Wang (2018) and Xu and Liu (2020). The insignificant effects of structural capital demonstrate that companies must focus on developing it by adopting a clear knowledge strategy, implementing effective information systems and tools, and fostering an innovative organizational culture. Additionally, companies should establish technological innovation networks to boost their technology innovation capabilities and strive to build good social relationships with their customers and suppliers to enhance their corporate image. Finally, leverage has a positive impact on firms' profitability in terms of ROE, OPA, and GPA at a 5% significant level, while the control variable firm size has no significant impact on firms' profitability.

Following the discussion of these findings, hypothesis testing was conducted to evaluate the relationships between capital employed efficiency and firms' profitability metrics, such as return on equity, operating profit to assets, and gross profit to assets. The results indicate that human capital efficiency has a positive influence on firms' profitability, specifically in terms of return on equity and operating profit to assets. This supports the hypothesis H_1, suggesting that companies should prioritize investments in human capital and talent management to improve their firms' profitability. Structural capital efficiency did not have a significant impact on firms' profitability. Therefore, H_2 is not supported by the results. Likewise, relational capital efficiency also did not show any significant impact on firms' profitability. Thus, H_3 is not supported by the findings. Further, capital employed efficiency has a positive impact on firms' profitability in terms of ROE, OPA, and gross profit to assets. This supports the hypothesis H_4, indicating that companies can achieve success by efficiently utilizing their capital to create value-added outcomes. This finding underscores the strategic role of capital employed as a resource for firms aiming to optimize their financial outcomes and stakeholder relationships. Ultimately, companies that prioritize the strategic management of capital employed are better positioned to build strong stakeholder relationships, contributing to long-term success and sustainability.

The findings of this study underscore the importance of human capital and capital employed efficiency in driving firms' profitability in the industrials sector of Sri Lanka. For researchers, these insights open avenues for further exploration into the nuances of intellectual capital, its measurement, and its impact on organizational success. By addressing the limitations identified in the study and expanding the research scope, future studies can contribute to a more comprehensive understanding of how intangible assets influence firms' profitability in various contexts.

5. CONCLUSION

The present study aims to investigate the impact of intellectual capital on the firms' profitability of industrial sector companies in Sri Lanka from 2018 to 2022.

The study included 31 companies in the industrials sector listed on the Colombo Stock Exchange. Based on panel data regression analysis, the research suggests that capital-employed efficiency has a positive impact on firms' profitability, as higher capital-employed efficiency of a capital goods firm leads to greater profitability. Moreover, the study indicates that HCE has a positive impact on the firms' profitability, implying that investments in developing employees' skills are reflected positively in the profitability of listed capital goods companies. The study's findings will provide valuable insights to practitioners, policymakers, and top-level managers to ensure the effective utilization of intellectual capital. However, it is important to note that the study has certain limitations, such as a small sample size, which may restrict the generalizability of the results to other sector businesses. Therefore, further research is required to validate the findings in a larger sample.

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THE IMPACT OF ERP SYSTEMS ON FIRM PERFORMANCES: CASE OF A PUBLIC SECTOR COMPANY IN SRI LANKA

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ABSTRACT

The purpose of this study is to examine how the ERP systems impact on the firm's performance in the case of a public sector organization in Sri Lanka: ACE Catering Limited with aiming to reveal how ERP systems can facilitate the organization development of new ventures and to investigate the relationships among ERP systems, firm performance and competitive advantage. The ERP system's capabilities were determined by Organizational factors, Technological factors and People factors while the firm performances were measured by overall productivity. Direct questionnaires and in-depth interviews/discussions were used to get reliable data while the inductive grounded theory approach was used to analyse the study systematically. Having selected a mixed research paradigm to guide the explanatory study of ERP systems on firm performances, data was analysed and findings were presented in both ways separately as quantitative and qualitative components. Considering results according to quantitative and qualitative analysis, the study found that people and technological factors of ERP had a statistically significant favourable influence on case-firm performances while organizational factors of ERP impact are not statistically significant on case-firm performances. As a result, a high level of people and technological factors are connected to the positive overall productivity of the case-firm. The fact that this study only considers a one particular company significantly and it may restrict how broadly the results can be applied. Nevertheless, the case study's findings indicate that the company should concentrate more on improving its people and technology aspects because they have a greater influence on overall business performance than organizational aspects. Being aware of the ERP systems would aid the accounting professionals and companies of public sector in developing countries like Sri Lanka not only to survive in the changing world but to prosper in their industry. Also, the research gives a signal to companies to move into the technological trends in the business world to survive in the market.

Keywords: ERP systems, Firm performances, Organizational factors, Technological factors, People factors

1. INTRODUCTION

Information Systems (IS) are created to deal with the interaction of people and the technology like a social system. Information systems including, Enterprise Resource Planning (ERP) systems are very important tools which are complex and comprehensive designed to integrate business process planning. Companies can increase flexibility and efficiency through ERP systems so that's why this is increasingly adopted by many companies regardless the size of the firms. According to the resources, the reason why every organization is moving into ERP systems is, it allows to save time and effort of key organizational operations. The importance of implementation of enterprise resource planning (ERP) systems for organizational strategies has been widely recognized all over the world (Presley, 2006; Wideder, 2006).

In recent years, a large number of organizations have implemented ERP systems within their context in an integrated suite of systems and information resources for their operational and management processes across a broad range of business activities (Buonanno, 2005; Ward, 2005). According to the resources, the reason why every organization is moving into ERP systems is, it allows to save time and effort of key organizational operations. As a result of that, increasingly, lots of public organizations are looking for cost effective ERP system alternatives including enhancement of internal operation management and improvement of organizational efficiency and effectiveness (Scapens R. a., 2003; Zahir, 2013).

However, when it comes to the developing countries like Sri Lanka face several challenges during the adoption, initial and post implementation of ERP systems. Although there are tremendous ERP system's benefits, many organizations still remain undecided to implement cloud ERP because of many unanswered questions It is because that management believe that that implementing to ERP may lead to an increased possibility of system slowdowns and disconnections thus hindering the organization's overall performance and efficiency (Lenart, 2011).
So, this study will be focused to assess how the ERP systems impact on the firm's performance in the case of a public sector organization as this type of studies have not been conducted in the field of public sector organizations. Therefore, this research gives a signal to companies to move into the technological trends in the business world in order to survive in the market.

Further, this study aims to examine how the ERP systems impact on the firm's performance in the case of a public sector organization by answering the following questions.
1. To examine how the company could be experientially benefited from adopting ERP systems.
2. To examine why some organizations, especially in government sector, still rejecting the implementation of ERP systems.
3. To examine how organizations use ERP in an appropriate way to be effective and efficient.

There are some significant limitations of this study which is that it is one qualitative case study only on a particular Catering service public organization and that could not be generalized for all other organizations. Sometimes, validity and reliability of the data cannot be verified due to the use of secondary data sources. Furthermore, employee's commitment, morale and emotional stability have very strong impact on the overall project so, sometimes their experience might get subjected when collecting data.

2. LITERATURE REVIEW

Over the years, Davenport (2004) stated that ERP systems bring many benefits to the organization, such as reduction of cycle time, promotion of e-commerce, and rapid generation of financial information. However, Granlund (2002), examined the effect of ERP adoption on accounting and organizational practices, and concluded that ERP systems have had no major impact on accounting systems but they found that there were many structural changes as a result of adopting the ERP system. Poston, (2001) analysed on ERP adoption and resulted that ERP adoption leads to an efficiency increase in terms of a low employee turnover.

The next section of the paper describes the theoretical context based on the conceptual framework. It goes on to present the research method and findings, followed by a discussion and conclusion.

2.1 Theoretical Review

Organizational Factors (OF)

When determining appropriate OF, it involves top management to front line subordinates, organizational structures, accordingly. The need for effective communication is a must so, it has to be in sync with the management for better understanding of the roles between superior–subordinate. Top management is required to committedly support for cloud-based ERP system with enthusiasm, providing full consideration and even continuously monitoring among all the process.

People Factors (PF)

People have been proven to be the most critical factor for any given organization therefore Umble (2002) had suggested that teamwork should be composed of cross functional members who possess decision making responsibility.

Technological Factors (TF)

Technological factors include ERP packages, IT infrastructure, data integrity and quality. Somers T. a., (2001) explored that IT infrastructure is also required for ERP operation in the form of hardware and software while Boritz (2005)

explained that data integrity is one of the critical aspects in design, implementation and usage of ERP systems through the accuracy and consistency of data over its entire lifecycle.

2.2 Empirical Review

According to the academic literature on the impact of ERP systems on organizational and accounting practices has been attracted significant attention in various ways. However, some of the literature has provided puzzling results, showing that ERP systems have limited impact on organizational practices in general (Granlund, 2002; Dechow, 2005). As per the findings of Granlund (2002), who examined the effect of ERP adoption on accounting and organizational practices, concluded that ERP systems have had no major impact on accounting systems and however, they found that there were many structural changes as a result of adopting the ERP system.

Scapens R. W. (2003) undertook a case study examining the implementation of the ERP system at the European division of a large US multinational company. Then they found that as a result of ERP implementation, significant changes occurred across different departments in the organization. Hwang Y. a.(2011) investigated the influence of cultural orientations on ERP system implementation, such as power distance and uncertainty avoidance. And, the results indicate that the ERP system implementation is influenced by the low power distance and high uncertainty avoidance.

The many of the above bespoken studies have revealed that ERP system implementation can change the way data is collected, stored, and used in organizations. However, in very few studies have shown that ERP systems have limited or no impact on organizational performances. Meanwhile, some researches on the impacts of ERP systems on financial performance has found significant evidence supporting that ERP systems enable companies to achieve faster and efficient return on investment (ROI).

3. METHODOLOGY

This study is planned to develop on case study approach by using mixed method while applying inductive research approach as it involves theory building rather than theory testing based on the grounded theory. The grounded theory was applied as it related to the inductive approach where the theory is developed based on the data which has been systematically collected and analysed. Moreover, the grounded theory aims to develop a theory from data that has been systematically collected and thoroughly examined via comparative analysis (Ylona Chun Tie, 2019). According to Creswell, (1999) two-phase design in which quantitative data is acquired and evaluated first, followed by qualitative data collection and analysis based on the quantitative results and the qualitative data serves to explain the quantitative data.

As this study was conducted by using case study approach selecting one manufacturing company, mainly data was gathered by using primary data sources. Here, surveys used as they are kind of instruments used to evaluate data quantitatively (Eysenbach, 2002). However, direct questionaries and discussions are also used in order to get reliable data as some of the variables have not been tested before as a case study. Accordingly, the research was conducted using primary data sources. Data were collected from co-workers outside of working hours using structured and un-structured interviews and direct questionaries. The staff conversations were recorded and noted down additionally for future references.

As this is a case study research, one company is selected using the Convenience Sampling Method, as the sample in order to examine the impact of ERP systems on firm performances and interviews, direct questionaries and focus group discussions (FGDs) are used to collect and analyse the result. The questionnaire was analysed through SPSS software while interviews were recorded and noted down. As such, the study is designed to use to guide the data collection and analysis which had to be flexible enough to uncover and explore the issues and concepts which potentially capable of understanding the substantive research problem.

3.1 Population and Sample

There are many companies which are using ERP systems in Sri Lanka therefore the population is somehow very large. As this is a case study research, one company is selected as the sample in order to examine the impact of ERP systems on firm performances. This is based on government sector, large sized, food processing company in Sri Lanka named "ACE catering Ltd", which is located in Katunayake. It has nearly 700 of employees working at several departments providing 24/7 service.

In order to handle the research in a structured way, the steps in the case study were conducted following the principles of (Yin, 2003). The company was chosen in such a way that it meets some of the criteria of the previously stated principles. The organization should have adopted a new ERP system recently enough to remember the selection phase and late enough to define the ERP system's use phase (Helena Forslund, 2010).

Therefore, the company was selected as the case-firm using purposive rather than random sampling to have a better understanding on research problem ensuring that above mentioned firm would be rich enough in data related to the research topic.

Based on the conceptual framework represented in figure 1, following hypothesis were established.

H1: High level of organizational factors of ERP systems are more likely to have positive impact on firm performance (Poonam Garg, 2014).

H2: High level of technological factors of ERP systems are more likely to have positive impact on firm performance (Poonam Garg, 2014).

H3: High level of people factors of ERP systems are more likely to have positive impact on firm performance (Poonam Garg, 2014).
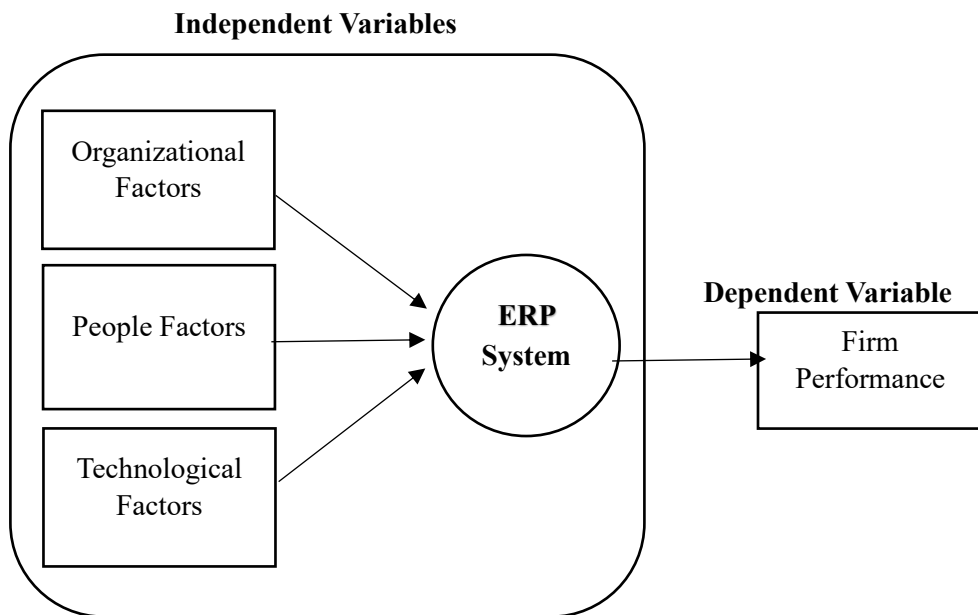
Figure 1: Conceptual Framework
Source: Authors Constructed

Here, according to the previous researches on ERP systems, there are mainly three factors which impact directly on ERP performances such as Technological factors, Organizational factors and People factor which influence the organizational performances. In this study, it appears as independent variables.

Organizational factors (OF) refer to the business plan and business process re-engineering (BPR) with greater conceptualization of goals. It was measured by considering company's Top Management Support and Effective Communication.

Technological Factors (TF) of the company includes factors such as IT infrastructure, network, hardware and software depending on the organizational structure, time constraints and complexity (Markus, 2000).

People factors (PF) are the one of the crucial factors which includes management and employees and their contribution towards the ERP projects (Ehie, 2005). In this study, it was measured using company's Team work and Training frequencies (Hwang M. I., 2018).

The both market and operational performances represents firm performances as the dependent variable. With reference to the firm performances, it illustrates both financial and non-financial performances also. But in this case, researcher focused on qualitative performances rather than quantitative performances.

3.2 Data Collection

As this study was conducted by using case study approach selecting one manufacturing company, mainly data was gathered by using primary data sources. Here, surveys used as they are kind of instruments used to evaluate data quantitatively (Eysenbach, 2002). However, direct questionaries and discussions are also used in order to get reliable data as some of the variables have not been tested before as a case study. Accordingly, the research was conducted using primary data sources.

3.3 Data Analysis

The descriptive analysis was used to understand the company's ERP systems as it uses current and historical data to identify trends. As soon as the data collection started, the researcher engaged in analysing and interpreting observed data. The data was structured and organized based on grounded understanding using grounded theory.

First phase of analysis occurred on site while in the field by exploring the impact of ERP systems as in-depth interviews was used collecting interesting responses. Recordings of interviews were also useful for later analysis. Then notes were created according to the discussions done with the participants as the second phase. Then, the questionnaire was analysed through SPSS software in order to measure the impact of ERP systems on firm performances.

4. FINDINGS AND DISCUSSION

4.1 Company Background

The case-firm, "ACE catering Ltd" produces and promotes catering service for mainly airlines as the monopoly in the market since last three decades. The company was launched in 1979 as a joint venture and then rebranded as a public limited company in 1998. The CEO of the company counts over 23 years of corporate experience in the hospitality industry in Sri Lanka and overseas. Managers and other executives are also well-experienced and passionate in area

which they entitle with. When it comes to the, company's governance, it comprises with board of directors whom governed by government regulations.

4.2 Quantitative Component of Analysis

According to the Statistical analysis (Quantitative), the multiple linear regression analysis shows that H1 is rejected by indicating insignificant impact towards the performances of the case-firm. However, both H2 and H3 are accepted indicating positive influence on firm performance.

Descriptive Analysis

The table 1 provides a summary of descriptive statistics for all demographic variables included in the model. It primarily displays the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis.

Table 1: Descriptive Statistics of Demographic factors

	Gender	Job Experience	Department	Level of Employment
Mean	1.42	2.97	3.21	2.74
Median	1.00	3.00	3.00	3.00
Mode	1	3	3	3
Std. Deviation	0.496	1.211	1.697	0.897
Variance	0.246	1.465	2.879	0.804
Skewness	0.328	-0.184	0.183	-0.319
Std. Error of Skewness	0.222	0.222	0.222	0.222
Kurtosis	-1.925	-0.784	-1.078	-0.598
Std. Error of Kurtosis	0.440	0.440	0.440	0.440
Minimum	1	1	1	1
Maximum	2	5	6	4
Sum	169	354	382	326

Source: Authors Constructed

Gender's mean (average) is roughly 1.42, which is little higher than 1. This implies that, on average, there may be more of one gender in the dataset than the other. The median is 1.00, which means that half of the values are less than 1 and half are greater than 1. This suggests that the distribution is biased slightly toward higher values. The mode is 1, which is the most commonly encountered value. This indicates that one gender predominates in the sample. The standard deviation is about 0.496. This metric gauge the data's dispersion or variability. A

greater value suggests greater spread. The variance (the square of the standard deviation) is roughly 0.246.

The average for Job Experience is around 2.97. This implies that individuals have close to three years of experience on the job. The median is 3.00, which means that half of the values are less than 3 and half are greater than 3. The mode is three, which is the most common value. The standard deviation is about 1.211. This suggests that job experience varies, with some individuals having much more or less experience than the average and the deviation is around 1.465.
For the department, the median is 3.00, which means that half of the values are less than 3 and half are greater than 3. The mode is 3, indicating that this is the most commonly occurring department. The standard deviation is around 1.697. This suggests that there is some variation in the department numbers. The average level of employment is about 2.74. This is the national average for employment.

The median is 3.00, which means that half of the values are less than 3 and half are greater than 3. The mode is 3, which is the most common level of employment. The standard deviation is about 0.897. This suggests that there is some variation in employment levels and the standard deviation is around 0.804.

The skewness of a data distribution reveals its asymmetry. Positive numbers indicate a longer tail on the right side of the distribution, whereas negative values indicate a longer tail on the left side of the distribution. Kurtosis is a measure of the sharpness of the distribution's peak. Positive values indicate a flatter peak, whereas negative values indicate a steeper peak.

Regression Analysis

For the quantitative analysis, here the multiple regression analysis was conducted as the study is for testing the impact rather than testing relationship for two independent variables are being considered for bespoken hypothesis.

Table 2: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757[a]	0.573	0.561	0.23735

a. Predictors: (Constant), People Factors, Organizational Factors, Technological Factors

Source: Authors Constructed

R: The correlation coefficient quantifies the degree and direction of the linear link between the predictor variables (independent variables) and the response variable (dependent variable). It is around 0.757 in this situation, indicating a relatively strong positive linear association.

The coefficient of determination is denoted as R Square (R2). It denotes the fraction of the variance in the dependent variable that can be predicted by the independent variables. In this situation, it's about 0.573, which suggests that the independent factors explain about 57.3% of the variability in the dependent variable.

Adjusted R Square: This is similar to R2, but it takes the number of predictors in the model into consideration. It has been modified to punish the addition of unneeded predictors. In this situation, it is significantly lower than R2 at around 0.561

Estimated standard deviation: This is the standard deviation of the residuals (the difference between the observed and anticipated values). It indicates how well the model matches the data. A lower value represents a better fit. It is roughly 0.23735 in this example.

Table 3: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.681	3	2.894	51.366	.000[b]
	Residual	6.479	115	0.056		
	Total	15.160	118			

a. Dependent Variable: Firm Performance

b. Predictors: (Constant), People Factors, Organizational Factors, Technological Factors

Source: Authors Constructed

The Regression section of the table 3 contains information on the regression model. It demonstrates that the regression model is statistically significant as a whole. The F-value measures how well the model fits the data, and a high F-value, such as 51.366, indicates a good match. The regression model is highly significant, as indicated by the extremely low p-value (Significance) of.000.

The Residual section of the table 3 contains information about the variability that the model does not explain (i.e., the error term). The residuals have a Sum of Squares of 6.479.

The total value depicts the entire variation in the dependent variable. It is the sum of the variability explained by the model (Regression) and the variability that remains unexplained (Residual).

Overall, the ANOVA table indicates that the regression model is a strong fit for the data, since it explains a major portion of the variation in Firm Performances. People factors, organizational factors, and technological factors all have a substantial impact on firm performance.

Table 4: Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0.671	0.250		2.681	0.008	0.175	1.166
	Organizational Factors	0.086	0.082	0.104	1.054	0.294	-0.076	0.249
	Technological Factors	0.156	0.086	0.198	1.813	0.072	-0.014	0.326
	People Factors	0.425	0.069	0.527	6.138	0.000	0.288	0.563

a. Dependent Variable: Firm Performance

Source: Authors Constructed

Here as shown in the table 4, 0.671 is the constant term or the intercept. When all predictor variables are zero, this indicates the estimated value of the dependent variable (Firm Performance).

Impact of Organizational Factors of ERP on firm performance

As per the table 4, the coefficient for organizational factors is 0.086. This means that for every unit improvement in Organizational Factors, it might be expected a 0.086 unit rise in Firm Performance. The t-value of 1.054 and p-value of 0.294, however, show that this impact is not statistically significant at standard levels (e.g., p 0.05) and the coefficient's 95% confidence interval is -0.076 to 0.249.

H1: High level of organizational factors of ERP systems are more likely to have positive impact on firm performance.

As per the regression analysis, the above hypothesis is rejected by indicating insignificant impact towards the performances of the case-firm. Organizational factors included top management support and effective communication, however, the results implicated that they do not have statistically significant impact.

Impact of Technological Factors of ERP on firm performance

The coefficient for technological factors is 0.156. This means that for every unit rise in Technological Factors, it could be expected a 0.156 unit increase in Firm Performance. The t-value of 1.813 and the p-value of 0.072 indicate that this effect is statistically significant (p 0.10) and its coefficient's 95% confidence interval is -0.014 to 0.326.

H2: High level of technological factors of ERP systems are more likely to have positive impact on firm performance

This hypothesis will be accepted as it indicates somehow significancy in the analysis. IT infrastructure and Data Quality and Integrity were the main indicators for the bespoken variable and they are having positive impact to the company's performance.

Impact of People Factors of ERP on firm performance

The coefficient for people factors is 0.425. This means that for every unit improvement in People Factors, so it may expect a 0.425 unit rise in Firm Performance. The large t-value of 6.138 and the extremely low p-value (p 0.001) show that this effect is statistically significant. This coefficient's 95% confidence interval is 0.288 to 0.563.

H3: High level of people factors of ERP systems are more likely to have positive impact on firm performance

This was also accepted through analysis model as it showed positive influence in greater context.

Overall, "People Factors" appear to have the greatest influence on firm performance, followed by "Technological Factors." In this model, "Organizational Factors" do not appear to have a statistically significant effect on Firm Performance.

4.3 Qualitative Component of Analysis

When it comes to the qualitative analysis, which was done through in-depth interviews and observations, it was difficult for researcher to gather information from the CEO as he was not in the country at the time of data being collected. So, researcher had to carefully gather data from respective managers from the time being as the annual audit also had been conducted. When it comes to the usage of ERP systems department wise, it was Finance department and Procurement and Shipping department which has highest ERP usage. Therefore, researcher interviewed both Finance manager and Assistant manager of the procurement department. Considering top management support and effective communication as determinants for organizational factors, it is appeared to be insignificant to the firm performances in case-firm. According to Somers T. a., (2001), the most significant and critical success factor in ERP system has repeatedly been identified as top management support as it varies from company to company.

On the other side, as per the information gathered through interviews, it was clear that technological factors and people factors have greater impact to the ERP on the firm performances as a whole. So, the both H2 and H3 were accepted.

Company's IT department always keep in touch with the departments ensuring no downfalls and system errors happen during the office hours which enhance the

occupancy of the employee's performance. People factors are about the users of the ERP systems of the company and it is determined by training and team work in this study. Users or the employees should be given a proper training in order to mitigate any issue.

5. CONCLUSION

This study is able to examine the influence of factors of ERP system on firm performance of selected company as a case. So, the researcher decided to do a case study on this matter as it can be noticed few researches have been done in this regard. The study was mainly focused on revealing factors on how the case-firm benefited from implementing the ERP systems. As the case-firm had not previously used ERP systems, they could feel the performance change after the ERP implementation.

As the case-firm had not previously used ERP systems, they could feel the performance change after the ERP implementation. Many of the employees have spoken about that during the interview. With reference to the time saving, productivity, competitive advantage, data security and customer service, the ERP system's impact is very high. And on the other side, it helps to reduce company's operational cost within the integrated information and flexible systems procedures. As a public sector company, it is much better compared to other government-based companies as most of companies do not use ERP systems and it might be due to several reasons such as cost and needs of training.

This study outcome can be used to determine the ERP performance of any company towards its market and operational performances. According to the results of this case research, the firm can focus more on developing technological and people factors as they have more significant impact on firm performance compared to organizational factors. However, company should also pay attention to mitigate issues related to OF, as increasing the top management support and awareness. Then, the case-firm performances can be increased to a greater extent and gain competitive advantages. Apart from that, the proposed model can be used to carry out a comprehensive study with a large sample regarding ERP performances regarding various development.

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THE IMPACT OF FINANCIAL LITERACY ON INVESTMENT DECISIONS AMONG THE HOUSEHOLDS IN GAMPAHA DISTRICT

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ABSTRACT

Financial literacy is an essential skill for people in today's complex financial environment, which is full of complex banking products, a wide range of investment options, and constantly changing economic conditions. Different people have different levels of financial literacy, which results in a range of decision-making outcomes. Sufficient financial literacy enables people to confidently handle risk, make well-informed investment decisions, and efficiently manage their expenditures. The objective of this study is to examine the impact of financial literacy on investment decisions among households in Gampaha district. A detailed literature review was used to identify the determinants of financial literacy. The researcher used a structured questionnaire to collect data from households in Gampaha district. The researcher used the convenience sampling method to collect data from 384 households in Gampaha district. Financial literacy consists of four dimensions: financial knowledge, financial skills, financial behavior, and financial attitude, whereas investment decisions are measured by including neutral information, advocate recommendations, accounting information, and personal financial needs. The data was analyzed using reliability tests, descriptive analysis, and multiple regression analysis. The researcher used regression analysis to examine the hypothesis. The coefficient of regression analysis showed that there is a significant impact of financial knowledge, financial skill, and financial behavior on investment decisions. However, there has been no significant impact of financial attitudes on investment decisions. The findings of this study are also useful for investors, policymakers, financial institutions, etc. The study highlights that improving financial knowledge helps households make better investments and suggests that financial advisors should consider their clients' literacy levels for more effective guidance. Financial institutions can use these findings to identify gaps and create literacy programs to enhance financial decision-making. Additionally, educators can incorporate these insights to improve curricula, equipping students with the skills to navigate the financial world, thereby contributing to overall financial stability and well-being.

Keywords: Financial Literacy, Households, Investment Decisions

1. INTRODUCTION

1.1 Background of the Study

In today's world, financial scenarios are becoming increasingly complex, and as a result, financial literacy is an essential skill for every individual. Financial literacy creates a road map for understanding how to manage income and expenses, investments, risk effectively and efficiently and most importantly to reduce financial distress. Financial literacy incorporates understanding everyday situations that need to be understood, such as savings, borrowings, credit and insurance (Singh & Raj Kumar, 2017), (Roy & Jain, 2018). Financial literacy is essential for people to make better financial and investment decisions. De Silva,Vieira and Potrich (2016) revealed that financial literacy influences wise investing decisions and benefits businesses and nations' growth.

According to Musundi (2014), the investment decision is an understanding of alternative options, opportunities for investing, securities for investing, and knowledge of the benefit that arises from investment. Making an investment decision is extremely important and differs from individual to individual. For example, how much money is spent on acquisitions, what kind of investments are required, when and where investments are made, etc. People invest for the long term for their retirement and their children's education, and they invest for the short term for vacations, education, emergencies, house loans, and other things. Therefore, the individual needs to be aware of and knowledgeable about the terms of borrowing and investing.

When an individual has knowledge and understanding of financial products and concepts, money matters reflect sound financial decision-making capacity and impacts the ability to make the right decision at the right time (Rooij, et al., 2011). Lack of financial literacy leads to poor investment decisions. It affects household economic factors and unexpected financial problems. According to Burnheim (1996), the majority of households in a given situation needed help to perform simple calculations due to their lack of financial knowledge and most of their savings were based on the error method. It means, most households do not follow a systematic or informed financial strategy. Instead, they rely on experimentation, adjusting their savings methods based on the outcomes of their previous attempts.

According to the previous studies, most of researchers concluded that the impact of financial literacy on investment decisions couldn't be neglected. Research on the "Impact of Financial Literacy on investment decisions among households" is uncommon in Sri Lanka. This study investigates the impact of financial literacy on investment decisions among households in Gampaha District, Sri Lanka and using a convenience sample, 384 households have been selected. Moreover, this study focuses on four dimensions of financial knowledge, skills, attitudes, and behavior and how they impact investment decisions.

A deeper exploration into the financial literacy of Gampaha households is essential for several reasons. Firstly, the district's population density and

economic activities make it a significant contributor to the national economy. However, existing studies often overlook the nuanced financial behaviors and decision-making processes within this region. Secondly, Sri Lanka's evolving economic environment, characterized by rapid changes in financial markets, inflation rates, and employment patterns, necessitates a more informed and literate populace to navigate these complexities effectively.

1.2 Problem statement

The problem addressed in the study is that it considers the impact of financial literacy on household investment decisions. Studies have shown that households in developing economies lack a basic understanding of finances and are less interested in investing (Awasi, et al., (2016). People are earning money, but some of them find it difficult to manage it well. It depends on their financial literacy levels. The majority of people choose to invest for future goals, and depending on their financial knowledge, some decide to do so in savings accounts, stock market investments, pension plans, etc. According to Burnheim (1996) most households are in a situation where they cannot perform simple calculations due to lack of basic knowledge. So, they have faced difficulties. As a result of the previous studies, researchers understand of how financial products behave; households with a high level of financial literacy have a higher likelihood of making wise investment choices.

Many researchers have addressed the impact of financial literacy on investment decisions in different ways around the world. Sri Lanka hasn't given this topic much attention even though there is a dearth of research being done in this field worldwide. In Sri Lanka, research on this area is uncommon, and for this investigation, a sample was selected from the Gampaha district. There are a large number of households compared to other districts (647,101 according to the Department of Census and Statistics), and they all have different levels of financial knowledge, skills, attitudes, and behaviors. Based on that, they make different investment decisions. In recent years, households have been responsible for managing money, including investment decisions. However, there is a growing concern that a significant number of households may lack the necessary financial literacy to make an effective investment decision. In this study, the researcher hopes to investigate how financial literacy affects investment decisions among households in the Gampaha district, using the four dimensions of financial knowledge, skills, attitudes, and behavior.

This study is important because it examines how financial literacy impacts household investment decisions, especially in the Gampaha district. The findings of this study have important implications for professionals in a variety of fields, including financial advisors, educators, legislators, and financial institutions. The study's findings about the relationship between investing decisions and financial literacy provide financial advisors with a useful tool for giving clients more informed and effective advice. These findings can be used by educators to create focused programs that will increase household decision-making and financial

literacy. Given with the research findings, policymakers can create more targeted financial programs that specifically address issues found in the Gampaha district. Additionally, financial institutions can customize products that are more user-friendly and in accordance with the different levels of financial literacy among their customers by using the research findings.

The research aims to explore the impact of various aspects of financial literacy on investment decisions. Specifically, it seeks to understand how financial knowledge, skills, attitudes, and behaviors influence investment choices. The research questions address these factors individually, asking how each aspect affects investment decisions. Correspondingly, the research objectives are to examine the impacts of financial knowledge, skills, attitudes, and behaviors on investment decisions. Through this investigation, the study aims to provide comprehensive insights into the multifaceted role of financial literacy in shaping effective investment decisions.

2. LITERATURE REVIEW

2.1 Theoretical Review

Planned Behavior Theory

Theory of Planned Behavior (TPB) means it is possible to anticipate an individual's intent of engaging in a behavior at a given place and time. It contends that behavior intentions, which are a function of three determinants, including a person's perspective on behavior, their perception of behavioral control, and their subjective standards behavior determine individual behavior (Ajzen, 1991). Theory explains that individual behavior is influenced by three key factors: attitude, subjective norm, and perceived behavioral control. Attitude represents the individual's emotional position towards a behavior and significantly impacts the likelihood of engagement. The subjective norm involves the perceived social pressure or influence from close contacts regarding the behavior. Perceived behavioral control relates to the ease or difficulty of carrying out the behavior, considering personal capabilities and external factors. These factors collectively shape the decision-making process, even if they are not always consciously acknowledged. This theory is important for understanding how human financial behavior impacts investment choices. It provides valuable insights into the role of attitudes, social expectations, and perceived control in influencing individual actions.

Expected utility theory

Expected Utility Theory (EUT) is a decision-making model used in situations with uncertain outcomes, where individuals evaluate options based on the expected utility values. Utility is a subjective measure of results satisfaction. Asiri

and Marwan (2013) observe EUT as an example of rational behavior determined by particular principles, emphasizing the normative aspect of rationality in personal preferences. People typically select courses of action that maximize expected utility, which is determined by adding the probabilities and expected utility of possible outcomes. Individual preferences, outside factors, and risk aversion all play a part in decision-making. This theory, which examines rational decision-making based on expected utility and provides insights into investor preferences and choices, is essential for understanding how human financial behavior affects investment choices (Kristanto et al., 2020).

Prospect theory

In 1979, the Prospect Theory was developed by Kahneman and Tversky, challenges classical rational economic decision-making by highlighting how individuals prioritize perceived gains over losses. People have different psychological values associated with prevails and losses; they feel more distress about possible losses than they do satisfaction about equivalent gains. According to this theory, the psychological cost of losing a dollar is roughly twice that of winning one. According to Arianti (2018), investors show risk-seeking behavior in potential losses and risk aversion in potential gains. Prospect Theory clarifies how people make decisions when faced with risk and uncertainty. This theory contributes to studying how investors make decisions by explaining their attitudes and behaviors in response to potential gains and losses.

2.2 Empirical review

Financial knowledge and investment decisions

According to Lusardi and Tufano (2008), in order to make decisions regarding savings and investments, a person must have financial knowledge of finance and related concepts. According to Lusardi and Mitchell (2007), household consumers' awareness of finance is based on their capacity to obtain, analyze, and project data on inflation, risk diversification, compound interest, and all other types of financial assets. It is also noted that knowledge about financial investment options is also identified as a significant determinant of financial literacy and investing decisions among undergraduates (Kumari, 2020). Some studies argued that all people with good financial knowledge make better investment decisions (Shahnaz, et al., 2012). It is concluded that there is a need to improve financial knowledge in order to make sound financial decisions (Singh & Raj Kumar, 2017). A household's savings habits and investment decisions have been found to be based on the fundamental rule of thumb in those who lack basic financial knowledge (Musundi, 2014).

Financial skills and investment decisions

According to Kumari (2020) financial skills mean the ability to use the knowledge of financial services implied in financial literacy, and it is concluded that financial skills can be considered as a main determinant of financial literacy to enhance undergraduates' investment decisions. Young people have a basic understanding of finance, and they lack the fundamental skills needed to create and maintain a budget, understand credit, understand investment vehicles, or take advantage of the banking system (Lusardi, 2019), (Singh & Raj Kumar, 2017). According to Singh and Raj Kumar (2017) in order to make better financial decisions, a person should have financial knowledge as well as financial skills. According to Walkumbura (2021), decisions made regarding investments are significantly influenced by one's financial skills.

Financial attitudes and investment decisions

Financial attitude is a key factor in the investment decision- making process, which consists of individual opinions, beliefs and perceptions in planning and propensity towards their saving, investment and expenditure. There is a positive relationship between the financial attitude and investment decisions (Balagobei & Prashanthan, 2021). Financial well-being is also greatly influenced by financial attitude. Ibrahim and Alqaydi (2013) examined the effect of financial attitudes on investment in the United Arab Emirates. The results show that there is an improvement in personal financial attitudes and they tend to borrow less from credit cards. Financial attitude refers to that state of mind or opinion and judgment about one's finances reflecting a position one has taken (Pankow, 2012). For example, one family member may place a high value on a child's education and, therefore, prefer financial investments in their education over other types of investments.

Financial behavior and investment decisions

Brown and Graf (2013) revealed that there is an influence on financial behavior and household investment in Switzerland. Shahnaz et al. (2012) concluded that aggregate saving behavior is a prerequisite for making investment decisions. Financial situation and well-being of investors are affected by some type of financial behavior such as selecting the financial products without researching the market, not planning for the future expenditures or delaying bill payments (Balagobei & Prashanthan, 2021). Financial actions and behaviors of individuals may reflect their characteristics, systematically influence individual investment decisions and ultimately shape their financial situations and well-being in both the short and longer-term (Mandell & Klein, 2009).

2.3 Research Gap

Prior research indicates that financial knowledge, skills, attitudes, behaviors, and investment decisions are positively correlated, implying that more financial literacy is associated with beneficial investment decisions. Not all research, though, supports this theory. While Musundi (2014) suggested that investor behavior and attitude have a limited influence on such decisions, Walkumbura (2021) found that financial attitude has no impact on investment decisions. . In addition to that, in some studies, researchers discovered that a lower level of financial literacy had a much lower impact on investment decisions, and a higher level of financial literacy had a much greater impact on investment decisions. Therefore, the purpose of this study is to determine whether or not financial knowledge, skills, attitudes, and behaviors have a significant impact on investment decisions made by households in the Gampaha District.

3. METHODOLOGY

For this study, the researcher used a positivistic approach to understand the phenomenon that they were studying. As well as deductive approach was applied in this study. A deductive approach means using quantitative methods in research. This study develops a hypothesis and makes an effort to validate the information using the scientific method, experiments, and mathematical proof.

The researcher used the primary data for this study and the data collected through a structured questionnaire. As for the strategy of this research, structured questionnaires will be used, which is a quantitative strategy. The questionnaire consists of three parts. The first part is concerned with data about demographic factors, and the second and third collect data on financial literacy and investment decisions. A positivistic approach was applied in this study. The target population of this study is households in the Gampaha district, which is 647,101 (Department of Census and Statistics). Because Exploring Gampaha district's financial literacy is crucial due to its economic impact and the need for informed decision-making in Sri Lanka's changing economy. The study selected 384 households as the sample according to the Morgan table. The researcher used the convenience sample to select the sample. Then, the researcher distributed the questionnaires, and 384 responses were collected, and the participants' replies will be used as the significant data source for this study. A five-point Likert scale was used to base those questions. The Likert scale is from strongly agree to strongly disagree. SPSS version 26 analyzed the processed data to measure means, standard deviations, reliability and regression equations to test the variables and their relationships to test the hypotheses.

To investigate the factors influencing investment decisions, we employed a multiple regression analysis. The dependent variable, Investment Decisions (ID),

was regressed on four independent variables: Financial Knowledge (FK), Financial Skills (FS), Financial Attitudes (FA), and Financial Behavior (FB). The regression model is specified as follows:

$$ID = \beta 0 + \beta 1 FK + \beta 2 FS + \beta 3 FA + \beta 4 FB + ei \dots\dots\dots\dots\dots\dots\dots\dots..(1)$$

3.1 Operationalization of variables

Table 1 depicts the operationalization of variables.

Table 1: Operationalization of Variables

Variables	Indicator
Financial Knowledge	Knowledge of financial return
	Knowledge of financial risk
	Knowledge of key features of financial products/ services
	Knowledge of interest calculation
	Knowledge of simple financial terms
	Prepare the personal budgets
Financial Skills	Determine the benefits from financial dealings
	Determine the cost from financial dealings
	Evaluate the financial products/ services
	Ability to decide what financial services to choose
	Attitude toward saving money
Financial Attitude	Attitude toward spending money
	Attitude toward managing money
	Spending money
	Easy to save money
	Active savings
Financial Behavior	Active spending
	Financial planning
	Read the terms & conditions of financial products
	Select the financial products suits for the needs
	Information obtained from internet

Investment Decisions	Advocate Information
	Current Economic Indicators
	Impact of Income
	Past performance of firm's stocks

Source: Authors Constructed

3.2 Conceptual Framework

Figure 1 depicts the conceptual framework.
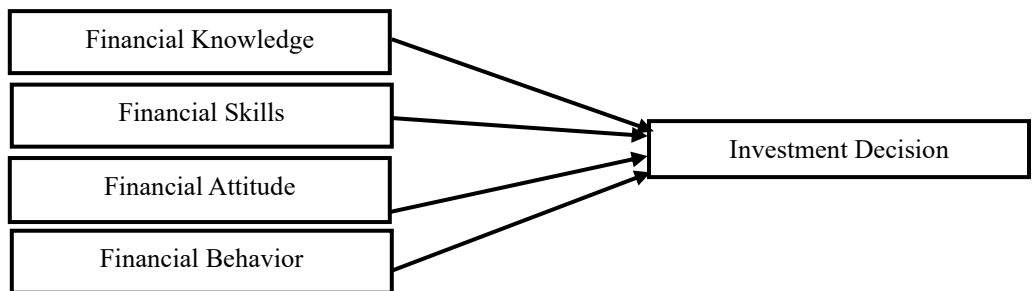
Figure 1: Conceptual Framework
Source: Authors Constructed

3.3 Hypothesis

H1: There is a significant impact of financial knowledge on investment decisions.

H2: There is a significant impact of financial skills on investment decisions.

H3: There is a significant impact of financial attitude on investment decisions.

H4: There is a significant impact of financial behavior on investment decisions.

4. FINDINGS AND DISCUSSION

4.1 Findings

Demographic Analysis

Table 2 shows the ages of household heads. The largest group is aged 46–55, making up 29.2% of the total. The next largest group, 26–35, accounts for 24%. The smallest groups are those aged 18–25 and over 55, each making up 13.5% of the population.

Table 2: Age of household heads

Age	Percent
18-25	13.5
26-35	24.0
36-45	19.8
46-55	29.2
Over 55	13.5

Source: Survey data

Table 3 shows the education levels of household heads. The largest group, 37%, has a G.C.E. A/L education. Graduates make up 29.4%. Those with G.C.E. O/L are 16.1%, and 11.2% are undergraduates. The smallest group, 6.3%, has a PhD or Master's degree.

Table 3: Education level of household heads

Education Level	Percent
G.C.E O/L	16.1
G.C.E A/L	37.0
Undergraduate	11.2
Graduate	29.4
PHD/ Master	6.3

Source: Survey data

Table 4 shows household monthly income distribution. The largest group, 41.7%, earns below Rs.99,999. About 30.2% earn Rs.100,000–199,999, and 16.7% earn Rs.200,000–299,999. Smaller groups earn Rs.300,000–399,999 (6.5%) and above Rs.400,000 (4.9%).

Table 4: Monthly income of households

Monthly Income	Percent
Below Rs.99,999	41.7
Rs.100,000- 199,999	30.2
Rs.200,000- 299,999	16.7
Rs.300,000- 399,999	6.5
Above Rs.400,000	4.9

Source: Survey data

Table 5 shows household monthly savings. The largest group, 33.3%, saves below Rs. 9,999. About 25.5% save Rs. 10,000–19,999. Smaller groups save

Rs. 20,000–29,999 (13.3%) and Rs. 30,000–39,999 (13.5%). Lastly, 14.3% save above Rs. 40,000.

Table 5: Monthly income of households

Monthly Savings	Percent
Below Rs.9,999	33.3
Rs.10,000- 19,999	25.5
Rs.20,000- 29,999	13.3
Rs.30,000- 39,999	13.5
Above Rs.40,000	14.3

Source: Survey data

Table 6 shows where respondents live among various divisional secretariats. The highest number, 17.2%, are from Gampaha. Mirigama and Wattala also have notable numbers, with 14.8% and 7.3% respectively. Understanding this geographic distribution helps ensure the study's findings represent the entire area under study.

Table 6: Divisional Secretaries

Divisional Secretaries	Percent
Attanagalla	5.2
Biyagama	7.0
Divulapitiya	6.3
Dompe	6.3
Ja-Ela	7.3
Gampaha	17.2
Katana	3.6
Kelaniya	6.8
Mahara	6.3
Minuwangoda	5.2
Mirigama	14.8
Negambo	6.8
Wattala	7.3

Source: Survey data

Reliability test

Table 7 illustrates that Cronbach's alpha value is higher than 0.7. It indicates that all variables exhibit strong internal consistency, and the questionnaire can be considered reliable.

Table 7: Reliability test

Variable	Cronbach's Alpha
Financial Knowledge	0.774
Financial Skills	0.761
Financial Attitudes	0.759
Financial Behavior	0.786
Investment decisions	0.765

Source: Survey data

Descriptive analysis

As per the Table 8, the descriptive statistics for several variables related to financial literacy and behavior. Each variable is assessed on a scale from 1 to 5, and the table includes the minimum and maximum values observed, the mean value, and the standard deviation for each variable. The maximum and the minimum value for the financial knowledge is 5 and 1 respectively. Its mean value is 3.90 and it can change either negatively or positively by 0.61078. The maximum and the minimum value for the financial skills is 5 and 1 respectively. Its mean value is 3.8547 and it can change either negatively or positively by 0.61303. The maximum and the minimum value for the financial attitude is 5 and 1, respectively. Its mean value is 3.0427 and it can change either negatively or positively by 0.65521. The maximum and the minimum value for the financial behavior 5 and 1, respectively. Its mean value is 3.9427 and it can change either negatively or positively by 0.66909. The maximum and the minimum value for the investment decision is 5 and 1, respectively. Its mean value is 3.8526 and it can change either negatively or positively by 0.66783.

Table 8: Descriptive statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Financial Knowledge	1	5	3.9000	0.61078
Financial Skills	1	5	3.8547	0.61303
Financial Attitudes	1	5	4.0427	0.65521
Financial Behavior	1	5	3.9427	0.66909
Investment decisions	1	5	3.8526	0.66783

Source: Survey data

Regression analysis

Table 9 shows that p value between financial literacy and investment decisions is 0.000. It indicates financial literacy significantly impacts investment decisions at 95% confidence level. There is a high F value, and it indicates this regression model is most applicable to this study.

Table 9: Regression output of financial literacy & investment decisions

	Sum of Squares	df	Mean Square	F	Sig
Regression	91.017	4	22.754	108.068	.000[b]
Residual	79.800	379	0.211		
Total	170.817	383			

Source: Survey data

The significant value is shown from the p-value. According to Table 10, the p-value of financial knowledge, financial skills and financial behavior is 0.000. It proves that there is a significant impact of financial knowledge, financial skills and financial behavior on investment decisions. However, the P value of the financial attitudes is 0.885. It indicates financial attitude did not significantly impact investment decisions.

Table 10: Regression Output

Predictor	Coefficient	P value
Constant	0.454	0.007
Financial Knowledge	0.285	0.000
Financial Skills	0.273	0.000
Financial Attitudes	0.009	0.885
Financial Behavior	0.304	0.000

Source: Survey data

According to the regression analysis output, the researcher builds the following regression model.

$$ID = \beta 0 + \beta 1FK + \beta 2FS + \beta 3FA + \beta 4FB + ei \dots\dots\dots\dots\dots\dots\dots \ (2)$$

$$ID = 0.454 + 0.285FK + 0.273FS + 0.009FA + 0.304FB + ei \dots\dots\dots \ (3)$$

This model predicts that investment choices change by 0.285 units for every unit of financial knowledge that is changed. Investment choices were affected by 0.273 units for every unit change in financial skill. Investment choices changed by 0.009 in addition to the 1-unit change in financial attitudes. Financial actions changed by 1 unit, and investment choices changed by 0.0304.

Hypothesis Testing

According to the above analysis, there can be accept the following hypothesis. There is a significant impact of financial knowledge on investment decisions because the P value is 0.000. So, H1 can be accepted and H0 is rejected. Financial skill significantly impacts investment decisions because the P value is 0.000. So H2 can be accepted H0 can be rejected. Financial attitude does not significantly impact investment decisions because the P value is 0.885. So, H3 can be rejected H0 can be accepted. Financial behavior has a significant impact on investment

decisions because the P value is 0.000. So, H4 can be accepted and H0 can be rejected.

4.2 Discussion

The results of this study demonstrate a significant impact of financial knowledge, skills, and behavior on investment decisions. The analysis shows that financial knowledge has a significant influence on investment decisions, as indicated by a P value of 0.000, leading to the acceptance of hypothesis H1 and the rejection of H0. This finding is consistent with previous studies by Rooji et al. (2011), Mandell, (2008), and Lusardi and Mitchell, (2007), which also reported a significant impact of financial literacy on investment decisions. Furthermore, studies by Balagobei & Prashanthan (2021), Walkumbura (2021), and Alaaraj & Bakri (2020) support the significant effect of financial knowledge on investment decisions.

Similarly, financial skills significantly impact investment decisions, with a P value of 0.000, resulting in the acceptance of hypothesis H2 and the rejection of H0. This conclusion aligns with the findings of Kumari (2020), Walkumbura, (2021), and Singh & Raj Kumar, (2017), who also identified a significant relationship between financial skills and investment decisions. Financial behavior is another factor that significantly influences investment decisions, as evidenced by a "p" value of 0.000, leading to the acceptance of hypothesis H4 and the rejection of H0. Previous research by, Alaaraj and Bakri, (2020), Balagobei and Prashanthan, (2021), and Kristanto, et al., (2020) corroborates the significant impact of financial behavior on investment decisions.

However, financial attitude does not appear to significantly impact investment decisions, with a P value of 0.885. Therefore, hypothesis H3 is rejected and H0 is accepted. This finding is in line with the studies by Walkumbura (2021) and Musundi (2014), who also found no significant impact of financial attitudes on investment decisions.

5. CONCLUSION

The researcher conducted the reliability test, descriptive analysis and regression analysis to analyze the data. The reliability test found that variables such as financial knowledge, financial skills, financial attitudes, and financial and investment decisions had high levels of internal consistency, with Cronbach's alpha values exceeding 0.7. The descriptive analysis made comprehending the dataset's main characteristics easier. The impact of financial literacy on investment decisions was examined using the multiple linear regression model. The findings showed that financial literacy significantly impacts investment choices, with financial knowledge, skills, and behavior have a significant

influence. Surprisingly, financial attitudes did not significantly influence household investment decisions in the Gampaha district.

Financial literacy has profound implications for policymakers, investors, financial professionals, and institutions alike. Research consistently shows that individuals with strong financial literacy tend to make fewer investment errors and achieve higher returns. This study underscores the importance of enhancing financial literacy and decision-making capabilities within households. Financial advisors can better tailor their advice by considering their clients' levels of financial literacy. Financial institutions can use these insights to identify gaps in financial knowledge and develop programs aimed at improving it, thereby enhancing investment decisions. Local initiatives can also benefit from this research, fostering economic security and well-being through targeted financial literacy efforts. Educators, too, can refine their curricula to equip students with the skills needed to navigate today's complex financial landscape effectively. In summary, stakeholders across sectors stand to gain valuable insights from this study.

In this study, several limitations were faced. First, using occupant perceptions to gather data raised questions about accuracy because occupants might give false information, which could lead to incorrect conclusions. Furthermore, it wasn't easy to meet project deadlines because it took a long time to collect data from residents, each of whom had their own responsibilities. Finally, the duration of the research process was impacted by factors like funding limitations.

The study gives useful information, but the sample size was small, covering only part of the 384 households in the Gampaha district. Future research should include more households and ensure representation from various areas within the district, as each area may have different financial behaviors and investment preferences. It is also important to explore how culture affects financial behavior. Additionally, the study found no significant link between financial attitudes and investment decisions, suggesting that more research is needed to find other factors that may influence investment decisions.

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IMPACT OF EMOTIONAL INTELLIGENCE ON INVESTMENT DECISIONS OF EQUITY INVESTORS IN COLOMBO STOCK EXCHANGE; SPECIAL REFERENCE TO NORTH CENTRAL PROVINCE

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ABSTRACT

Investment decisions are of extreme significance, particularly in a time when individuals attempt to increase their returns from invested capital rather than focusing solely on instant consumption. In the landscape of investment decision-making, the role of behavioural biases and emotional intelligence has brought in considerable attention. This study investigates the influence of emotional intelligence on investment decisions among stock market investors, with a specific focus on those in the North Central Province, Sri Lanka. Employing a deductive approach and a descriptive research design, the study surveyed around 300 active investors from the Colombo Stock Exchange (CSE) in the North Central Province, selecting a sample of 100 through the simple random sampling technique and data were collected using structured questionnaire. The study examined Self-awareness, Self-management, Relationship management, social awareness, and Empathy as independent variables, while the dependent variable was the investment decisions of the investors. Descriptive analysis, correlation analysis and regression analysis were utilized to analyse the data. The findings revealed that there is a positive correlation between emotional intelligence and investment decisions among individual equity investors. Notably, Self-awareness, Social awareness, and Empathy are significantly impacted investment decisions of individual equity investors when they are inventing in CSE, whereas Self-management and Relationship management do not impact. The study concludes that individual stock market participants can improve their investment decisions by considering their emotional intelligence. It highlights the critical role of emotional intelligence in investment choices and stresses the need for further research on this topic across different regions of Sri Lanka and internationally.

Keywords: Emotional intelligence, Investment decisions, Stock market, Colombo Stock Exchange, Regression analysis

1. INTRODUCTION

In the dynamic landscape of financial markets, the realm of investment decisions stands as a crucial arena where human psychology intertwines with economic endeavors. This study delves into the nuanced exploration of the "Impact of Emotional Intelligence on Investment Decisions of Equity Investors in Colombo Stock Exchange; Special Reference to North Central Province." The study is rooted in the understanding that emotions, sentiments, and psychological aspects play a pivotal role in shaping the decisions of equity investors, particularly in the context of the Colombo Stock Exchange (CSE) (Webb et al., 2014).

Psychological theories, ranging from cognitive and personality theories to social psychological and behavioral theories provide a comprehensive framework to fathom the intricacies of human behavior and decision-making (Muttath and Menachery, 2018). Behavioral theory, in particular, emerges as a pertinent lens through which to observe motivation and comprehend the human mind. Sentiments and emotions, derived from individuals' moods, wield a substantial influence on decision-making processes, subsequently impacting stock aggregate outcomes and returns (Lepori, 2015).

Despite the acknowledgment that emotional intelligence significantly influences investment decisions, the specific connection between emotional intelligence and equity investors' decision-making in the Colombo Stock Exchange remains underexplored within the Sri Lankan context. While international studies hint at the partial impact of emotional intelligence on investment decisions (El-Chaarani, 2016), the scarcity of research in the Sri Lankan context prompts the identification of a critical research problem: What is the precise relationship between emotional intelligence and investment decisions among equity investors in the Colombo Stock Exchange?

The primary purpose of this study is to unravel the intricate dynamics of emotional intelligence and its impact on investment decision-making. The objectives include scrutinizing the five traits of emotional intelligence, self-awareness, self-management, empathy, relationship management, and motivation outlined by Raheja and Dhiman (2016) and understanding how these facets interplay in the investment decisions of equity investors in the North Central Province.

Investment decisions, categorized into long-term and short-term investments, are pivotal contributors to economic growth. Emotional intelligence emerges as a critical skill, influencing individual decision-making and, consequently, the broader financial market. Recognizing the dearth of studies on the subject within the Sri Lankan context, this research holds significant implications for investors, policymakers, and scholars aiming to comprehend the interplay of emotional intelligence and investment decisions.

In alignment with Salehi and Mohammadi (2017), which reveal a positive

association between investors' stock decisions and psychological aspects, economic circumstances, and capital market transactions, this study seeks to contribute valuable insights that extend beyond the decision-making process to impact the consequences of such decisions. As asserted by Hess and Bacigalupo (2011), emotional intelligence serves as a valuable trait for understanding negotiation dynamics, ultimately aiding individual investors in making more informed and effective investment decisions. The below are the specific objectives of the study.

1. To examine the impact of self - awareness on the investment decisions of equity investors.
2. To examine the impact of self- management on the investment decisions of equity investors.
3. To examine the impact of social awareness on the investment decisions of equity investors.
4. To examine the impact of relationship management on the investment decisions of equity investors.
5. To examine the impact of empathy on the investment decisions of equity investors.

2. LITERATURE REVIEW

2.1 Emotional Intelligence (EI)

Emotional intelligence is the frontline with respect to perceiving our own opinions and those in others, for stimulating ourselves, for overseeing feelings well in us and in our networks (Golmen, 2006). In today's context, investment is crucial for everyone because individuals consistently choose investment opportunities based on their behavioural investment elements (Dhiman & Raheja, 2018). Mayer et al. (2002) define emotional intelligence as the awareness of one's emotions, while intelligence is the ability to reason with information. According to Cherniss (2000), emotional intelligence influences the ways in which one makes significant future decisions. Ameriks et al. (2009) found significant associations between emotional intelligence and investor behaviour in several, but not all, areas they examined. Rubaltelli et al. (2015) determined that emotional intelligence influences investment motivation and uniquely impacts investor behaviour by affecting additional explored aspects. Grewal et al. (2006) noted that emotional intelligence is related to behavioural traits of investors such as loss aversion, the endowment effect, and status quo bias.

2.2 The Role of Emotional Intelligence in Investment Decisions

Numerous scholars, including Golman (2006) and Hess & Bacigalupo (2011), have underscored the pivotal role of emotional intelligence in investment decision-making. Golman (2006) posits that emotional intelligence aids in making better investment decisions, emphasizing its impact on the cognitive and emotional aspects of decision-making. Similarly, Hess & Bacigalupo (2011)

argue that emotional intelligence enhances not only the decision-making process but also the outcomes of those decisions. This body of literature forms the basis for our contention that emotional intelligence is a crucial factor influencing investment decisions.

2.3 Positive Association between Emotional Intelligence and Stock Investment

The work of Salehi and Mohammadi (2017) establishes a positive association between investors' stock investment decisions and psychological aspects, including emotional intelligence. Their findings contribute to the understanding that emotional intelligence is intertwined with investment decisions, suggesting that investors leverage this skill to navigate the complexities of the stock market. However, despite these valuable insights, a critical gap emerges concerning the specific nuances of this association within the context of the Colombo Stock Exchange and the North Central Province.

2.4 Limited Exploration in the Sri Lankan Context

While international studies, such as El-Chaarani (2016), have delved into the partial impact of emotional intelligence on investment decisions, the Sri Lankan context remains underexplored. This dearth of research becomes a critical gap in the literature, raising questions about the universality of findings and necessitating a focused inquiry into the specific dynamics within the Colombo Stock Exchange. Consequently, the gap in the literature prompts the current study's central question: What is the precise connection between emotional intelligence and investment decisions among equity investors in the Colombo Stock Exchange, with a special reference to the North Central Province?

2.5 The Five Traits of Emotional Intelligence

Raheja and Dhiman's (2016) identification of five traits of emotional intelligence—self-awareness, self-management, empathy, relationship management, and motivation—offers a theoretical framework that aligns with the present study's objectives. These traits provide a lens through which to analyse and comprehend the specific components of emotional intelligence influencing investment decisions.

2.6 Integration of Emotional Intelligence with Economic Factors:

Tanvir et al. (2016a) assert that individual decision-making is influenced by emotional intelligence, with emotions impacting decisions in the financial domain. This perspective aligns with the present study's focus on the Colombo Stock Exchange and underscores the need to integrate emotional intelligence with economic circumstances to holistically understand its impact on investment decisions.

While existing literature acknowledges the significance of emotional intelligence in investment decisions, there is a notable gap in the exploration of this relationship within the Sri Lankan context, particularly in the Colombo Stock

Exchange. This study endeavours to address this gap by examining the nuanced dynamics of emotional intelligence and its impact on equity investors' decisions in the North Central Province, thus contributing to the existing body of knowledge and guiding future research in this domain.

3. METHODOLOGY

3.1 Conceptualization

Conceptual framework is depicted in figure 1
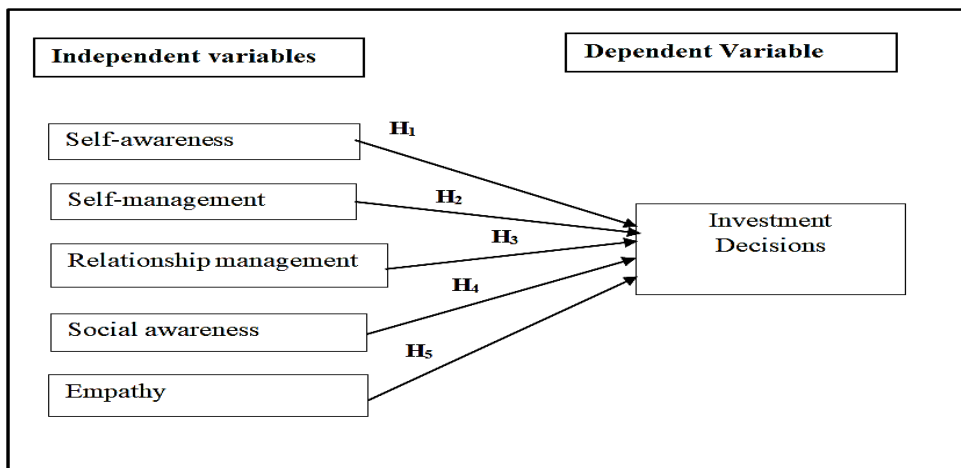
Figure 1: Conceptual Framework
Source: Authors Constructed

3.2 Research Philosophy/Approach

The research philosophy guiding this study is rooted in a positivist paradigm. Positivism emphasizes the objective and empirical observation of social phenomena, seeking to identify patterns and relationships through systematic analysis (Sekaran & Bougie, 2016). In alignment with this philosophy, the deductive research approach is adopted, where predefined hypotheses guide the investigation into the impact of emotional intelligence on investment decisions among Colombo Stock Exchange (CSE) investors in the North Central Province.

3.3 Research Strategy

The chosen research strategy involves a quantitative survey method, enabling the collection of structured and quantifiable data. This strategy aligns with the study's deductive approach, focusing on testing hypotheses related to the relationship between emotional intelligence and investment decisions (Sekaran & Bougie, 2016). By employing a survey, the research aims to systematically gather data from a representative sample of CSE investors in the North Central Province, allowing for a comprehensive analysis.

3.4 Research Context

The study is situated within the context of the CSE, specifically focusing on investors from the North Central Province. This context provides a localized perspective on the interplay between emotional intelligence and investment decisions within the Sri Lankan financial landscape. The insights gained will contribute to a nuanced understanding of how emotional intelligence influences investment behaviours in this specific regional context (Kumari et al, 2022).

3.5 Sample Selection

The target population comprises approximately 300 CSE investors from the North Central Province. From this population, a representative sample of 100 investors has been selected using a random sampling technique. This method ensures that each investor in the population has an equal chance of being included in the study, promoting unbiased and generalizable findings.

3.6 Data Collection Method

Primary data for the study was collected through a modified structured questionnaire. The questionnaire is designed to capture relevant information pertaining to investors' emotional intelligence and its impact on investment decisions. The self-administered nature of the questionnaire ensures consistency in data collection. The questionnaire was distributed electronically to the selected sample via email addresses obtained from the CSE Anuradhapura branch.

4. FINDINGS AND DISCUSSION

4.1 Reliability Test

In the reliability statistic, if the alpha value is equal to or greater than 0.70, it signifies a significant improvement in the research's internal consistency due to the employed research technique. This suggests that the research tool is of high quality. Specifically, if the alpha value surpasses 0.7, it indicates the excellence of the research tool. Consequently, the research tool can be deemed good.

Table 1: Reliability Statistics

Variable	Cronbach's Alpha	N of item
Self-awareness	.791	4
Self-management	.771	4
Social Awareness	.611	4
Relationship Management	.842	4
Empathy	.814	4
Investment Decisions	.642	5

Source: Survey Data (2023)

On the other hand, if alpha values are measured above 0.6 and below 0.7, the research tool remains acceptable. (Sekaran & Bougie, 2016). Conversely, a

recorded value lowers than 0.5 indicates unreliability. For detailed values of Cronbach's alpha for the variables, please refer to Table 1.

4.2 Descriptive Statistics

The descriptive test evaluates if the distribution of the sample observations is normal. By comparing the values of observations distributed with a normal distribution's mean and standard deviation, the test showed that the sample was free of deviations.

Table 2: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	Variance
SA	1.00	5.00	1.831	.595	.355
SM	2.25	4.25	3.185	.405	.165
RM	1.25	3.50	2.873	.376	.142
SOA	1.00	3.50	2.232	.590	.349
E	1.00	3.25	2.339	.628	.394
ID	1.20	3.20	2.138	.451	.203

Source: Survey Data (2023)

According to table 2, the mean value of the self-awareness to investment decision was 1.8317, and the standard deviation was 0.596, S e l f -management to investment decision had a mean value of 3.186 and a standard deviation of 0.406. Relationship management and investment decisions had a mean value of 2.874 and a standard deviation of 0.377 Additionally, the standard deviation was 0.591, with the mean value of social awareness to investment decision being 2.233 Empathy to investment decision was 2.339, and the standard deviation was 0.628, Individual stock market participants made investment decisions, with a mean value of 2.139 and a standard deviation of 0.451.

4.3 Correlation Analysis

The range of the correlation value is from -1 to +1. Between the dependent variable and the independent variable, - 1 denotes the ideal negative relationship and +1 the ideal positive relationship. The table 3 shows the relationship between the independent and dependent variables.

Table 3: Correlation Matrix

	SA	SM	RM	SOA	E	ID
SA	1					
SM	.293**	1				
RM	.327**	.237**	1			
SOA	.325**	.144**	.526**	1		
E	.344**	.418**	.703**	.563**	1	
ID	.486**	.298**	.416**	.535**	.601**	1

Source: Survey Data 2023

The correlation matrix indicates substantial positive relationships between various dimensions of emotional intelligence (SA, SM, RM, SOA, E) and interpersonal decision-making (ID). These findings suggest that as one aspect of emotional intelligence increases, it tends to be positively associated with others, and this positive association extends to the ability to make effective interpersonal decisions. The stronger correlations, particularly with ID, imply that individuals with higher emotional intelligence scores in these dimensions are more likely to exhibit superior interpersonal decision-making skills.

4.4 Regression Analysis

According to the table 4, the R-value, which was 0.703, indicates an obvious correlation. The adjusted R square value is the percentage of total variance in the dependent variable that can be explained by the independent variables. The results above show that the independent variables used in model 1 accurately predicted 0.467 of the emotional intelligence of individual stock market investors. Statistical significance is set at P0.5, and R squared is 0.703. It indicates that the amount of emotional intelligence was able to predict 0.703 different investment decision variations. The level of prediction is good.

Table 4: Regression analysis (Model summary test)

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
1	.703a	.494	.467	.329

Source: Survey Data (2023)

4.5 ANOVA Test

The ANOVA table's F-Ratio shows how effectively the total regression model fits the data. The regression model fits the data effectively when the significant value is less than 0.05.

Table 5: ANOVA test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.027	5	2.005	18.546	.000b
	Residual	10.272	95	.108		
	Total	20.299	100			

Source: Survey Data 2023

Above table demonstrates that the overall regression model fits the data well. According to the table, F = 18546, P < 0.05, the independent variables statistically significantly predict the dependent variable. It indicates that the regression model fits the data well.

4.6 Coefficients

The standardized beta coefficient of self-awareness was 0.216 with the

significance value of 0.001 which is less than 0.05. This indicates that there is a significant impact of self-awareness on investment decisions of equity investors. Self-management's standardized beta coefficient is equal to 0.029 and value is 0.757. It denoted that there is no any impact from self-management on investment decisions of equity investors. The standardized beta coefficient of relationship management was -0.149 with the significant value of 0.757 which is more than 0.05. This indicates that there is no impact of relationship management on investment decisions of equity investors.

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.910	.366		2.486	.015
	SA	.216	.061	.286	3.530	.001
	SM	.029	.092	.026	.310	.757
	RM	-.149	.127	-.124	-1.172	.244
	SOA	.198	.070	.260	2.814	.006
	E	.310	.084	.432	3.699	.000

Source: Survey Data 2023

For social awareness, the standardized beta coefficient is equal to 0.198 with significant value of 0.006. It emphasized that social awareness significantly impacted to the investor's decision making. Finally, Empathy, the standardized beta coefficient is equal to 0.310 and significant value is 0.000. It highlighted that empathy is significantly impacted on investor's decision when they are taking. Overall, Emotional intelligence is key determinant to be considered as majority of selected variables are significantly impacted on the investment decision of equity investors at Colombo stock exchange in Sri Lanka.

5. CONCLUSION

In the realm of investment decisions, behavioural biases often dissuade investors from exploring opportunities in developing economies such as Sri Lanka. This study delves into the antithesis of behavioural biases—emotional intelligence—and its profound impact on stock market investors' decisions to invest. Emotional intelligence, characterized by the capacity to understand and positively control one's emotions to alleviate stress, emerges as a crucial factor encouraging investment.

The primary aim of this study was to scrutinize the influence of emotional intelligence on the decisions of individual stock market investors in the Sri Lankan context, considering the dearth of research in this area. Building upon the findings of Tanvir et al. (2016), which identified a significant and positive relationship between emotional intelligence and investment decisions, this

research reaffirms that emotional intelligence indeed has a noteworthy effect on investment decisions.

Analysing the specific dimensions of emotional intelligence, the study discerned that self-management and relationship management do not significantly impact investment decisions. However, social awareness and empathy exhibit positive relationships with investment decisions. Furthermore, the research highlighted that social awareness holds significant influence in shaping investment decisions, as evidenced by the statistical significance earlier.

These findings contribute to the understanding of how emotional intelligence influences decision-making among Colombo Stock Exchange (CSE) investors. The positive impact of emotional intelligence on investment decisions not only provides valuable insights for individual investors but also holds implications for policymakers, governmental bodies, financial institutions, and private investors.

This study examined the impact of emotional intelligence on investment decisions of equity investors in Colombo Stock Exchange in a deeper manner. Meanwhile, the following could identify as the limitations, had during this study.

1. The data collection of this study will be limited to an only North Central Province.

2. This study does not consider other provinces in Sri Lanka.

3. This study is limited on sample size. As well as this study limited consideration with individual investors.

4. This study only focuses impact of emotional intelligence on individual's decision making.

The goal of this study is to examine the types of financial assets that investors choose to purchase such as stocks, bonds, mutual funds and futures and option contracts and to explore emotional intelligence in the context of investors in Sri Lanka. Therefore, the actual assets like land and buildings, properties and commodities like gold could not be examined in this study.

This study did not explore the emotional intelligence of investors in an international context. The sample was limited to 100 individual CSE investors from the North Central Province and another limitation was the primary use of survey questionnaires for data collection. Future research with a larger sample size could provide more reliable and validated results. To gather more valuable data in future studies, researchers could utilize discussions, controlled experiments, observations and in-depth personal interviews.

The study advocates that financial advisor and issuing corporations, before releasing securities on the stock market, should recognize the diverse emotions and behaviours of investors. Recognizing the importance of emotional intelligence, individual investors are empowered to manage their emotions effectively, potentially leading to more informed and profitable investment choices in the future.

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GREEN ORIENTATION AND ITS MEDIATING EFFECT: A STUDY OF LEADING MANUFACTURER OF KNIT FABRICS IN SRI LANKA

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ABSTRACT

In the textile industry, the push towards sustainability has become a necessity driven by environmental concerns and market demands for eco-friendly practices. The study investigates the impact of leadership and organizational culture as independent variables, with employee engagement as the dependent variable, while green orientation serves as the mediating variable. Conducted within XYZ Company, a leading knit fabrics manufacturer in Sri Lanka. The research addresses the problem of limited understanding regarding how green orientation influences these dynamics, especially in organizations striving for sustainability. The main objective of the study is to identify the mediating effect of green orientation, specifically assessing how leadership and organizational culture influence it, and how green orientation, in turn, affects employee engagement. A sample size of 100 employees was selected using a simple random sampling technique. This approach ensured a representative sample of the population. Data were collected through structured questionnaires to capture respondents' attitudes and behaviors, focusing on leadership, organizational culture, green orientation, and employee engagement. The conceptual framework guided the research by outlining these relationships and providing a theoretical basis for data analysis. Quantitative analysis with Smart PLS 4.0 tested hypotheses and evaluated green orientation's mediating effects. The findings revealed that green orientation significantly mediates the relationships between leadership and employee engagement, as well as organizational culture and employee engagement. It integrates sustainability into existing frameworks, revealing that green practices significantly influence employee outcomes beyond traditional leadership and cultural factors. Practically, the research highlights the need for organizations to embed green orientation into their leadership and culture. By aligning sustainability with organizational strategies, companies can enhance employee engagement and performance, offering the dual benefit of advancing environmental goals while improving workforce motivation and productivity.

Keywords: Employee Engagement, Green Orientation, Leadership, Mediating Effect, Organizational Culture

1. INTRODUCTION

In the 21st century, as global awareness of environmental issues intensifies, sustainability has become an indispensable element of corporate strategy, shaping how organizations operate and succeed in an increasingly eco-conscious market. Companies are now recognizing that integrating environmental sustainability into their core practices is not only a moral imperative but also a key driver of long-term competitive advantage (Norton et al., 2015).

Employee engagement is a critical determinant of organizational success, directly influencing productivity, job satisfaction, and retention rates. Engaged employees are emotionally invested in their work, leading to higher performance levels and a stronger commitment to organizational goals. The research idea in this study is to understand how organizational culture and leadership influence employee engagement, particularly through the mediating role of green orientation. This investigation is crucial as engaged employees are more likely to embrace and promote sustainability initiatives, aligning their behaviors with the organization's environmental goals (Saks, 2019). The research is based on XYZ Company, which is a leading manufacturer of weft knit fabrics in Sri Lanka with over 2,000 employees and a yearly turnover of USD 72 million, which is committed to delivering triple-bottom-line value through a comprehensive ESG (environmental, social, and governance) framework. The organization believes economic growth, social development, and environmental sustainability are essential for sustainable stakeholder value creation.

The mediating effect of green orientation suggests that green orientation may act as a mediator between independent variables; leadership and organizational culture and the dependent variable employee engagement. In other words, leaders who prioritize environmentally sustainable practices may be more likely to create a culture of sustainability within their organizations, which may lead to greater employee engagement with sustainability initiatives. With growing social awareness over environmental degradation, several firms are emerging with a green orientation that involves a dual objective of achieving economic success and engaging in green business practices (Ramirez, 2013; Aykol & Leonidou, 2015). In the face of mounting environmental challenges, companies are increasingly under pressure to adopt sustainable practices. Existing research has extensively examined the direct influence of leadership and organizational culture on employee engagement, a critical factor linked to improved productivity, job satisfaction, and reduced turnover. For instance, a Gallup poll (2022) found that highly engaged teams experience a 21% increase in profitability. Despite this, there is a notable gap in understanding how green orientation—a blend of environmental attitudes and behaviors—mediates this relationship. Recent studies indicate that 90% of Fortune 500 companies have adopted sustainability initiatives, yet only 35% have fully integrated green practices into their corporate culture, leading to inconsistent outcomes in employee engagement and organizational performance (Smith & Johnson, 2022). Furthermore, a survey by the Global Green Business Council (2023) found that while 78% of employees are more engaged in companies with strong

environmental policies, the link between leadership-driven sustainability efforts and actual employee engagement remains unclear. Most existing literature has primarily focused on the direct impact of leadership and organizational culture on employee engagement, often neglecting the potential mediating role of green orientation and how a company's commitment to sustainability might influence these dynamics. This gap is particularly significant in the context of multinational organizations, where the integration of green practices can be both a challenge and an opportunity for driving engagement. The present study aims to address this gap by examining how green orientation mediates the relationship between leadership, organizational culture, and employee engagement, to provide actionable insights for companies striving to enhance both sustainability and employee involvement. According to the Global Sustainability Study 2023, over 85% of consumers have shifted their purchasing behavior towards more sustainable products, pushing companies to prioritize green practices. Despite this shift, a recent survey by Deloitte (2022) found that only 35% of organizations fully integrate sustainability into their operations, highlighting a significant disconnect between consumer expectations and corporate practices. This gap underscores the need for a deeper understanding of how green orientation influences organizational outcomes, particularly employee engagement.

1.1 Research objectives

Through the research objectives, this study seeks to contribute to the existing body of knowledge by providing a deeper understanding of the role of green orientation within organizations emphasizing relationships between leadership, organizational culture, green orientation, and employee engagement.

General Objective

1. To identify the mediating effect of green orientation in a conceptual framework

Specific Objectives

1. To identify the impact of leadership on green orientation.
2. To identify the impact of organizational culture on green orientation
3. To identify the mediating effect of green orientation on the relationship between leadership and employee engagement.
4. To identify the mediating effect of green orientation on the relationship between organizational culture and employee engagement.
5. To identify the impact of green orientation on employee engagement.

2. LITERATURE REVIEW

Businesses recognize the critical importance of ensuring the ongoing availability of natural resources for their survival. This realization has prompted a shift in

company initiatives towards more eco-conscious and financial risks. Embracing activities such as ecological preservation, resource conservation, and recycling, collectively known as "greening," businesses aim to contribute to a clean, moral, and safe environment for all. Collaborative efforts involving individuals, businesses, and governments worldwide are essential for achieving this goal (Choudhary, 2019).

Orientation has been described by researchers in the past as a fundamental mindset or underlying philosophy that affects how businesses carry out their internal and external operations (Adams et al., 2016; Hofstede, 1994). In other words, orientation refers to how businesses perceive and react to their surroundings. It refers to an organization's culture and desire to accomplish specific goals. By aligning the proper strategic orientation with the organizational culture, businesses can benefit from increased productivity, which can boost their performance and provide them with a competitive advantage (Belias et al., 2014). The researchers defined green orientation as a blend of green attitudes and behaviors. A person needs to have a high level of green mindset in addition to a high level of green behavior. Since attitudes influence behavior and behavior is predicted by attitudes, attitudes, and behavior are interconnected. To attain ecologically friendly aspirations, a person must change their basic attitudes and behaviors (Iddagoda et al., 2022; Sharma et al., 2019)

To have a strong connection with attitudes and behaviors, the workplace environment must be productive and influential enough to encourage the attitudes because changing human behavior takes time (Hasan et al., 2022). Multiple studies have found that adopting a green orientation has a positive impact on an organization's ability to perform well (Zhou, 2016; Pushpakumara et al., 2019). Moreover, scholars have discovered that a strategic focus on green orientation has a positive impact on improving organizational performance (Kwon et al., 2009). According to their studies, strategic green orientation is a business organization's "long-term commitment to generating environmentally sound products and services through the execution of environmental goals and initiatives in the past, present, and future."

In general, organizational culture is commonly understood as the everyday practices and procedures that occur within an organization. Organizational culture encompasses shared values and behaviors within a company, fostering collaboration and innovation (Hofstede, 2001). A specific aspect, organizational green culture, involves environmentally conscious practices and is linked to organizational transformation (Rao & Holt, 2005). Managers' commitment influences the adoption of green culture (Klassen & Vachon, 2003; Wang, 2019). Green innovation, acting as a mediator, connects organizational green culture to improved green performance, reducing waste and pollution (Michaelis et al., 2018). A well-designed green culture enhances corporate image, reputation, and

engagement with environmentalism, creating new markets (Fergusson & Langford, 2006). Well-designed organizational green culture can actively promote green innovation, leading to reduced production waste, environmental pollution, and an overall strengthened corporate green image and reputation. This, in turn, can enhance a firm's green engagement, leveraging the growing popularity of environmentalism.

A leader is defined as a person with a clear vision who leads the organization to success through their abilities and dedication (Sougui et al., 2015). The qualities possessed by an individual make them a leader, regardless of their position, according to Iddagoda et al. (2021). Leadership is the process through which a leader inspires their followers to accomplish both the organizational goals and their ambitions. Agarwal (2020) suggests that leadership is a crucial element that motivates workers to provide their full effort to accomplish goals. The relationship between employee engagement and leadership has been recognized by several researchers (Hewitt, 2015; Papalexandris & Galanaki, 2009; Seijts & Crim, 2006; Xu & Cooper Thomas, 2011). Transformational leadership, in particular, has been associated with improved organizational performance and employee engagement.

Employee engagement is a crucial factor for organizational success as it directly impacts various aspects of the organization's performance and well-being. It involves fostering a work environment where employees are motivated, committed, and enthusiastic about their work. Engaged employees go beyond meeting basic job requirements and actively contribute their discretionary effort, time, and energy toward achieving organizational goals. According to Towers Perrin (2003), as stated by Iddagoda et al., (2017) employee engagement refers to the willingness and ability of employees to contribute to the success of the company. Engaged employees are aware of the business context and demonstrate a high level of dedication, passion, and commitment towards their work. Engaged employees are fully committed and motivated, leading to higher job satisfaction, organizational commitment, and retention (Schaufeli et al., 2002; Salanova et al., 2005). They are also more likely to contribute discretionary effort, drive innovation, and exhibit higher levels of productivity and performance (Albrecht et al., 2015; Christian et al., 2011). In addition to the positive impact on individual outcomes, employee engagement also influences organizational culture. Engaged employees foster a positive work environment, promoting teamwork, collaboration, and a shared sense of purpose. They actively participate in organizational activities and exhibit positive behaviors, contributing to a cohesive and supportive work environment.

3. METHODOLOGY

3.1 Conceptual framework

The conceptual framework outlines the relationships between leadership, organizational culture, green orientation, and employee engagement, providing a theoretical basis for the study and guiding the research design and data analysis.

Independent Variable   Mediating Variable   Dependent Variable
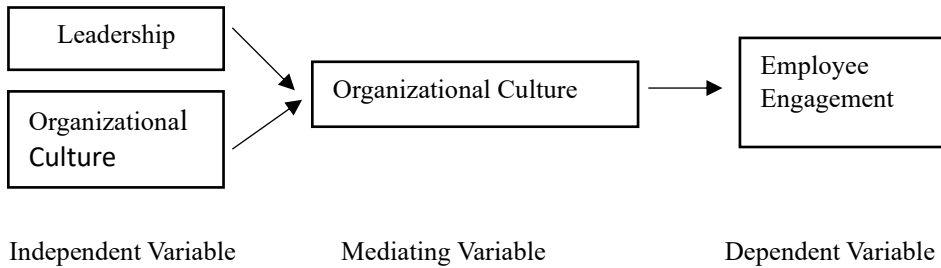
Figure 1: The conceptual framework of the study
Source: Authors Constructed

3.2 Research design

The research design aimed at hypothesis testing, specifically exploring relationships between variables. The focus was on understanding how changes in one variable related to another without direct manipulation. The unit of analysis was individual, with data collected and analyzed at the individual level. The study setting was non-contrived, and conducted in a natural context for increased ecological validity. The time horizon was cross-sectional, capturing a snapshot of variables at a specific point in time.

Table 1: Research Design of the Study

Research Design	Description
1. The purpose of the study	Hypothesis testing
2. The extent of researcher interference with the study.	Minimum interference
3. Type of investigation	Correlational
4. Unit of analysis	Individual
5. Study setting	Non-contrived
6. The time horizon of the study	Cross-sectional

Source: Sekaran, (2003)

The suitable research design is descriptive because of researcher goes through identifying the factors which cause to affect employee engagement. By using

descriptive analysis research compares demographic factors with motivational factors and their indicators. It adopts a quantitative research approach. As cited in (Iddagoda et al., 2022), A cost-effective and time-efficient survey method was chosen to collect large numbers of responses from the targeted population (Leeuw, 2008).

3.2 Research Strategy

The research strategy for the current study was a survey strategy allowing for the collection of a sizable amount of quantitative data from a diverse population. Surveys involve administering structured questionnaires to a representative sample to capture respondents' attitudes and opinions on specific constructs.

3.3 Sources of Data

The researcher relied on a primary data source for collecting data. This approach allows for the collection of firsthand information, ensuring that the data gathered is relevant and specific to the research objectives.

3.4 Data Collection Method

In this study, the researcher conducted the survey and used a questionnaire to collect the primary data. As a tool of data collection method, the researcher developed a questionnaire by referring to the literature adopted (Iddagoda et al., 2021). The developed questionnaire was in two parts. The first part consisted of demographic information, such as age, gender, designation, and department. The second part was the indicators used to measure the variables (Leadership, Organizational Culture, Employee Engagement, and Green Orientation) of the study. The researcher used a five-point Likert scale for the measurement, where 5 denotes strongly agree, 4 denotes agree, 3 denotes neither agree nor disagree, 2 denotes disagree and 1 denotes strongly disagree for all three variables and the mediating factor.

3.5 Data analysis and presentation

In this study, the researcher utilized the soft wares such as Microsoft Excel and Smart PLS 4.0 for data analysis. General questionnaire information was presented using graphical representations like graphs, charts, and tables, effectively summarizing descriptive statistics, patterns, and trends in a clear and concise format.

3.6 Unit of analysis

The unit of analysis in this study was individual level. The researcher was able to collect data from each employee, treating each employee's response as an individual data source. By focusing on the individual level, the study aims to capture the unique perspectives, attitudes, and behaviors of employees within the

organization. This allows for a detailed examination of individual-level variables and their relationships.

3.7 Population

The population of this research study comprises all managerial-level employees in the XYZ Company. Specifically, it includes the 234 managerial-level employees within the company.

3.8 Sample size and sample technique

The researchers followed the guideline set by Roscoe (1975) as cited in Sekaran (2003), which suggests that the sample size should be larger than 30 and less than 500. In line with this recommendation, the study utilized a sample size of 100 individuals. The researchers employed a simple random sampling technique to select the participants for the study. By using simple random sampling, the researchers aimed to ensure that each managerial-level employee in the XYZ Company had an equal opportunity to be selected, increasing the representativeness of the sample.

4. FINDINGS AND DISCUSSIONS

The results and analysis section provides a comprehensive overview of the findings obtained from the data collected and the statistical analysis conducted. This section presents the outcomes of the study and interprets the data to answer the research questions and test the hypotheses.

4.1 Demographic Factors Analysis

The demographic factors analysis in this study focused on gathering information about respondents' age group, gender, educational qualifications, job level, and number of experienced years in the XYZ Company, Sri Lanka (Sekaran,2003). The researcher presents the information of the respondents which was collected from Section "A" of the questionnaire.

4.2 Descriptive statistics

Descriptive statistics provide insights into the central tendency, dispersion, and skewness of the variables. The participants generally reported high scores for leadership, organizational culture, employee engagement, and green orientation. However, the negative skewness values suggest that there may be a few participants with lower scores. Results are shown in Table 2.

Table 02: Descriptive statistics between independent and dependent variables

Variable	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Leadership (L)	1.00	5.00	4.290	.498	-3.128	.241
Organizational Culture (OC)	1.00	5.00	4.248	.507	-2.772	.241
Employee Engagement (EE)	1.00	5.00	4.171	.541	-2.243	.241
Green Orientation (GO)	1.00	5.00	4.258	.519	-2.678	.241

Source: Authors Constructed

4.3 Reliability and Validity Analysis

This study achieved its objectives by employing partial least squares modeling through SMART PLS 4.0 software. The analysis showed a direct link between leadership, culture, and employee engagement, with green orientation mediating these relationships.

Table 3: Reliability and Validity Metrics for Constructs

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CUL	0.838	0.846	0.881	0.553
EE	0.882	0.886	0.905	0.517
GO	0.876	0.879	0.901	0.503
LEAD	0.900	0.903	0.917	0.527

Source: Authors Constructed

Table 4: Discriminant Validity Analysis of Constructs

	CUL	EE	GO
EE	0.946		
GO	0.789	0.799	
LEAD	0.832	0.816	0.731

Source: Authors Constructed
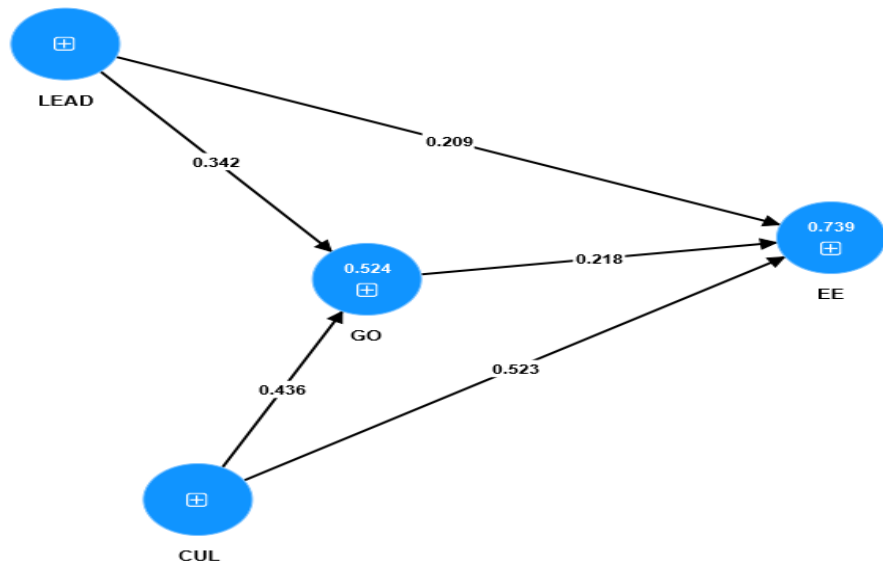
Figure 2: Structural Model
Source: SMART PLS Output

4.4 Structural Modal

The structural model analysis in figure 2 demonstrates significant relationships among the key constructs. Organizational Culture (CUL) exhibits a strong positive impact on both Employee Engagement (EE) and Green Orientation (GO), with path coefficients of 0.523 and 0.436, respectively, indicating that a supportive organizational culture is crucial for fostering employee involvement and promoting environmentally conscious behavior. Leadership (LEAD) also shows significant positive effects, influencing both Employee Engagement (EE) with a path coefficient of 0.209 and Green Orientation (GO) with a coefficient of 0.342. These findings underscore the importance of effective leadership in shaping employee attitudes and driving sustainability initiatives within the organization. Additionally, while Green Orientation (GO) positively impacts Employee Engagement (EE), this effect is comparatively weaker (path coefficient of 0.218), suggesting that while sustainability practices contribute to employee engagement, they are less influential than the broader organizational culture and leadership practices.

Table 5: Direct Effects in the Structural Model Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
CUL -> EE	0.523	0.515	0.102	5.129	0.000
CUL -> GO	0.436	0.427	0.114	3.809	0.000
GO -> EE	0.218	0.223	0.100	2.170	0.030
LEAD -> EE	0.209	0.208	0.091	2.281	0.023
LEAD -> GO	0.342	0.329	0.121	2.817	0.005

Source: SMART PLS Output

The mediation analysis reveals that Green Orientation may serve as a mediator in the relationships between Leadership and Employee Engagement and Organizational Culture and Employee Engagement. Specifically, the indirect effect of Leadership on Employee Engagement through Green Orientation is 0.075 (p = 0.093), and for Organizational Culture, the indirect impact is 0.095 (p = 0.080). Although both effects are positive, they do not reach statistical significance at the 0.05 level, suggesting that while Green Orientation might mediate these relationships, the evidence is not strong enough to confirm a definitive mediation effect.

Table 6: Indirect Effects in the Structural Model Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
LEAD -> GO -> EE	0.075	0.074	0.044	1.679	0.093
CUL -> GO -> EE	0.095	0.096	0.054	1.753	0.080

Source: SMART PLS Output

5. CONCLUSION

This study investigated the mediating effect of green orientation on the relationship between leadership, organizational culture, and employee engagement within XYZ Company, a fabric manufacturer in Sri Lanka dedicated to environmental sustainability. The research addresses a significant gap in the literature by examining how green orientation influences the well-established relationships between leadership, organizational culture, and employee engagement.

The core research problem focused on understanding the mediating role of green orientation within this dynamic. While the positive effects of leadership and organizational culture on employee engagement are well-documented, the specific impact of green orientation remains underexplored. The objectives were to assess this mediating role, analyze the interrelationships among leadership, organizational culture, green orientation, and employee engagement, and

contribute new insights to the existing literature on sustainability in organizational settings.

The study makes significant theoretical contributions by integrating green orientation into leadership and organizational culture theories. It underscores the importance of sustainability in enhancing employee engagement and highlights how green practices can shape organizational culture. The practical implications are equally important: organizations seeking to boost employee engagement should prioritize environmentally responsible leadership, establish clear sustainability goals, and embed green values into their organizational culture. These actions can foster a more engaged, productive, and environmentally conscious workforce.

The mediation analysis revealed that green orientation significantly mediates the relationship between both leadership and employee engagement and organizational culture and employee engagement. This suggests that promoting green orientation within an organization can amplify the positive effects of leadership and culture on employee engagement, leading to higher employee satisfaction and productivity.

This study contributes to the broader literature by illuminating the mediating role of green orientation in organizational dynamics. It expands our understanding of sustainability's role in fostering employee engagement and emphasizes the need for integrating environmental responsibility into leadership practices and organizational culture.

While the study provides valuable insights, it is limited by its specific organizational context and cross-sectional design, which may limit the generalizability and causal interpretation of the findings. Social desirability bias may also have influenced responses. Future research should address these limitations by employing longitudinal designs, exploring different organizational contexts, and using mixed-method approaches. Additionally, investigating the influence of external factors, such as regulatory pressures, on green orientation and employee engagement could provide further valuable insights.

The broader implications of this research stress the necessity for organizations across various industries to recognize the value of sustainability and environmental responsibility. By aligning leadership, culture, and practices with sustainability principles, organizations can not only enhance employee engagement but also contribute to a more sustainable and socially responsible world.

In summary, this study significantly contributes to understanding the mediating role of green orientation in the relationship between leadership, organizational culture, and employee engagement. It highlights a path toward a greener and more engaged organizational future, emphasizing the critical role of sustainability in shaping positive employee outcomes.

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DIGITAL FINANCIAL LITERACY AND IT'S IMPACT ON INVESTMENT CHOICES OF MANAGEMENT UNDERGRADUATES: EMPIRICAL EVIDENCE FROM GOVERNMENT UNIVERSITIES IN SRI LANKA

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ABSTRACT

Against the backdrop of Sri Lanka's economic challenges, this study focuses on the digital financial literacy and investment choices of Generation Z management undergraduates in government universities. Acknowledging the unique financial landscape and the pressing need for economic resilience, the research aims to assess the impact of digital financial literacy on the investment decisions of this specific demographic. By addressing the intersection of Generation Z, digital financial literacy, and investment choices, the study endeavors to provide valuable insights for tailored financial education initiatives amidst the broader economic context and challenges faced by Sri Lanka.The research employed a quantitative survey-based approach to investigate the subject. The researcher conducted an in-depth analysis using a deductive approach and collected data on the number of students in the Faculty of Management, categorized by both year and university. A sample of 200 undergraduates from Sri Lankan government universities was selected for the study. The data analysis was carried out utilizing the partial least squares regression method, facilitated by the Smart PLS 4.0 software.The model's reliability and validity were initially established through composite reliability, convergent validity, and discriminant validity. The study's findings reveal a significant association between digital financial literacy and prospective investment choices among undergraduates. Notably, when presented with various investment options, students exhibited a pronounced preference for financial assets over alternative choices.This research enriches the expanding body of knowledge on digital financial literacy in the context of a developing nation like Sri Lanka. In an era of rapid technological advancement, the study underscores the emergence of digital platforms empowering Generation Z to engage in prudent financial practices, facilitating informed and effective decision-making in the realm of finance.

Keywords: Digital Financial literacy, Investment Choices, Sri Lanka

1. INTRODUCTION

In Sri Lanka, most of the investment decisions has changed since 2019, because of the bankruptcy situation (CBSL, 2023). This research aims to identify what is the impact of digital financial literacy on the investment choices of management undergraduate in near future, who are the next generation to develop Sri Lankan economy. Therefore, we mainly focus on generation Z to identify knowledge of digital financial literacy and investment choices of management undergraduates in Government universities in Sri Lanka. Researchers defined Generation Z in different ways. The Collins Dictionary defines Generation Z as "members of the generation of people born between the mid-1990s and mid-2010s who are seen as confident users of new technology"(Collins English Dictionary, 2023). Nowadays, most of the investment choices are digitalized in Sri Lanka. Therefore, Generation Z peoples need to better understand digital financial literacy. Therefore, this research identifies the digital financial literacy knowledge of management undergraduates based on basic knowledge and skills of financial literacy concepts and digital financial services (DFS).

5.1 Background of the Study

Now Sri Lanka faces the worst economic crisis which started in 2019. The causes for the ongoing economic crisis are impact of Covid 19 pandemic, Easter attack in 2019, ban of continuous money printing, depletion of foreign exchange and high inflation rate. As a result, Sri Lanka is declared as Bankrupt Country in the world. Furthermore, the Inflation rate will huge impact on investment decisions, because interest rates will vary according to the high inflation rate. When comparing other countries like USA, and EU, Sri Lanka has generated the highest inflation rate since 1960. The inflation rate in Sri Lanka moved between-1.5% to 49.7% over the past 62 years. (1960-2022). Data basis: International Monetary Fund, World Bank, and OECD inflation CPI indicator. (worlddata.info, 2022). As a developing country, Generation Z investment decisions are much more important.

The OECD INFF has defined financial literacy as follows; "A combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." (OECD- INFE, 2011). In Sri Lanka, CBSL define "Financial literacy was defined as the combination of knowledge, attitudes and behavior necessary to make informed financial decisions and achieve financial wellbeing. Within the element of behavior, the necessary skills for making wise financial decisions were also considered" (CBSL, Published 25 October 2022). Simply, digital financial literacy defines basic knowledge and skills and awareness about financial matters in the context of digital platforms. There is no standardized definition of digital financial literacy. This study identifies the digital financial literacy knowledge of management undergraduates based on basic knowledge and skills of financial literacy concepts and DFS. We examine basic financial literacy concepts of

numeracy, compound interest, inflation and risk diversification. And this research examines basic digital knowledge of hardware (mobile phones phone, computers, and tablets) including turning on /off charging and locking devices. Also, check basic digital knowledge of website, software, apps and etc. It means creating user accounts, managing passwords, logging into accounts and using privacy settings. (Example; Invest in stock market using the CSE website or app, invest in traditional assets using online payment methods like that). Firstly, this study measure DFL, whether Generation Z undergraduates has basic knowledge and skills.

5.2 Problem of the Study

Sri Lanka as a developing country, level of digital financial literacy is significantly low level. According to the financial literacy survey of CBSL, "57.9 percent of adults are financially literate in Sri Lanka. Further, the findings imply that the level of financial literacy varies across different segments of the population, suggesting the need for targeted policy interventions" (CBSL, Published 25 October 2022).This survey focus four indicators, they are numeracy, compound interest rate, inflation and risk diversification. Which show significant increase 35 percent by the GFLS 2014. Level of understanding financial concepts as follows, numeracy 82.9%, inflation 55.5%, compound interest 90.5%, risk diversification 33.3%. There is a low level of knowledge about concept of risk diversification. And the gender gap was 55.2% female 61.1%. This research focuses on Generation Z management undergraduates because they are the next generation to develop Sri Lankan economy in the near future. Nowadays most female students are selected for higher education in Sri Lanka. Furthermore, the modern world is progressively becoming more digitized. This research will help to understand the level of digital financial literacy knowledge and the relationship between digital financial literacy and investment choices of management undergraduates in government universities in Sri Lanka. Understanding their digital financial literacy and its impact on investment choices is essential for their financial well-being and broader economic landscape of Sri Lanka.

Research objectives of the study are as follows:
1.   To examine the level of digital financial literacy of management undergraduates in Government universities in Sri Lanka.
2.   To examine the association between digital financial literacy and investment choices of management undergraduates.

5.3 Significance of the Study

Empirical Significance

There is a dearth of studies conducted in this area in Sri Lankan context (Thilakarathne & Rajakaruna, 2023; Dissanayake et.al., 2023). This research

supposed to bridge the empirical gap. Now Sri Lankan economy is situated in the bankrupt situation, therefore most of the investments are going down in Sri Lanka. Specially share market going down nowadays. It will also affect for GDP in Sri Lanka. And most of the investment choices are digitalized. Generation Z undergraduates need better understanding of digital financial literacy concepts. This research measures the basic skills and knowledge of management undergraduates in Sri Lanka based on financial literacy concepts and DFS. And awareness of existing providers of DFS, awareness of the specific purpose and usage of available DFS (e.g., digital payments, saving, etc.) awareness about risks of borrowings, awareness about the biases that affect decision making, and benefits of long-term planning and awareness about positive financial behaviors. Furthermore, this study examines whether generation Z management undergraduates have positive financial attitudes in managing day to day finances while setting future goals. In conclusion the empirical significance of the study extends beyond its immediate scope, offering insights that can influence financial education, policy decisions, investment practices, and the future economic landscape of Sri Lanka. There is a dearth of studies conducted in this area in Sri Lankan context. This research supposed to bridge the empirical gap. Next section describes practical significance of this research.

Practical Significance

According to this research management undergraduates are representing Generation Z who are the next generation of leaders in Sri Lanka. This study insights into their digital financial literacy and investment behaviors can have long team implications for the economic stability and economic growth in Sri Lanka. This study important to economic decision makers to take understanding about knowledge of digital financial literacy concepts and investment choices and awareness about DFS of generation Z people. This study will be useful for the future researchers to conduct more research by identifying research gaps. Other than that, this study will be useful for university curriculum to develop level of digital financial literacy knowledge. Also, DFL knowledge can be improve from school level students. Furthermore, knowledge of DFL and investment choices will be helpful CSE workshop and share market investments. As well as this study will be helpful to achieve STG Goals.

2. LITERATURE REVIEW

2.1 Financial Literacy

In order to define financial literacy as, "An individual's ability to obtain, understand and evaluate the relevant information necessary to make decisions with an awareness of the likely financial consequences" (Wilson, 2000). The definition acknowledges to recognize that information relevant to decision making may not necessarily be financial information in its strictest sense. In addition, (Hogarth, 2002) define financial literacy as managing financial literacy

resources effectively involves form investment, insurance, budgeting and saving. Also, financial literacy is an expertise or skill that can helps to individual to manage their financial decisions.

Furthermore, Huston define financial literacy as "Financial literacy is a component of human capital that can be used in financial activities to increase expected lifetime utility from consumption (i.e., behaviors that enhance financial well-being). Other influences (such as behavioral/cognitive biases, self-control problems, family, peer, economic, community and institutional) can affect financial behaviors and financial well-being" (Huston, 2010).In addition, According to the OECD-INFF define financial literacy as follows, "A combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." (OECD- INFE, 2011). OECD INFF members agreed to describe with different concepts, such as financial literacy, financial capability, financial culture and financial insight. Furthermore, according to the World Bank research group and GFLEC on the S & P Global FinLit Survey financial literacy, if people are not understanding about financial concepts (financial decision-making basic numeracy, interest compounding, risk diversification and inflation), people are not qualified to make correct decisions related to financial management. Who are financially literate have the ability to select financial choices (saving, investing, borrowing and more).

2.2 Digital Financial Literacy

Morgan & et.al (2019) define digital financial literacy as consist of four concepts, knowledge of digital financial products and services, awareness of digital financial risk control and knowledge of consumer's rights and redress procedures (Morgon et.al, 2019).

2.3 Theoretical framework

Theory of planned behavior

The Theory of Planned Behavior (TPB) is a well-established psychological theory that explains how individuals make decisions based on their attitudes, subjective norms, and perceived behavioral control. It has been applied to various domains, including financial behavior.

- **Attitudes:** In the context of financial behavior, attitudes refer to an individual's positive or negative evaluations of financial actions or decisions. For example, a positive attitude towards saving money would likely lead to a higher propensity to save.
- **Subjective Norms:** Subjective norms represent an individual's perception of the social pressure or influence from significant others (family, friends, and colleagues) regarding their financial behavior.

These norms can influence whether a person conforms to or resists financial expectations.

- **Perceived Behavioral Control:** This element reflects an individual's perception of their ability to perform a particular financial behavior. It includes factors such as self-efficacy, knowledge, and resources necessary for executing financial decisions.

2.4 Empirical Review

According to Vardari et.al (2016), the study aims to determine level of financial literacy of students and determine the relationship between investment decisions and covid 19 pandemic. The dataset includes four factors (investment behavior, self-control, peer influence and covid 19) that influence investment behavior of students. For this study collected data from questionnaire and participated 228 students from Kosovo. This study analyzed using the PLS – SEM algorithm. Further, the study found, useful for companies seeking potential investors from generation Y. (Vardari et.al, 2016).

Further, Tharanika and Andrew (2017) researched to identify the relationship between financial literacy and saving behavior among the university students and to identify the relationship of self-control and saving behavior among the university students. The target population for the study is all students from faculty of commerce and Management Eastern University Sri Lanka and collected data through self-administered questionnaire from sample size of 55 students. They have found that, both financial literacy and self-control have positive relationship with saving behavior (Andrew, 2017).

In addition to the previous study, Charles and Geursen (2017), study aim to investigate how undergraduates manage and respond to economic, social and psychological factors affecting their money management behavior, and to inspect whether this response changes as they make progress in their degree. This study uses qualitative exploratory approach to continue this research study. Also, data collected from focus six group discussions held in three Australian Universities and the sample size was 47 undergraduates. The conclusion has shown that their approach to manage spending, income, saving, peer associations and stress changes as they make progress in their degree (Jill Bamforth, 2017).

Rajdev et.al (2020), this study aimed to evaluate the relationship between demographic variables and level of DFL and aimed at exploring the relationship between DFL and use of DFS. For measurement of DFL, 135 students using as sample size. The data collected from using questionnaire method. Thus, 47 per cent of student's response this questionnaire. Further, this researcher uses SPSS software to analysis data. Finally, the researcher found, male and female don't have significant differences with respect to level of DFL and post graduate students scored high in DFL associated to graduate students. Also, the author found there is a gap between level of DFL and usage of DFL (Rajdev et.al, 2020).

Arora and Chakraborty (2022) the study aims to examine two objectives. Firstly, to examine the socioeconomic and demographic factors contributing to financial literacy and secondly, to analyze if financial literacy affects investment choices. This study collected primary data through the survey questionnaire from sample size of 47132 individuals in India. The author used descriptive statistics and regression analysis to analysis the relationship between variables. Further, this study found that different financial literacy level can be attributed to various socioeconomic/ demographic factors (age, gender, education levels, income, location of residence, sources of information, etc. Econometric analyses suggested that financial literacy influences investment decisions. Mainly affect for traditional assets such as gold, property, etc. (Arora, 2022).

3. METHODOLOGY

3.1 Research Philosophy

This study utilizes the philosophy of positivism. This research uses prevailing theories to develop hypothesis, uses quantitative method, and statistical analysis. "Positivism is related to the philosophical stance of natural scientist and entails working with an observable social reality to produce law-like generalizations" (Saunders, 2019).

3.2 Research Approach

This research focuses on deductive approach. In Deductive approach, this approach develops hypothesis based on existing theory and hypotheses. And collects data and analyses data to test those hypotheses to analyze the findings.

3.3 Methodological Choice

Quantitative method normally uses numerical data, and it analyzes relationship between variables using statistical techniques. This study uses mono method quantitative study using single data collection technique through issuing questionnaires, and quantitative analysis procedure.

3.4 Research Strategy

This research uses survey strategy. Survey strategy is more connected with deductive approach and questionnaires are mainly used to collect data. This study collects data using questionnaires.

3.5 Data Collection

This research gathers data from primary sources using questionnaire survey method. This questionnaire gathers data from management undergraduates in Government universities in Sri Lanka to examine research objectives.

3.6 Population and Sample

The study uses data from management undergraduates in Government universities in Sri Lanka. According to the annual intake from Sri Lankan Government University, average total number of students are 21535. We focus 12 Universities in Sri Lanka which they have faculty of management. Furthermore, we collect data regarding number of students in faculty of management in year vise and university vise. Based on that information total number of undergraduates are 21535. (N=200)

Table 7: Sample Selection table

Government Universities	First year	Second year	Third year	Final year	Total	Responses
University of Sri Jayewardenepura	1500	1500	1500	1500	6000	45
University of Colombo	420	420	420	420	1680	18
University of Kelaniya	585	585	585	585	2340	38
University of Ruhuna	600	600	600	600	2400	11
Wayamba University of Sri Lanka	547	547	547	547	2187	65
Sabaragamuwa University of Sri Lanka	400	400	400	400	1600	3
Rajarata University of Sri Lanka	465	465	465	465	1860	3
Uva Wellassa University of Sri Lanka	124	124	124	124	496	1
University of Jaffna	325	325	325	325	1300	3
University of Peradeniya	164	164	164	164	656	6
Eastern University of Sri Lanka	111	111	111	111	444	1
South Eastern University of Sri Lanka	143	143	143	143	572	6

Total Management undergraduates	21535	200

Source: Constructed by the authors

3.7 Conceptual Framework
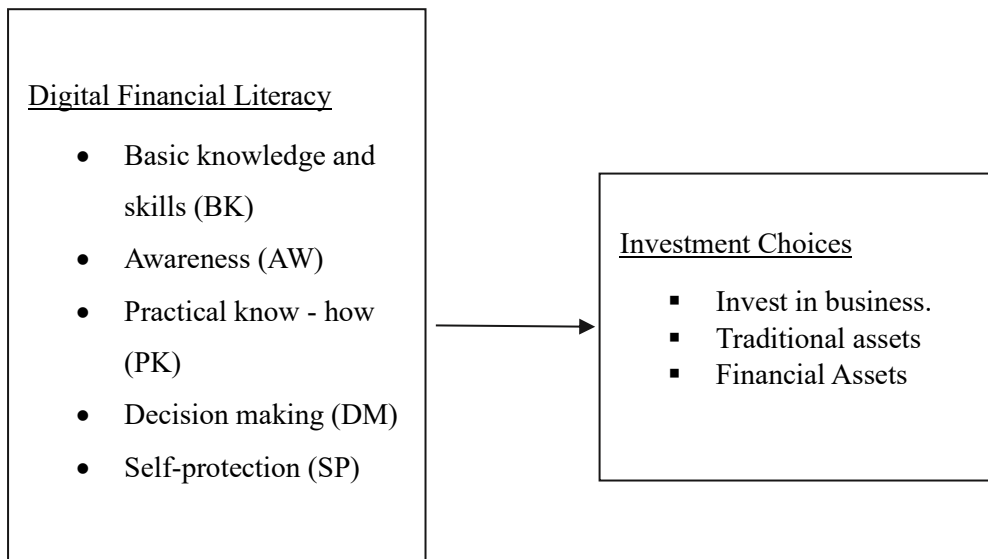
Figure 2: Conceptual framework
Source: Constructed by the authors

3.8 Operationalization of Variables

Table 8: Operationalization of variables

Variable	Abbreviation	Sub Variable	Measurement	Source
Digital Financial Literacy	DFL	Basic knowledge and skills (BK)	6 Questions	(Kass Hanna, 2021)
		Awareness (AW)	6 Questions	
		Practical know-how (PK)	4 Questions	
		Decision-making (DM)	7 Questions	

		Self-protection (SP)	2 Questions	
Investment choices	INC	Invest in Business	1 Questions	(Arora, 2022)
		Invest in traditional assets		
		Invest in financial assets		

Source: Constructed by the authors

3.9 Hypothesis

H1: There is a significant association between DFL and undergraduates' investment choices.

3.10   Data Analysis

This study analysis data by using SPSS statistical software is used to analyze demographic, frequency, descriptive, and correlation analysis. Smart PLS (Partial Least Square) regression model is used to analyze the measurement model and structural model to test hypothesis.

4. FINDINGS AND DISCUSSIONS

4.1 Demographic profile

Table 3 provides the entire summary of demographic profile.

Table 9: Summary of demographic profile

Variables	Category	Frequency	Percentage
Gender	Female	153	76.5
	Male	47	23.5
University	University of Jayewardenepura	45	22.5
	University of Colombo	18	9.0
	University of Kelaniya	38	19.0
	University of Ruhuna	11	5.5
	Wayamba University of Sri Lanka	65	32.5
	Sabaragamuwa University of Sri Lanka	3	1.5

	Rajarata University of Sri Lanka	3	1.5
	Uva Wellassa University of Sri Lanka	1	0.5
	University of Jaffna	3	1.5
	University of Peradeniya	6	3.0
	Eastern University of Sri Lanka	1	0.5
	South Eastern University of Sri Lanka	6	3.0
Department	Accountancy	113	56.5
	Finance	27	13.5
	Banking	3	1.5
	Insurance	1	0.5
	Business Administration	11	5.5
	Business Economics	4	2.0
	Commerce	11	5.5
	Business Management	22	11.0
	Human Resource Management	1	0.5
	Marketing	3	1.5
	Other	4	2.0
Academic year	First year	6	3.0
	Second year	5	2.5
	Third year	47	23.5
	Final year	142	71.0
Study of investment management	Yes	171	85.5
	No	29	14.5

Source: Constructed by the authors

4.2 Descriptive Analysis

Table 4 denotes, descriptive statistics of variables. According to that Basic knowledge has high mean value than other variables (μ =4.1817) / (SD = 0.50767). Also, overall mean values are greater than 3.5 and reached to 4 and some variable mean values are above 4. Therefore, all variables closure to agree side. As per this descriptive analysis, there is a positive perception between DFL and INV among management undergraduates in Government universities in Sri Lanka.

Table 10: Descriptive statistics of variables

	Minimum	Maximum	Mean	Std. Deviation
INV	1.71	5.00	3.8614	0.61764
BK	2.83	5.00	4.1817	0.50767
AW	2.00	5.00	4.0158	0.55001
PK	2.00	5.00	4.0088	0.68837
SP	2.00	5.00	4.0500	0.61799
DM	2.00	5.00	4.0871	0.53410

Source: SPSS Output

4.3 Correlation Analysis

The Correlation analysis finding out the relationship between variables. According to the correlation analysis, correlation coefficient of 0.7 to 1 is considered as extraordinarily strong. According to this research, there is an extraordinarily strong relationship between AW and PK, PK and SP. Further, there is an extraordinarily strong, positive correlation between INV and AW, INV and SP, BK and AW, BK and PK, BK and SP, BK and DM, AW and SP, AW and DM, PK and DM, SP and DM. Because the correlation coefficient of 0.5 to 0.7 is considered as strong. Also, there is a moderate relationship between INV and BK, INV and DM. Because the correlation coefficient of 0.3 to 0.5 is considered as moderate.

Table 11: Correlation Matrix

	INV	BK	AW	PK	SP	DM
INV	1					
BK	.405**	1				
AW	.502**	.666**	1			
PK	.487**	.539**	.713**	1		
SP	.518**	.569**	.604**	.703**	1	
DM	.422**	.595**	.650**	.654**	.648**	1

**. Correlation is significant at the 0.01 level (1-tailed)

Source: SPSS Output

4.4 Model 1: Association between DFL and sub variable of INV

The **model 1** analyzes the relationship between sub variables of digital financial literacy and investment choices.

Assessment of Measurement model/ Outer model

The model is analyzed using Partial Least Square (PLS) method. Measurement model is used to confirm the questionnaire indicators are reliable. The model includes convergent validity and discriminant validity.

Construct Validity and Reliability

Construct validity and reliability is used to test whether the variables are interconnected. It analyzes composite reliability and average variance extracted. From the model, some items were deleted to improve the composite reliability values. In this research 2 items were deleted from the dependent variable, investment choices (INV6, INV7).

Table 12: Measurement Model 1

Variable	Item	Deleted Item	Loadings	Cronbach's alpha	CR	AVE
AW	AW1		0.762	0.874	0.905	0.613
	AW2		0.799			
	AW3		0.756			
	AW4		0.810			
	AW5		0.771			
	AW6		0.799			
BK	BK1		0.828	0.860	0.895	0.588
	BK2		0.828			
	BK3		0.740			
	BK4		0.678			
	BK5		0.724			
	BK6		0.803			
DM	DM1		0.743	0.883	0.908	0.585
	DM2		0.735			

	DM3		0.729			
	DM4		0.743			
	DM5		0.784			
	DM6		0.785			
	DM7		0.831			
PK	PK1		0.894	0.887	0.922	0.747
	PK2		0.887			
	PK3		0.828			
	PK4		0.846			
SP	SP1		0.907	0.723	0.877	0.782
	SP2		0.861			
INV	INV1	INV6	0.742	0.798	0.861	0.555
	INV2	INV7	0.647			
	INV3		0.793			
	INV4		0.842			
	INV5		0.683			

Source: SMART PLS Output

After deleting the items INV6 and INV7, the all the loadings' values were above 0.7 excluding BK4, INV2, and INV5. The reliability level is high in this model because Cronbach's alpha values are greater than 0.7. As well as the AVE values of all variables greater than 0.5, it indicates the model has convergent validity. So, it is considered as a reliable model.

Discriminant Validity

According to table 7, all of the square root of AVE (the bold values) are greater than the correlation between the variables. So, the model 1 have adequate discriminant validity.

Table 13: Fornell-Larcker discriminant Validity (Model 1)

	AW	BK	DM	INV	PK	SP
AW	**0.783**					
BK	0.670	**0.767**				
DM	0.666	0.596	**0.765**			
INV	0.543	0.366	0.394	**0.745**		
PK	0.714	0.541	0.663	0.462	**0.864**	
SP	0.607	0.579	0.654	0.478	0.701	**0.884**

Source: SMART PLS Output

Collinearity statistics (VIF)

Collinearity arises when the independent variables in a regression model are correlated with each other. The model is assumed to be good when the collinearity values are lower than 3.

Table 14: Collinearity statistics (inner model- Matrix)

Relationship	VIF
AW -> INV	2.806
BK -> INV	2.051
DM -> INV	2.346
PK -> INV	2.773
SP -> INV	2.375

Source: SMART PLS Output

According to the table 8, the correlation values between the variables are below 3. So, this model is considered as good.

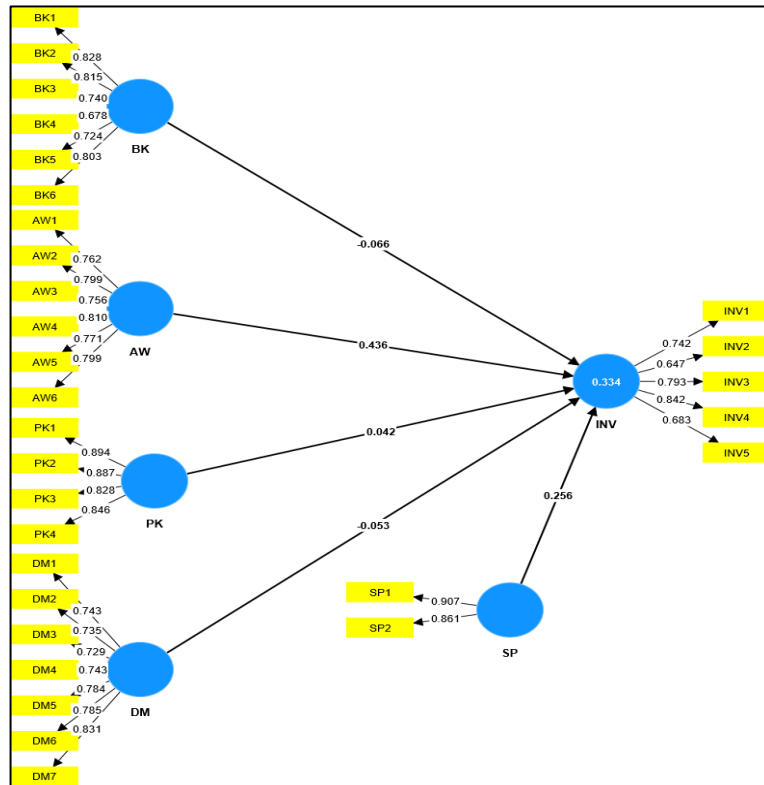Figure 2 depicts the measurement model diagram of Model 01.

Figure 3: Measurement Model 1
Source: SMART PLS Output

Assessment of Structural Model/ Inner Model

Table 9 shows that, R^2 value for investment choices is 0.334. It indicates 33.4% of investment choices is explained by digital financial literacy.

Table 15: Coefficient of Determination (R^2) model 1

	R-square	R-square adjusted
INV	0.334	0.316

Source: SMART PLS Output

Hypothesis Testing

According to the table 10, awareness has a positive significant association with investment choices. Likewise, self-protection has a positive significant association on investment choice. The variable practical know how has no association with investment choice. However, the variables basic knowledge and

skills, and decision making have a negative insignificant association with investment choices.

Table 16: Hypothesis Testing Model 1

		Sample mean (M)	STDEV	T statistics	P values	Decision
H1	AW -> INV	0.437	0.098	4.446	0.000	Supported
H2	BK -> INV	-0.051	0.090	0.729	0.466	Not Supported
H3	DM -> INV	-0.057	0.113	0.466	0.641	Not Supported
H4	PK -> INV	0.054	0.110	0.382	0.703	Not Supported
H5	SP -> INV	0.252	0.113	2.274	0.023	Supported

Source: SMART PLS Output

Effects Size (f^2)

Table 11, indicates that digital financial literacy has small effect on investment choices.

Table 11: Effect size f^2 model 1

Relationship	f-square	Conclusion
AW -> INV	0.102	Small
BK -> INV	0.003	No effect
DM -> INV	0.002	No effect
PK -> INV	0.001	No effect
SP -> INV	0.041	Small

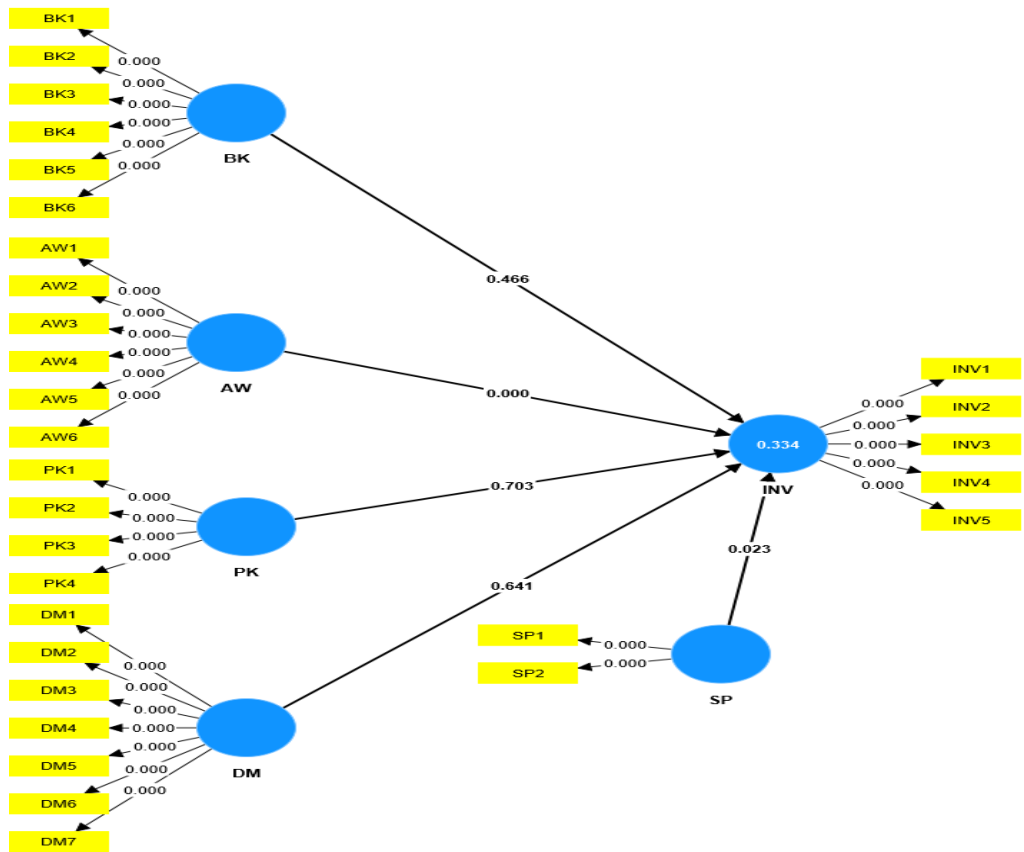Source: SMART PLS Output

Figure 3: Structural model 1
Source: SMART PLS Output

4.5 Model 2: Association between DFL and INV

Assessment of Measurement model/ Outer model

This model analyzes reliability, convergent validity and discriminant validity.

Construct Validity and Reliability

Construct validity and reliability is used to test whether the variables are interconnected. It analyzes composite reliability and average variance extracted. From the model, some items were deleted to improve the composite reliability values. In this research 7 items were deleted from the independent variable, (BK3, BK4, BK5, DM1, DM2, DM3, and DM4).

According to the table 12, this model achieved reliability since all the AVE values are greater than 0.5. Also, the Cronbach alpha values are greater than 0.7, which implies the reliability is high.

Table 12: Reliability and Convergent validity model 2

	Alpha	CR	AVE
DFL	0.941	0.948	0.502
INV	0.798	0.861	0.555

Source: SMART PLS Output

Discriminant Validity

Table 13: Discriminant validity model 2

	DFL	INV
DFL	**0.709**	
INV	0.555	**0.745**

Source: SMART PLS Output

Model 2 has sufficient discriminant validity since all of the square root of AVE (the bold values) are greater than the correlation between the variables.
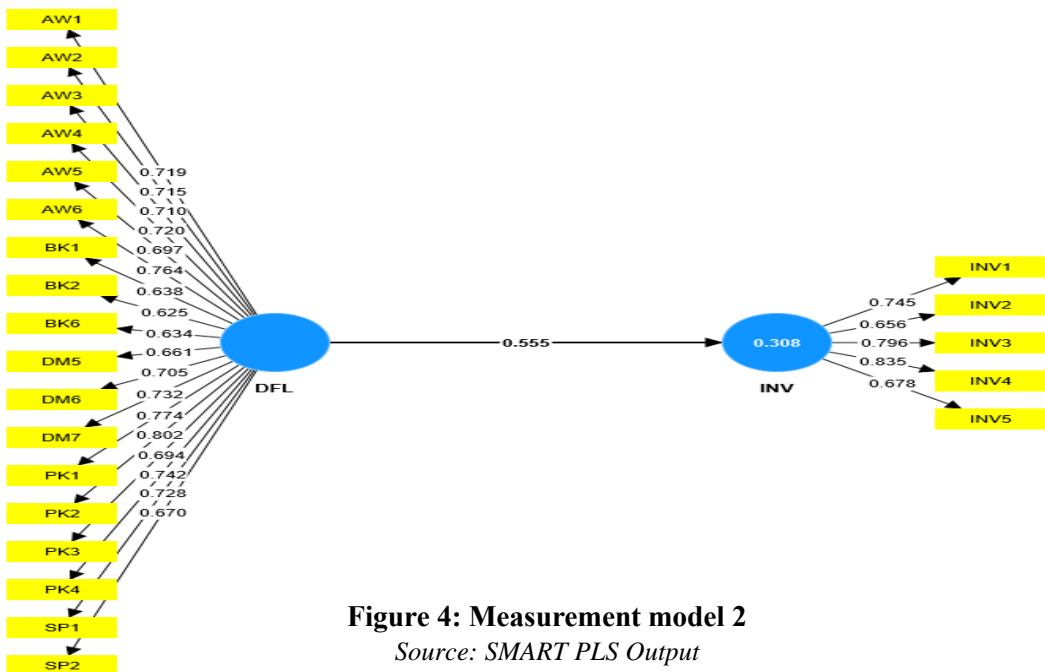

Figure 4: Measurement model 2
Source: SMART PLS Output

Assessment of Structural model/ Inner model

Hypothesis Testing

As per the table 14, there is a positive significant relationship between digital financial literacy and investment choices.

Table 14: Hypothesis testing model 2

Hypo	Relation	M	STDEV	T	P	Decision
H1	DFL -> INV	0.569	0.045	12.400	0.000	Supported

Source: SMART PLS Output

Effect Size (f^2)

The table 15 shows that, Digital financial literacy has a large effect on investment choices.

Table 15: Effect Size (f^2) model 2

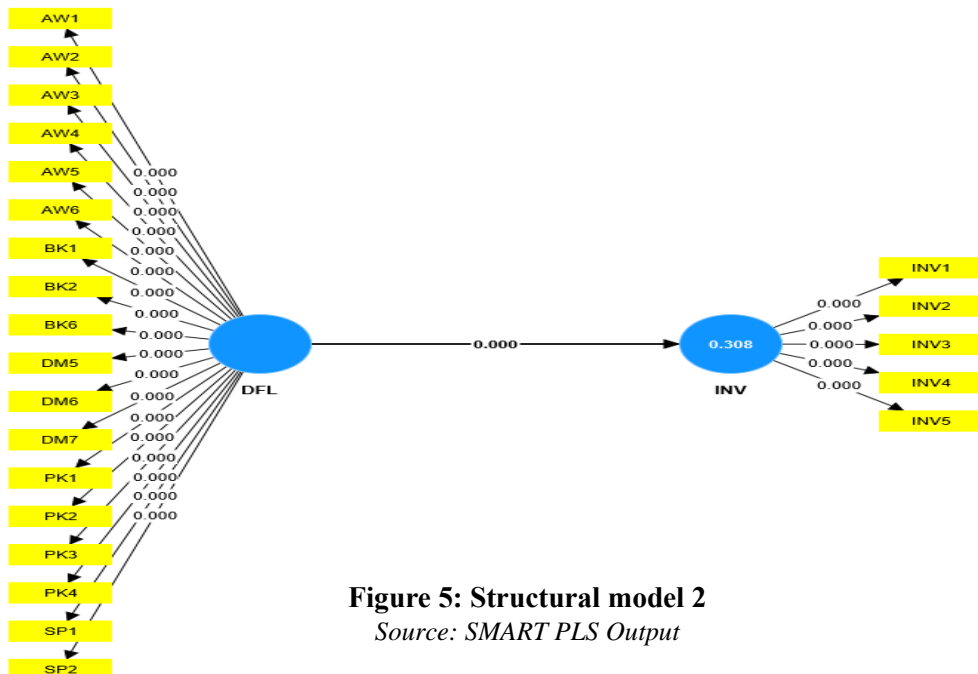| Constructs	f-square	Effect
DFL -> INV	0.446	Large

Source: SMART PLS Output

Figure 5: Structural model 2
Source: SMART PLS Output

4.6 Model 3: Association between DFL and (INV1, INV2 and INV3)

Assessment of Measurement model/ Outer model

This model analyzes reliability, convergent validity and discriminant validity.

Construct Validity and Reliability

Construct validity and reliability is used to test whether the variables are interconnected. It analyzes composite reliability and average variance extracted. From the model, some items were deleted to improve the composite reliability values. In this research 7 items were deleted from the independent variable, (BK3, BK4, BK5, DM1, DM2, DM3, and DM4).

Table 16: Convergent validity model 3

	Alpha	CR	AVE
DFL	0.941	0.948	0.502
INV 1	-	-	-
INV 2	0.798	0.881	0.712
INV 3	0.683	0.823	0.608

Source: SMART PLS Output

According to the table 16, this model achieved reliability since all the AVE values are greater than 0.5. Also, the Cronbach alpha values are greater than 0.7, which implies the reliability is high.

Discriminant Validity

Model 3 has sufficient discriminant validity since all of the square root of AVE (the bold values) are greater than the correlation between the variables.

Table 17: Discriminant validity model 3

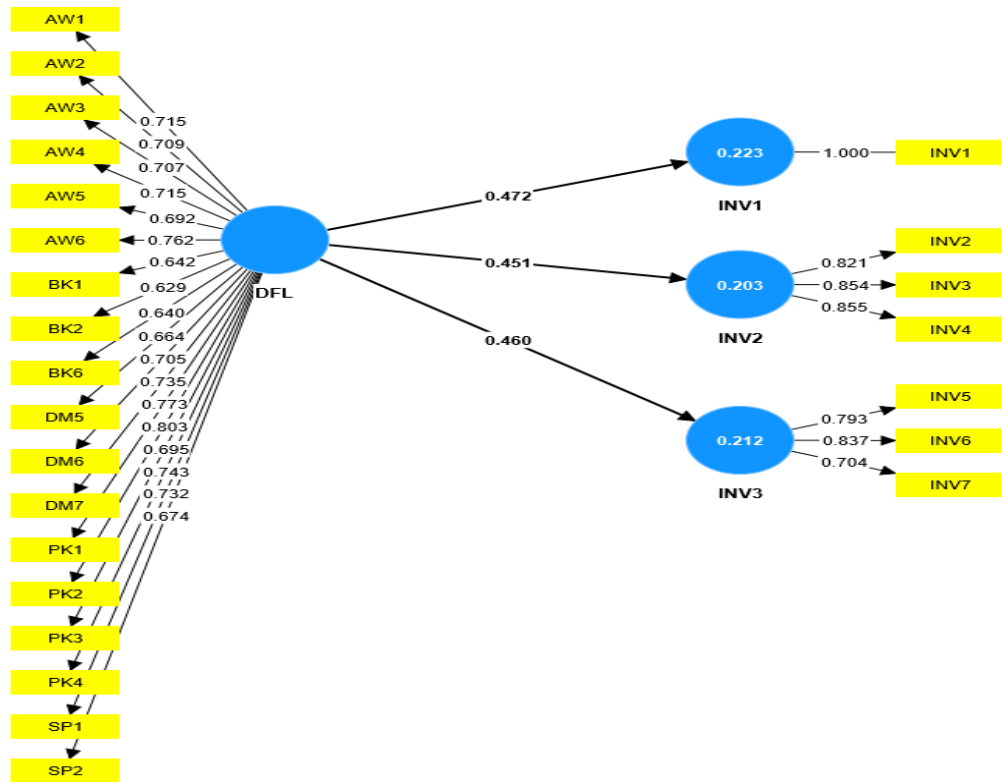|	DFL	INV 1	INV 2	INV 3
DFL	**0.709**			
INV 1	0.472	**1.000**		
INV 2	0.451	0.502	**0.844**	
INV 3	0.460	0.343	0.469	**0.780**

Source: SMART PLS Output

Figure 5: Measurement model 3
Source: SMART PLS Output

Assessment of Structural model/ Inner model

Hypothesis Testing

According to the table 18, there is a positive significant association between digital financial literacy and INV1, INV2, INV3.

Table 18: Hypothesis testing model 3

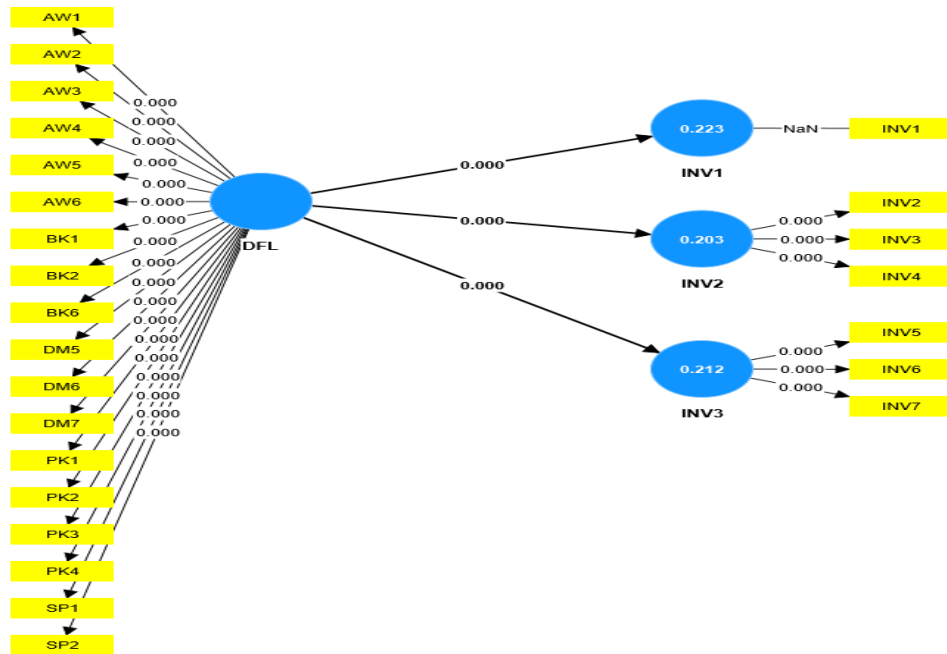| Hypo	Relation	M	STDEV	T	P	Decision
H1	DFL -> INV1	0.477	0.049	9.680	0.000	Supported
H2	DFL -> INV2	0.461	0.068	6.661	0.000	Supported
H3	DFL -> INV3	0.470	0.057	8.071	0.000	Supported

Source: SMART PLS Output

Figure 6: Structural Model 3
Source: SMART PLS Output

4.7 Discussions

The ***model 1*** analyzes the association between sub variables (BK, AW, DM, PK, SP) of digital financial literacy and investment choices. As per results of analysis, there is association between awareness and self-protection with investment choices.

The ***model 2*** analyzes the overall association between digital financial literacy and investment choices. As per results of analysis, there is an overall association between digital financial literacy and investment choices.

The ***model 3*** analyzes the overall association between digital financial literacy and investment choices (INV1, INV2 and INV3). As per results of analysis, there is an association between digital financial literacy and investment choices (INV1, INV2 and INV3).

As per the main question of this study, the results designate that, there is an overall relationship between digital financial literacy and investment choices *(Model 2).*

H1. There is a significant relationship between DFL and undergraduates' investment choices.

According to the results generated by smart PLS, there is a significant relationship between digital financial literacy and investment choices. P value of 0.000 is less than critical P value 0.05 (P value < 0.05). Therefor the researcher has agreed the alternative hypothesis. According to the finding of previous researchers our finding similar with (Arora, 2022). This analysis indicates financial literacy influences investment decisions.

According to this research found digital financial literacy influence for investment choices in near future. Generation Z people are dealing with online platforms. Therefore, this research will be helpful for future researchers. Further, this research found, there is a positive relationship between sub variable of awareness and self-protection with investment choices *(Model 1)*.

Its mean sub variable of awareness and self-protection affect for investment choices in near future. According to research questionnaire, undergraduates were awareness about existing providers of DFS, awareness about purpose and usage of available DFS (e.g., digital platforms for saving, digital payments, lending and remittances, awareness about biases that affect decision making and benefit of long-term planning, awareness about risk of borrowing, awareness about where to seek financial information and advice, awareness about positive financial behaviors. On the other hand, undergraduates have ability to understand the terms and conditions related to DFS and avoid deceptive practices, also ability to perceive scams and frauds associated with DFS.

5. CONCLUSIONS

5.1 Key Findings

The finding of the study revealed the positive significant association of digital financial literacy on investment choices of undergraduates. The study analyzed investment choices of undergraduates in Sri Lanka with the sub variables of digital financial literacy. According to the results, awareness and self-protection only have significant association with investment choices. Other variables such as basic knowledge and skills, practical know how, and decision making did not show significant relationship with investment choices. This means, the undergraduates in Sri Lankan government universities have inadequate basic knowledge and decision-making skills towards digital financial literacy.

As per the findings, digital financial literacy plays a vital role in the financial behavior of undergraduates in Sri Lanka. The improvement in digital financial literacy effects undergraduates to select appropriate investments to increase their finance by taking effective financial decisions. This study outlined the importance of digital financial literacy to the undergraduates. We can conclude that, even though undergraduates have basic level of knowledge towards digital

financial literacy, yet they need to improve their skills and knowledge on digital financial products and services.

5.2 Theoretical Implications

This research pointed out theory of planned behavior. Theory of planned behavior illustrates the individuals' attitudes, subjective norms, and perceived behavioral control when making decisions. This research helps undergraduates how to make effective financial decisions based on their attitudes, subjective norms, and perceived behavioral control. When making finance related decisions such as saving, investing and borrowing decisions, digital financial platforms are considered as convenient, and it helps in making better financial decisions in the digital world. The results suggest that digital financial literacy may influence financial behavior of undergraduates. Digital financial literacy is a modern term which will influence the behavior and attitude of undergraduates with the change of technology.

5.3 Implications for practitioners

This research is very important to undergraduates in Sri Lanka. As Sri Lanka faces bankruptcy, investments are very much needed to develop the economy. This study implies the value of digital financial literacy to the undergraduates in the current situation of our country. From this research, undergraduates can understand how to make effective financial decisions with the use of digital products and services. Digital financial literacy is convenient to undergraduates to make easy financing decisions with the changing technology. Undergraduates are considered as the future of the country, so their financial decisions will greatly impact our economy. This study helps undergraduates to improve their digital financial knowledge to make effective financial decisions in the future.

As well as this study supports government universities. In order to develop digital financial literacy to the undergraduates, universities need to take some steps. Universities must educate the undergraduates how to make appropriate finance decisions.

5.4 Limitations and Future Research

This study has limited the research context only to government universities in Sri Lanka. Extending the sample size will help to provide more information regarding investment choices of undergraduates. Including private universities in Sri Lanka will be beneficial to gather more information about all the undergraduates in Sri Lanka. Future researchers are encouraged to conduct a research study including all the universities in Sri Lanka. This research focused only the undergraduates of management faculty's investment choices. So, future researchers must try to involve all faculty undergraduates to examine their investment choices. Moreover, research to be done based on longitudinal study by comparing different time periods to analyze the cause and effect.

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IMPACT OF CORPORATE TAX RATE ON CAPITAL STRUCTURE OF LISTED COMPANIES IN SRI LANKA

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ABSTRACT

As debt capital becomes a significant factor regarding company financing, the decision regarding the capital structure also becomes crucial because the capital structure is a combination of both debt and equity capital. Practically, it is challenging to determine the optimal capital structure due to a clash of different factors influencing the capital structure. According to contemporary literature, these factors, directly and indirectly, affect the capital structure exemplifying various conclusions. Corporate tax rate could be identified as one of the determinants of capital structure which is still has a dearth of studies conducted in Sri Lanka, and further limited studies conducted also have contradictory findings. Therefore, there is a necessity to conduct research on the impact of corporate tax rate on the capital structure in the Sri Lankan context. The population of this study was companies listed in the Colombo Stock Exchange (CSE) in Sri Lanka. Out of the population, 88 companies were selected as the sample representing 18 sectors in CSE excluding only banking, software and service sectors. Data were gathered from 2018 to 2022 from published annual reports of selected companies. Regression was used as the analysis technique to identify the critical statistical points, which guided the test of the hypothesis of this research. Debt-equity ratio was employed as the dependent variable while effective tax rate was employed as the independent variable of this study. Firm age and firm size were used as the control variables of this research. The regression analysis found that the company's debt capital will increase in Sri Lanka when reducing the corporate tax rate. Moreover, the P value of this research findings is greater than the acceptable level under the 95% significant level. According to the findings, there is no significant impact of the corporate tax rate on the capital structure of listed companies in Sri Lanka.

Keywords: Capital Structure, Corporate Tax Rate, Effective Tax Rate, Debt to Equity Ratio

1. INTRODUCTION

1.1 Research background

Regardless of the business size, environment, and context, every business struggles to select the best financing method (Barbuta-Misu & Bodea, 2014). Internal sources of retained earnings and external sources of borrowing or equity are taken as the primary sources of financing in the company (Mostafa & Boregowda, 2014). Gatchev et al. (2009) found, short and long-term debt or equity are the most significant sources of financing.

Though capital structure plays an important role, it cannot function independently. Non-financial companies in the UK have a positive impact on the capital structure with asset structure, size and profitability of the company (Bennett & Donnelly, 1993). Profitability, taxes, tangibility and growth positively impact the capital structure decision in listed companies in Thailand (Wiwattanakantang, 1999). Profitability, growth, size, tangible assets, cost of debt and tax effect have a significant impact on the capital structure in Indian companies (Anshu & Kapil, 2014). Mostafa and Boregowda (2014) state that when making corporate financial decisions, corporate tax plays a significant role. Moreover, if a country has a high tax rate, the debt ratio also becomes higher due to tax advantages.

1.2 Research problem

According to past studies conducted in several countries and industries, they identified numerous factors that could be affected the capital structure either directly or indirectly. Some researchers studied government and private company capital structure determinants in India (Anshu & Kapil, 2014). Wiwattanakantang (1999) found growth, profitability, tangibility and taxes as the Thailand non-financial firms' capital structure determinants. Based on Turkish lodging companies' evidence, found effective tax rate, tangibility of assets and return on assets as the capital structure determinants (Karadeniz et al., 2009). Therefore, we can identify corporate tax rates as one of the determinants of capital structure. However, there is still a dearth of studies conducted in the Sri Lankan context about the capital structure determinants, especially the corporate tax rate with capital structure (Pratheepan & Banda, 2016; Vijayakumaran & Vijayakumaran, 2011).

1.3 Research question

Concerning the research gap, formulate the research question which expected to address through this research, which is;

Does the corporate tax rate affect the capital structure?

To address the research question, defined the research objectives to support fulfilling the research gap. The objectives that are going to attain in this research are,

1. To identify whether the corporate tax rate impacts the capital structure.
2. To identify the recent corporate tax rate impact on the capital structure of companies listed in CSE in Sri Lanka.

1.4 Significance

As per the problem statement, this research can contribute to the existing literature under the Sri Lankan context to fulfill the research gap. Bringing almost all the sectors of CSE as the sample, which fills in 30% of companies with the very recent five years of data, puts additional significance to this research. There are two practical significance of this research findings. They assist companies in deciding their debt and equity capital structure and to decide whether corporate tax rates should be considered or not regarding capital structure decisions.

2. LITERATURE REVIEW

2.1 Capital structure

According to Du et al. (2019), capital structure is the combination of equity and debt structure which not only safeguards the operation life cycle but strengthens the operation by giving economic, social and environmental privileges.

The survey of capital structure has evolved into a notable factor because decisions regarding capital structure have become one of the critical financial judgments that management must formulate (Karadeniz et al., 2009). Moreover, modifications in the company's capital structure guide alterations in the firm value, profitability, cost of capital and return on equity (Barbuta-Misu & Bodea, 2014).

2.2 Corporate tax

Tax is "a compulsory contribution imposed by a public authority, irrespective of the exact amount of service rendered to the taxpayer in return, and not imposed as a penalty for any legal offense" (Dalton, 1922, p. 50). Though companies use numerous strategies in their tax planning to diminish tax liability using the loopholes in taxation (Perera, 2021), every business should implement their corporate taxation as it is a crucial factor (Bizna et al., 2018).

Usually, businesses try to resist corporate tax to retain their profit within the company. Nonetheless, the firm assigns its compassion to the corporate tax,

significantly when amending the corporate tax policies will influence the change of capital structure and sustainability of the company (Bizna et al., 2018). Researchers have demonstrated that as one of the capital structure determinants, corporate tax fluctuations significantly affect the company's capital structure and other factors (Anshu & Kapil, 2014; Wiwattanakantang, 1999). Therefore, corporate tax is a crucial concern regarding the capital structure opinions in every company.

2.3 Capital structure theories

With the dynamic change of the economy and market, the justification of the capital structure also shifts gradually with numerous viewpoints on the research findings. According to the literature, some theories profoundly illustrate capital structure from various perspectives using Modigliani and Miller (MM) theory and Trade-off theory.
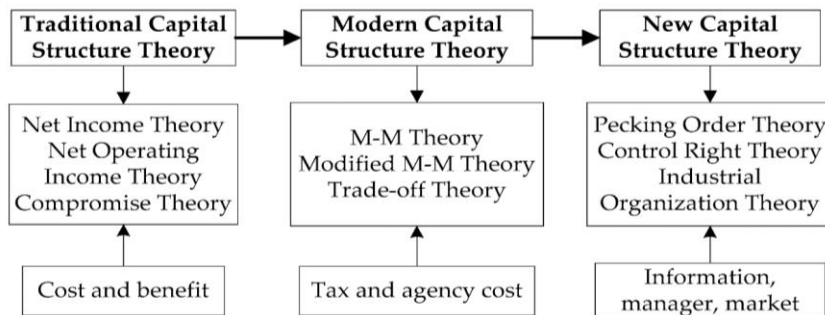

Figure 1: Development of capital structure theory
Source: Constructed based on literature

Early the MM theory in 1958, there was no generally accepted theory for capital structure, which evolved the first theory explaining capital structure (Luigi & Sorin, 2009). This theory also named as the irrelevance theory, which illustrates the value of a firm that does not influence the capital structure (Pratheepan & Banda, 2016). Modigliani and Miller furthermore executed research in 1963, encompassing tax with the capital structure, finalizing the importance of tax in a capital structure (Modigliani & Miller, 1963).

The trade-off theory was initially operated by Myers in 1984 to rectify the MM theory further while illustrating the usefulness of tax (Mostafa & Boregowda, 2014). This theory forces companies to utilize additional debt than agency cost theory and bankruptcy theory interpreting optimal capital structure with a mix of equity and debt while offsetting the cost and benefit of debt (Lemmon & Zender, 2008). According to this theory, with the tax windfall, the company can utilize its entire financing using debt finance (Luigi & Sorin, 2009). However, organizations have to discover the optimal capital structure that stabilizes the advantages and disadvantages of the debt to attain the benefit of this theory

because the growth in debt level automatically increases the agency cost and bankruptcy cost while diminishing the value of the firm (Karadeniz et al., 2009).

2.4 Empirical review

Corporate tax impact on the capital structure not have been opposed in the Sri Lankan context even though there is other country research which already found their corporate tax impact on the capital structure. In United Kingdom, firms found a positive long-term effect of corporate tax rates on the capital structure (Devereux et al., 2017). Meanwhile, Gulf Cooperation Council region found that there is both direct and indirect influence on the capital structure from taxes (Temini et al., 2016). In German multinational companies', researchers have found that though the tax is a burden to the company, it will affect the leverage not only increasing external debts but also pushing to increase internal debts within the organization (Buettner et al., 2009). Even though there are many literature reviews executed to investigate the corporate tax impact on capital structure, there are numerous conclusions and findings as the above justifications. These various conclusions and the absence of the Sri Lankan context dominated to implementation of this research.

3. METHODOLOGY

3. 1 Research design

This research analysis comprises statistical content; therefore, this is quantitative and the philosophy can be specified as the positivist philosophy. Under the deductive approach, this research exercises the actuality of existing theories. Research methodology selection can be the mono-method quantitative analysis technique restricted to one methodology technique having archival research strategy which will be a time-consuming data-gathering strategy. Even though this is a sophisticated strategy, this can obtain extra reliable data if it is a sensible source such, as original or authorized documents. This research time horizon can be identified as a longitudinal study because this assesses the same sample at several time points and these are the primary characteristics intended for the research design to execute this research methodology.

3.2 Operationalization of Variables

To verify the tax impact on the capital structure, recognized vital variables to bring out the hypothesis to convey the quantitative methodology which is illustrated in table 1.

Table 1: Operationalization of variables

Variable	Description	Measurement
Corporate Tax rate (Independent)	Effective tax rate	Tax expense / EBT*
Capital structure (Dependent)	Debt to equity ratio	Total debt / Total equity
Firm Size (Control)	Total assets of the company	Greater than one million
Firm Age (Control)	Registered years in CSE	More than five years

Source: Janssen & Buijink, (2000).

Below conceptual framework illustrates how methods and variables correlate with others graphically.
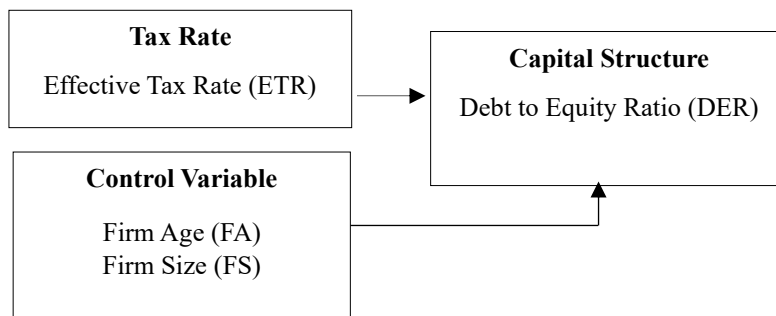
Figure 2: conceptual framework

Source: Constructed by Authors

3.3 Population

To investigate the impact of corporate tax on capital structure, the most desirable companies are those listed under CSE. Obtaining listed companies can validate companies belonging to twenty sectors in Sri Lanka. Another significance is that when investigating the tax rate impact, it will be advantageous to use listed companies because it can be noticed how a slight change in tax rate affects a large company shortly. Also, only listed companies can publicly boost their equity capital by issuing shares.

3.4 Sample selection

The primary sample selection technique was the proportionate sample selection method used to symbolize fifty percent of each sector. Therefore, this sample represents each sector equally, covering all the sectors in CSE within a hundred

and fifty companies. By having a proportionate sample technique along with the stratified sampling method in this research, able to give equal representation for the twenty sectors in CSE.

3.5 Data collection

This research gathers data by using secondary data. Using yearly reports can effortlessly collect details of capital structure with the authorization of directors and auditors. Though the annual report provides authorized information when collecting tax data, using the company's tax return is more reliable, but these are highly confidential details. Therefore, this research can only use an annual report to obtain data on both capital structure and tax details.

3.6 Method of analysis

This research investigates the corporate tax rate modifications and how it affects the capital structure explaining how one variable changes with another variable, illustrated by the statistical regression technique. Additionally, regression analysis is an acceptable method to investigate the impact or association of variables.

Model 1 (DER) $= \beta_0 + \beta_1 ETR + \beta_2 FA + \beta_3 FS + \varepsilon$……………………….(1)

Where, $\beta_0, \beta_1, \beta_2, \beta3$ are the regression coefficient and ε is the random error of the mode.

DER = Debt to Equity Ratio

ETR = Effective Tax Rate

FA = Firm Age

FS = Firm Size

3.7 Hypothesis

To complete the conclusion in this deductive approach research, researchers must first identify the hypothesis. According to this research, the following will show the hypothesis which is going to test.

H_0: There is no impact between corporate tax rate and capital structure

H_1: There is an impact between corporate tax rate and capital structure

4. FINDINGS AND DISCUSSION

4.1 Overview of analysis

According to table 2: descriptive statistics table, the eighty-eight companies, symbolizing thirty percent (30%) of the population, did not contain interest-bearing debt in some years from 2018 to 2022. Due to that, the DER shows zero as the minimum value in the sample. Exhibiting less than one as the maximum on DER specifies that selected companies in this sample do not lean on interest-bearing borrowings to finance. Therefore, the company has less risk in financing as everyone has equity and there is less than one debt to settle. Moreover, for one equity, there is 0.29 interest-bearing debt according to this sample ($M = 0.29$) and a standard deviation of 0.16 ($SD = 0.16$) in DER as the dependent value.

ETR has eleven percent ($M = 11\%$) as the average value in the sample, while the standard deviation indicates forty percent ($SD = 15\%$). The negative ETR implies the company's tax return, and in this sample, there is a negative ETR (-30%) which shows the minimum tax return that a company can have. Having more than fifty percent as the maximum ETR (57%) reveals how the company should pay as tax expenses from their taxable income.

Contradicted to other variables, firm size has vast amounts; therefore, these large amounts are transformed to log quantities for analysis purposes. The Log Firm Size (FS) value comprised a minimum of 8.04 and a maximum of 11.49. When enlarging this log value approximately, it reflects one hundred and nine million as the minimum value and three hundred and eleven billion as the maximum total asset value of this sample. As the companies, Mercantile Shipping Company PLC has the minimum asset value, and LOLC Finance PLC has the maximum asset value in this sample. The average total asset value of this sample is approximately six billion, and as the log value, it is ten ($M = 9.87$).

The minimum firm age of this sample is eight years from the incorporation date of the company, and Company A has this minimum age. In comparison, Company B has the maximum FA of hundred and forty-three years. The average FA indicates thirty-three years ($M = 33.34$), while the standard deviation of this FA indicates fourteen years ($SD = 14$).

Table 2: Descriptive statistics

Variables	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
DER	0	0.81	0.29	0.16
ETR	-30	57	10.51	14.58
Log FS	8.04	11.49	9.877	0.55
FA	8	143	33.02	14

Source: SPSS result based on annual reports from 2018 to 2022

4.2 Effective tax rate

As the independent variable measurement, the effective tax rate reflects the percentage that the company actually paid as the tax expense from their taxable income under the composed tax rate by law. Below graphical chart shows the average value of the ETR of the sample from 2018 to 2022.
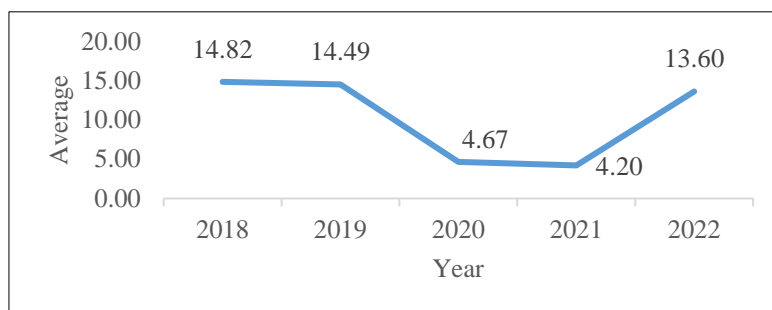

Figure 3: Average of effective tax rate

Source: Collected data based on annual reports from 2018 to 2022

According to figure 3, there was a 14.82% average ETR in 2018, and this diminished to 14.49% in the year 2019. In 2020, the average ETR decreased from 14.49% to 4.67%. One of the possible justifications for this transition is the tax rate. Based on Sri Lankan Inland Revenue Department data, the standard corporate tax rate was 28% for both 2018 and 2019, but with effect from the first of January 2020, the standard corporate tax rate was deducted to 24% from 28%. Therefore, for the year 2019/20, most of the companies used 28% only until the third quarter, and for the last quarter, they used 24% to calculate their tax expenses. These tax removals dominate to lower tax expenses and lower ETR. From 2020 to 2021, the average ETR will decrease to 4.20% because this 2020/21 year only influences the 24% tax rate. However, under the 24% standard corporate tax rate in the 2022 average, ETR boosted to 13.60% from 4.20%. One of the apparent justifications for this increment was that 2022 had the highest earnings before tax amount between 2018 and 2022. The below table 3 simply demonstrates the average EBT amount for each year, and having a vast EBT led

to having a high ETR compared to previous years, which operated under lower corporate tax rates.

Table 3: Average Earing Before Tax

Year	2018	2019	2020	2021	2022
EBT	1.1 billion	0.8 billion	0.5 billion	1.0 billion	2.5 billion

Source: Collected data based on annual reports from 2018 to 2022

4.3 Debt to equity ratio

This DER is the critical measurement used to assess the dependent variable of the company's capital structure because the mix of debt and equity primarily encompasses the capital structure. To instantly identify the data, the below figure will be illustrated using the graphical method.
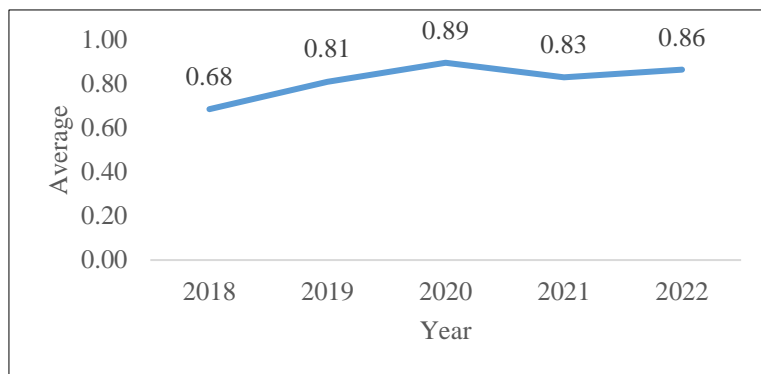

Figure 4: Average of DER

Source: Collected data based on annual reports from 2018 to 2022

According to this 4th graphical illustration, the average DER deliberately increased from 2018 to 2020 because, from 2018 to 2020, debt and equity moderate amounts enhanced each year, contradicting the previous year. Moreover, these years' average debt amounts define more than half the amount of equity amount, according to the sample data. These data will simply show up in table 4. However, in the year 2021, the average DER diminished to 0.83 with the change of one equity. The possible justification for this decline would be to have less debt amount compared to the previous year, and also, the debt amount exemplifies less than half of (48%) equity amount. In the year 2022, DER again heightened because this year has the highest debt and equity between 2018 and 2022 year.

Table 4: Debt and equity in each year

Year	2018	2019	2020	2021	2022
Debt	4.4 billion	5.1 billion	5.4 billion	5.3 billion	7.6 billion
Equity	8.3 billion	8.6 billion	9.6 billion	11 billion	14 billion

Source: Collected data based on annual reports from 2018 to 2022

According to the result in table 5, in our sample, there is a moderately positive impact between the DER and ETR. Yet, this positive impact becomes insignificant because of the higher significance level (P=0.343). However, the DER and FA were statistically significant (0.020 < 0.05) and had a weekly positive relationship. Moreover, the relationship between DER and FS, ETR, and FA, and ETR and FS showed a weekly positive relationship, as well as statistically insignificant results, as these three relationships went beyond the 0.05 significant level. Among these four significant relationships, only DER with ETR and DER with FS have become insignificant. By identifying as statistically significant describe that under the 95% confidence level, the data obtained from the population are true and not biased.

Table 5: Pearson's Correlation Coefficient

Variable	DER	ETR	FS	FA
DER	1			
ETR	0.36	1		
FS	0.129	.150**	1	
FA	.181**	.171**	-.240**	1

Source: SPSS result based on annual reports from 2018 to 2022

*Note**:* Correlation is significant at a 0.05 level

According to table 6, R Square denotes the coefficient of determination. It will describe how the dependent variable responds to the independent variable. According to the below model summary statistic, a 6.5% impact arises from ETR, FS and FA on the DER

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.256	0.065	0.043	0.153

Source: SPSS result based on annual reports from 2018 to 2022

According to this 7 ANOVA data table, the P value is less than 0.05 (P=0.037<0.05). Therefore, the F value is statistically significant and significantly impacts the DER on ETR.

Table 7: Result of ANOVA

Model		df	F	Sig.
1	Regression	3	2.912	0.037
	Residual	125		
	Total	128		

Source: SPSS result based on annual reports from 2018 to 2022

4.4 Regression analysis

According to table 8, it shows the constant factor, which demonstrates how the dependent variable behaves when independent variables such as the effective tax rate and the control variables of firm age and firm size remain constant.

Table 08: Regression Coefficient

	Unstandardized Coefficients		Standardized Coefficients	
Model	B	Std. Error	Beta	Sig.
(Constant)	-0.321	0.265		0.229
ETR	0.000	0.001	-0.032	0.720
Size	0.054	0.026	0.189	0.039
Firm Age	0.003	0.001	0.232	0.012

Source: SPSS result based on annual reports from 2018 to 2022

$$\text{Model 1} \ (DER) = -0.321 + -0.032 \, ETR + 0.189 \, FA + 0.232 \, FS \ \dots..(2)$$

As an independent variable measurement, the effective tax rate shows a higher P value of 0.05 (P=0.720). This reflects that, under the 95% confidential level, the effective tax rate is insignificant. Further, the effective tax rate negatively impacts the debt-equity ratio as it has a negative beta value under the regression coefficient analysis.

However, the control variables of firm size and firm age can generate a positive impact on the debt-equity ratio. When firm size changes in one unit, the debt-equity ratio changes to 0.189 (β=0.189) positively. Not only firm size but also firm age also changes positively in 0.232 (β=0.232). Moreover, with this positive impact on the dependent variable, both firm age and firm size are statistically significant, as they have less than 0.05 as the P value.

Based on Table 8 regression coefficient analysis, able to observe that the independent variable does not have a statistically significant impact on the debt-equity ratio. In contrast, both control variables are statistically significant. On the other hand, only the independent variable has a negative impact, while control variables have a positive impact on the dependent variable.

4.5 Hypothesis testing

According to the above test of regression, the P value of the independent variable is greater than the 95% confidence level (P=0.720). Therefore, the independent variable is statistically insignificant, and it declares that it cannot reject the null hypothesis. Further, it describes no statistical impact on the debt-equity ratio with the effective tax rate.

5. CONCLUSION

5.1 Key findings

When a company has debt capital, it only reflects a maximum of 80% of total equity because the full value of the DER is 0.81 (Maximum = 0.81). Moreover, the average value of total debt is equal to less than half of the total equity (M = 0.29). When looking at the independent variable, companies have to pay nearly 11% (M=10.51) of their profit before tax. Regarding firm age, most companies have almost 30 years of experience in their industry.

When studying the effective tax rate, further identified that the drop in effective tax is mainly affected by the recent changes in tax reduction in the 2020 year because the tax expense amount reduces when the standard corporate tax rate decreases. Though the effective tax rate reflects massive changes from 2018 to 2022, the debt-to-equity ratio mostly stays the same as like's effective tax rate. However, the effective tax rate debt to equity ratio dropped and gradually increased.

According to the correlation analysis, only firm age and firm size have a negative impact on each factor, and other factors have a positive effect. However, this positive impact on the DER with ETR rate and the DER with FS is insignificant. Other than these variables, the rest can significantly impact their dependent variables.

This negative relationship between capital structure and the tax rate was explained by some research (Jin, 2021). This broad sample only uses one variable measurement, and the limitations of the analysis can be a reason for this insignificant result in this research study. Temimi et al., (2016) also found that the effect of tax rates changes from one company sector to another. Further, there might be hidden factors that cause a wrong abnormal result. According to Tandon et al., (2020), this COVID 19 affects the global economy, financing, debt level,

tax revenue, and fiscal and monetary policy worldwide. The COVID impact during the research study period in Sri Lanka also discusses some Sri Lankan articles (Deyshappriya, 2021; Gnanachandran & Chellakumar 2020).

Finally, according to our study, changes in the corporate tax rate will not significantly affect the capital structure in the Sri Lankan context, but when the tax rate reduce, the debt capital will increase; hence, it has a negative relationship. However, according to the literature, this can happen as Macnamara (2019) stated that this tax advantage on debt is also meager, and the impact is minimal, which causes the DER to fall.

5.2 Implications

Practically, this research is going to be vital for the students for their academic motives, for the investors who seek information about Sri Lankan capital structure, and for researchers for their future research. Theoretically, this research will be considered to study MM theory and tradeoff theory as the major theories about capital structure. Further, this research is going to be substantial in identifying how the Sri Lankan tax rate impacts the capital structure of listed companies.

Future research can also reference those studying the capital structure and tax rates. When analyzing the capital structure and tax rate, it is recommended to use different variable measurements for the analysis; hence, this study only uses one measurement to analyze both independent and dependent variables. Having both insignificant and significant outcomes under this research, future researchers can study further to fill the research gap based on this research outcome.

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THE IMPACT OF INTEGRATED REPORTING ON COST OF CAPITAL IN LISTED COMPANIES IN SRI LANKA

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ABSTRACT

This research delves into the emerging field of Integrated Reporting (IR), a comprehensive reporting tool encompassing both financial and non-financial aspects. IR is viewed as a pivotal advancement in corporate reporting, aiming to transform the way information is presented to stakeholders. The primary objective is to elucidate how a company creates value over time, presenting a more holistic view for investors. Despite being relatively new, IR has garnered substantial attention, particularly regarding its evidenced benefits and compliance with the IR framework. IR illuminates an organization's dependence on various forms of capital, enabling stakeholders to assess long-term viability and resource management. A crucial innovation within IR is "integrated thinking," fostering a multifaceted approach to decision-making, integrating financial, social, and environmental considerations into a unified report. It enhances the transparency which leads to reduce information asymmetry. This study explores the impact of IR on the Cost of Capital, with a focus on the Cost of Equity (COE), Cost of Debt (COD), and Weighted Average Cost of Capital (WACC). Employing a positivist research philosophy and deductive research approach, it utilizes regression analysis to achieve the research objectives. A sample of 30 companies listed on the Colombo Stock Exchange for the years 2018 to 2021 serves as the basis for analysis. Regression analysis investigates the impact of adopting IR on cost of capital of the companies. Results of the study suggests that adopting IR impacts on reducing the cost of debt significantly. However, adopting IR has no any effect on the COE and WACC. The study adds to the body of knowledge regarding the potential benefits of complying with the IR reporting framework. The study's findings could encourage managers in countries where IR is not mandated. Additionally, the results can add to the ongoing discussions on the advantages o f adopting IR for firms.

KEYWORDS: *Cost of Capital, Cost of Debt, Cost of Equity, Integrated Reporting, WACC*

1. INTRODUCTION

Integrated Reporting (IR) represents a significant leap in corporate reporting, encompassing both financial and non-financial dimensions. Its emergence over the past decade is hailed as a pivotal development in the corporate reporting sphere, altering the way information is communicated to stakeholders. The core objective of IR is to elucidate how a company creates value over time, especially for investors. Despite being a relatively new concept, IR has attracted extensive research attention, particularly regarding its evidence-based benefits tied to adherence to the IR framework. IR strives to showcase an organization's dependence on various forms of capital, spanning financial, intellectual, social, and more. This enables stakeholders to thoroughly assess a company's long-term sustainability and resource management. At the heart of IR lies "integrated thinking," promoting a comprehensive analysis approach that integrates financial, social, and environmental aspects into a unified report. While early adopters like South Africa, Japan, and several other countries have embraced IR in corporate governance, its adoption is not yet mandatory in many nations, including Sri Lanka. However, the benefits of preparing IR reports have explored in various terms including impact of IR on financial and market performance (Gunarathne & Priyadarshanie, 2022; Ranaweera & Jayawardhana, 2022; Wen et al., 2017). The impact of IR on cost of capital remains underexplored in the Sri Lankan context, motivating this study to investigate how integrated reporting quality influences on cost of capital of Sri Lanakan listed companies, addressing a crucial research gap.

A recent strand of literature (Zhou, 2017; Pirgaip and Rizvić, 2023; Sharif et al., 2021) has examined the relationship between IR adoption and the cost of capital providing empirical evidence of the benefits of IR in this regard. Most of the research dialogs about the relationship between IR and the cost of capital in developed countries and countries which is compulsory to follow IR reporting practice such as South Africa. However, no studies found in the Sri Lankan context to examine the impact of IR on cost of capital. To fill this void, our research looks at the impact of IR on the cost of capital for Sri Lankan listed companies collecting data for the period starting from 2018 to 2021. Thereby the objective of this study is to examine the impact of IR on the cost of capital in Sri Lankan listed companies.

2. LITERATURE REVIEW

2.1 Theoretical Review

This study is based on information asymmetry theory and agency theory. According to information asymmetry theory at least one party to a transaction knows relevant information while the rest do not. A study conducted by Kim and Verrecchia (1994), allows us to discuss the existence of buyers and sellers in the market with varying information processing capacities. The asymmetric distribution of knowledge among market actors, as noted by Akerlof (1970), presents a barrier to the seamless exchange of assets at efficient prices with minimal transaction costs. From Leuz and Verrecchia (2000) and Brennan and Subrahmanyam (1996) trading frictions are introduced by information asymmetry among investors, resulting in lower levels of stock liquidity and higher expected returns, which raises a firm's cost of capital. This is possible because the possibility of transacting with more informed counterparts necessitates investors seeking higher returns, causing future expected payoffs to be discounted at a higher rate (Easley & O'hara, 2004).

Agency theory is used to comprehend the interactions of agents and principals. In a specific commercial transaction, the agent represents the principle and is supposed to represent the principal's best interests without regard for self-interest. The conflicting interests of principals and agents may arise because some agents may not always behave in the best interests of the principle. Miscommunication and disagreement can lead to a variety of difficulties and unrest inside businesses. Incompatible aspirations can create a schism between each stakeholder, resulting in inefficiencies and financial losses. This raises the principal-agent issue. The agency theory serves as the foundation for this research. As explained by Jensen and Meckling (1976); Panda and Leepsa, Ross (2017) and Ross (1973) the idea aims to identify and resolve the agency dilemma that exists between the firm's owners and management.

2.2 Empirical Review

Cost of Capital

When making management and investment decisions, the cost of capital is extremely significant. It reflects the issues associated with asymmetric information. It encourages academic scholars to focus their efforts on analyzing the effect of voluntary information disclosure in lowering the cost of capital in order to minimize the agency problem. Elliot and Jacobson (1994), for example,

claimed that a significant volume of released information would help to cut capital costs. The Integrated Reporting Committee of South Africa (IRCSA, 2011) suggests in its discussion paper on IR that benefits accrue to companies that release IR information to external stakeholders because the leadership's ability to demonstrate its effectiveness, coupled with the increase in transparency, could result in a lower cost of capital to the organization. Zhou et al. (2017) were among the first to investigate the impact of IR on the cost of capital. Their findings imply that companies with high-quality IR have lower capital costs. Using empirical data and a sample of 995 companies from 27 countries, Garcia-Sanchez (2017) discovered a negative association between IR and the cost of capital. As a result, the study argued that corporations can influence their cost of financing by managing the market availability of their information. Therefore, it is hypnotized that;

H_1 - There is a negative impact of Integrated Reporting on Weighted Average Cost of Capital.

Cost of Equity

Most of the studies on financial disclosure show empirically how it reduces the cost of equity capital (Botosan, 1997, 2006; Botosan & Plumlee, 2002; Core, 2001; Diamond & Verrecchia, 1991; Francis et al., 2005; Hail & Leuz, 2006; Healy & Palepu, 2001; Leuz & Wysocki, 2008; Richardson & Welker, 2001). As noted by Zhou's (2017) empirical investigation of the value of IR to the capital market revealed that IR affects the market in at least two different ways. They looked into whether IR-offering businesses have lower equity costs and whether analysts' predicting accuracy can be impacted by the interpolation of IR with the IR framework. Therefore, it is hypnotized that;

H_2 - There is a negative impact of Integrated Reporting on Cost of Equity.

Cost of Debt

Muttakin (2020) conducted another study on the impact of IR on the cost of debt, confirming that companies that use IR have lower cost of debt than companies that do not, using a sample of 847 annual observations for companies listed 48 on the JSE from 2009 to 2015, because the use of IR helps companies to reduce the cost of information gathering and monitoring. This study looked at the relationship between borrowing costs and IR as well as the association between borrowing costs and financial reporting quality. It was confirmed in this situation that this relationship is stronger for organizations who

use IR. Furthermore, it may serve as a solution to the objectives of Directive 2014/95/EU, which requires European public interest corporations to disclose transparent information that clearly describes the company's strategy and business model in connection to the environment and society. Muttakin et al. (2020) discovered that companies who use IR have lower COD than those that do not in their analysis of South African companies from 2009 to 2015. The authors ascribe this conclusion to the advantages of IR in terms of lowering information gathering and monitoring expenses. Raimo et al. (2021) use annual content analysis to assess the quality of IR information and a panel regression model to assess its impact on COD using a sample of 133 EU enterprises from 2017 to 2019. Their research demonstrates a negative association between IR quality and COD, implying that organizations that publish high-quality IR can benefit from lower debt financing costs. Accordingly, it is hypothesized that,

H_3 - There is a negative impact of Integrated Reporting on Cost of Debt

3. METHODOLOGY

The methodology for this research follows a positivist research philosophy, employing a deductive research approach to test existing hypotheses. Quantitative research is the chosen method, emphasizing numerical data and a logical, objective stance. The research population comprises companies listed on the Colombo Stock Exchange, with a sample consisting of 30 listed companies for the years 2018 to 2021, selected through random sampling.

Data for the study is collected using a secondary data collection method, utilizing annual reports from 2018 to 2021 of the listed companies in Sri Lanka. The collected data is then analyzed using EViews, an analytical tool suitable for analyzing qualitative data sourced from annual reports.

This research employs statistical analyses and regression modeling to examine the relationship between Integrated Reporting (IR) and the Cost of Capital, focusing on the components of Cost of Equity (COE), Cost of Debt (COD), and Weighted Average Cost of Capital (WACC). The study aims to provide insights into the role of IR in financial decision-making and its impact on the cost of capital for listed companies in Sri Lanka.
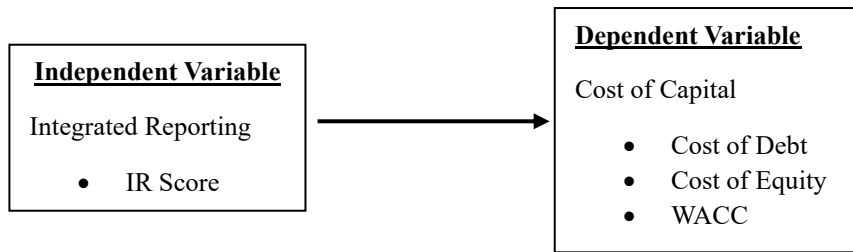
Figure 1: Conceptual framework
Source: Constructed by Authors

4. FINDINGS & DISCUSSIONS

4.1 Results of Regression

This study mainly used regression analysis to achieve its objectives.

Table 1: Results of Regression Analysis - Cost of Debt

Variable	Coefficient	t-Statistic	Prob.
C	0.317	3.343	0.001
IR Score	-0.269	-2.475	0.014
R-squared	0.049		
F-statistic	6.126		
Prob(F-statistic)	0.0147		

Source: EViews Output

When the F-statistical probability value is analyzed, it is shown that the entire model is significant at the 5% level of confidence, hence the F-statistical probability value is 0.014, indicating that the model is statistically significant. When R square is taken into consideration, all independent variables explain 4.9% of the dependent variable of integrated reporting. The intercept term (C) is 0.317175. This is the estimated value of the dependent variable (Cost of Debt) when all independent variables are zero. The coefficient for the IR Score is -0.269. This indicates a negative relation when a one-unit increase in IR Score is associated with a decrease of approximately 0.269 units in the Cost of Debt.

In summary, the regression analysis suggests that there is a statistically significant (P value < 0.05) negative impact of the IR Score on the Cost of Debt. Specifically, as the IR Score increases, the Cost of Debt tends to decrease.

Table 2: Results of Regression Analysis - Cost of Equity

Variable	Coefficients	t-Statistics	Prob.
C	0.375	0.776	0.439
IR Score	0.381	0.690	0.492
R-squared	0.004		
F Statistic	0.		
Prob.	0.491		

Source: EViews Output

The F-statistic tests the overall significance of the regression model. The associated p-value (Prob. F-statistic) is 0.491, indicating that the model is not statistically significant. R-squared (0.004) represents the proportion of variance in the dependent variable (Cost of Equity) explained by the independent variable(s). In this case, it's very low (0.004) suggesting a poor fit of the model. The coefficient for the IR Score is 0.381. However, it is not statistically significant (p-value > 0.05), indicating that the IR Score does not have a statistically significant effect on the Cost of Equity based on this analysis.

Table 03: Results of Regression Analysis – WACC

Variable	Coefficients	t-Statistics	Prob.
C	0.489	1.083	0.281
IR Score	0.187	0.361	0.719
R-squared	0.001		
F-statistic	0.130		
Prob(F-statistic)	0.719		

Source: EViews Output

The percentage of the dependent variable's (WACC) variance that can be accounted for by the independent variable(s) is indicated by R-squared (0.001) indicating a poor fit for the model. The IR Score's coefficient is 0.187. However,

according to the results it is not statistically significant (p-value > 0.05), suggesting that the IR Score has no statistically significant impact on WACC.

4.2 Hypotheses Testing

To test the hypotheses regarding the relationships between IR Score and the variables WACC, COE, and COD, the coefficients and associated p-values of the regression analysis were considered.

H_1: IR has a negative relationship with the Cost of Debt

Since the p-value associated with IR Score (0.014) is less than the common significance level of 0.05, the null hypothesis is rejected. This implies that, based on the given data and model, there is a statistically significant impact of IR on the Cost of Debt.

H_2: IR has a negative relationship with Cost of Equity

Since the p-value associated with IR Score (0.492) is greater than the common significance level of 0.05, the null hypothesis is failed to reject. This implies that, based on the given data and model, there is no statistically significant impact of IR on the Cost of Equity.

H_3: IR has a negative relationship with WACC

Since the p-value associated with the IR Score (0.719) is greater than the common significance level of 0.05, the null hypothesis is failed to reject. This implies that, based on the given data and model, there is no statistically significant impact of IR on WACC.

In simpler terms, the analysis indicates that there is a statistically significant negative relationship between the IR Score and the Cost of Debt. However, no significant relationships were found between IR Score and WACC, as well as IR Score and Cost of Equity.

This research shows that there is no significant negative relationship between the IR Score and WACC or the Cost of Equity while the IR Score and the cost of debt show a statistically significant negative relationship with the IR Score. Results are in line with other researchers (Zhou, 2017; Vitolla et al.,2019; Sharif et al., 2021). According to Zhou (2017) and Vitolla et al. (2019) there is a

negative coefficient and significant negative relation between the cost of equity and the IR score. Sharif et al. (2021) also concluded that there is a significant, negative relationship between IR and the implied cost of equity capital in the developed market.

Table 4: The summary of the hypotheses testing

Hypothesis	Supported or not supported
H_1: IR has a negative relationship with Cost of Debt	Supported
H_2: IR has a negative relationship with the Cost of Equity	Not Supported
H_3: IR has a negative relationship with the WACC	Not Supported

Source: Constructed by Authors

5. CONCLUSION

This study aims to identify the impact of adopting integrated reporting on the cost of capital of Sri Lankan listed companies in terms of COE, COD and WACC. Utilizing a quantitative research method and data from 30 listed companies in the Colombo Stock Exchange for the years 2018 to 2021, the study explores the relationship between IR and the Cost of Capital, specifically examining the COE, COD and WACC. Regression analysis further explores these relationships, with the results suggesting that the cost of debt has a statistically significant negative relationship with the IR Score. However, there is no any impact of IR on cost of equity and WACC. Comparing findings with prior research, this study aligns with previous studies showing a negative relationship between IR and the cost of debt. IR enables companies to reduce debt cost by making high-quality disclosure in pertinent areas of operation, strategy, risk, and how firms create value over time encouraging lenders to provide funds. This study inspires companies that have not produced IR to accelerate the reduction in the cost of debt. Consequently, this study can help practitioners to take policy decisions regarding IR adoption and regulators can promote IR implementing policies and providing guidelines. Future research should investigate knowledge on the cost of capital implications of IR adoption consider classifying the samples based on the quality of IR adoption and extent of the adoption (full adoption, partial adoption, and non-adoption).

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