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International Journal of Contemporary Business Research is published biannually by the Faculty of Business, NSBM Green University, Sri Lanka.

Objectives

International Journal of Contemporary Business Research (IJCBR) is published by the Faculty of Business, NSBM Green University. It is a journal that promotes critical and creative research in sub-disciplines related to business relationships. It expects to be the voice of scholars and practitioners by providing an international forum to disseminate their knowledge. Promoting excellence by providing a venue for researchers to publish current and significant empirical and conceptual research to enhance the academy of knowledge and wisdom is the core pillar of the perspective mandate of the IJCBR. In order to foster beneficial discussion between traditional and contemporary notions, this journal focuses on original and innovative research, along with novel analysis. The journal promotes original academic research in Management and other related disciplines.

Editorial Policies

The journal provides policies, which contain comprehensive details regarding the submission, editorial, and publishing processes as well as recommendations for authors and reviewers. To ensure a seamless and moral publishing process, all the parties are presented with their respective rights and obligations.

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Anyone identified as an author must have made a substantial intellectual contribution to the research and the writing of the article. They must be willing to take a shared responsibility in the research and the article and approve the final version to be published. Anyone who does not fulfill these criteria but has contributed to either the research or the writing of the article should be acknowledged and thanked in the “Acknowledgements” section at the end of the article.

Any changes to authorship either during the peer review process or after acceptance must be confirmed by all named authors and a reason for any addition/removal provided to the Editor-in-Chief.

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- The manuscript has been submitted only to this journal; it is not under consideration or peer review or accepted for publication or in the press or published elsewhere.
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Peer Review

Each submission is evaluated for acceptability when it is received by the editorial office, and if it falls beyond the journal's purview, is obviously of substandard quality, or is missing crucial portions, it may be rejected without review.

IJCBR has implemented a double-blind review method, with at least two subject-matter experts serving as reviewers for each proposal. The editorial board of the IJCBR takes on the responsibility of keeping a pool of qualified, up-to-date reviewers to satisfy the demands and overall standard of submissions received. During the review process, the editorial board will strictly maintain the anonymity of the authors and reviewers. Given that it can be challenging to obtain qualified reviewers on occasion and that reviewer reports sometimes take a while to arrive, it can take a long time to evaluate and decide.

The Editor-in-Chief reserves the right to reject an article when the choice between minor and major revision is made, and the writers fail to alter their works in a satisfactory manner after receiving reviewer reports. Depending on the level of revision required, articles that have been amended will either be sent out for additional review, or the Editor-in-Chief will make a decision.

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When you submit your paper to a journal, complete disclosure is essential. In order to make editorial judgments, the journal editor will first use this information as guidance. They may then publish such disclosures to assist readers in evaluating the article. Or, instead, the editor may decide not to publish your article based on any declared conflict. In the online peer- review system for the journal, you can disclose conflict of interest on your cover letter or the paper submission form. You should also include a relevant disclosure statement with the text of your article. You can accomplish this, together with any acknowledgements and information about funders.

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In the IJCBR, plagiarism policy applies for data, pictures, words, or ideas obtained from any materials in printed or electronic formats without proper acknowledgement. When the researcher uses such material, whether directly or indirectly, it must always be appropriately recognized. Author should always cite the sources.

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FROM THE EDITOR

Welcome to the International Journal of Contemporary Business Research (IJCBR), a premier multidisciplinary platform that bridges academia and practice to address the complexities of the global business landscape. Published bi-annually by the Faculty of Business, NSBM Green University, Sri Lanka, IJCBR serves as a beacon of scholarly excellence in International Business, Marketing, Human Resource Management, Finance, Economics, General Management, and beyond.

As organizations and societies grapple with the accelerating pace of technological change, globalization, and shifting socio-economic dynamics, IJCBR remains steadfast in its commitment to advancing rigorous, impactful, and actionable research. Our scope, global in outlook yet grounded in local relevance, is enhanced by the diverse expertise of our editorial board and the contributions of our growing community of scholars. By embracing empirical, theoretical, and applied research—using qualitative, quantitative, and mixed methodologies—the journal seeks to inform decision-making for academics, practitioners, and policymakers alike.

This edition showcases a collection of studies addressing timely and diverse issues across finance, management, marketing, sustainability, and organizational behaviour.

The first paper, “Cryptocurrency Returns, Investor Attention and Market Conditions,” explores how investor attention—measured by Google Search Volume Index (GSVI)—affects cryptocurrency returns across assets like Bitcoin, BNB, Dogecoin, Solana, and Tether. The study highlights that investor attention significantly amplifies returns during high-uncertainty periods and the COVID-19 pandemic, providing valuable insights for investors and policymakers seeking to understand market behaviour under stress.

“A Case Study on Brand Personality Aspects of Non-State Higher Education Institute with Specific Reference to Facebook Advertising” applies Aaker’s brand personality model to Facebook ad campaigns of Sri Lankan non-state higher education institutions. The findings reveal that these institutions largely adopt a feminine brand image, with an underutilization of “excitement” as a differentiating trait, offering practical implications for brand strategists and education marketers.

The growing importance of sustainability is captured in “A Stakeholder-Centric Approach to Strengthening Marine Sustainability and the Blue Economy,” which investigates Sri Lanka’s underwater tourism potential. The study identifies key areas—environmental conservation,

infrastructure development, and targeted marketing strategies—necessary to strengthen the country’s blue economy, providing actionable recommendations for policymakers and industry stakeholders.

In the study “Collaborative Organisational Culture and Knowledge Management in D-SIBs: Insights from the SECI Model’s Combination Phase,” researchers explore how collaborative culture shapes knowledge management practices within Domestic Systemically Important Banks. The findings highlight the role of hierarchical, process-oriented, and freedom-driven cultures—supported by leadership—in optimizing knowledge sharing and driving strategic agility.

The paper “Impact of Board Characteristics and Audit Quality on Financial Performance in Sri Lankan Listed Commercial Banks” analyses the influence of board composition, independence, and audit quality on bank performance. Results indicate that board independence positively impacts return on equity, while board size shows contrasting effects on ROE and ROA, underscoring the need for carefully balanced governance structures.

A focus on human capital is seen in “The Impact of Personal Traits, Quality of Working Life, and Psychological Well-Being on Job Burnout among Sri Lankan Big 4 External Auditors,” which demonstrates that personality traits, working conditions, and psychological health significantly affect burnout levels. These findings hold implications for audit firms seeking to retain talent and safeguard employee well-being.

The role of corporate responsibility is examined in “Impact of Corporate Social Responsibility on Customer Loyalty among Generation Z Consumers in the Mobile Telecommunication Service Provider Industry in Sri Lanka: Mediating Effect of Corporate Image.” This study finds that CSR initiatives significantly boost customer loyalty, with corporate image acting as a key mediator, offering telecom providers a pathway to strengthen brand relationships with Gen Z.

Addressing workplace well-being, “Effect of Job Stress on Employee Job Performance: A Case Study of a Selected Apparel Company in Sri Lanka” reveals that stress caused by work overload, environment, role ambiguity, and pay has a significant negative impact on performance. The study recommends job redesign, improved guidance, and reward systems to enhance productivity in the apparel sector.

Finally, “Socioeconomic Determinants of GCE A/L Subject Stream Selection in Sri Lanka: A Secondary Data Analysis” explores how parental income and education shape students’ subject stream choices. The results highlight significant disparities, with higher-income students opting

for Science and Commerce streams, while those from lower-income groups tend toward Arts and Technology, emphasizing the need for targeted educational policy interventions to level the playing field.

We extend our sincere gratitude to all contributing authors, reviewers, and editorial board members, whose dedication ensures the continued quality and integrity of IJCBR. Your collective efforts are crucial in advancing discourse on critical issues that shape the future of business, management, and society.

As you engage with this edition, we encourage you to reflect on the insights presented and explore how they may inform your teaching, research, and professional practice. Together, let us continue to inspire thought, foster collaboration, and contribute to the creation of a more inclusive, resilient, and innovative global business environment.

Prof. Lester Jhonson

Editor-in-Chief

International Journal of Contemporary Business Research

Cryptocurrency Returns, Investor Attention and Market Conditions

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Abstract

The purpose of this research is to explore how investor attention, measured by GSVI, influences cryptocurrency market behavior under varying conditions. For this the study examines the impact of Google Search Volume Index (GSVI) on cryptocurrency returns, considering market uncertainty, news sentiment, and the COVID-19 pandemic. A regression analysis was conducted using datasets covering BNB, Bitcoin, Dogecoin, Solana, and Tether from 2015 to 2022. Stata was used to estimate the relationships between cryptocurrency returns and key variables, ensuring accurate and reliable results to quantify the relationships. Our findings indicate that abnormal increases in GSVI positively affect cryptocurrency returns, particularly during high uncertainty periods and when news sentiment is favorable. Moreover, the effect of investor attention on returns was significantly amplified during the COVID-19 pandemic, suggesting that global crises has heightened the role of behavioral factors in cryptocurrency markets. This research contributes to the literature by integrating investor attention with uncertainty and sentiment measures, offering a comprehensive view of cryptocurrency price dynamics. Unlike previous studies that examine these factors in isolation, our study highlights their combined effect, providing valuable insights for investors, policymakers, and analysts in understanding market trends and decision-making strategies.

Keywords: *Google SVI, Covid-19 pandemic, investor attention , Cryptocurrency returns, news sentiment , market uncertainty.*

1. Introduction

The cryptocurrency market is a dynamic ecosystem of digital currencies and derivative assets driven by blockchain technology that function independently of a centralized authority like banks or governments (Da et al., 2011). This decentralization guarantees that the system is not governed by a single body. Rather, cryptocurrencies use a dispersed user base to validate and log transactions on a blockchain, which is a public digital ledger. Similar to stocks or precious metals, cryptocurrencies are frequently seen as speculative investment assets. The market is highly unpredictable, characterized by significant price fluctuations influenced by global factors, shifts in regulation, and the mood of the economy. Given the high volatility resulting in large gains, cryptocurrencies have gained attention from investors, companies, and governments resulting in fast growth of the asset class.

However, because of the influence of numerous factors, forecasting cryptocurrency returns is still difficult (Almeida et al., 2022). Prior studies (Da et al., 2011) have looked at the correlation between cryptocurrency returns and factors like investor attitude, market uncertainty, and world events. For instance, research suggests that Bitcoin returns may be adversely affected by the constant changes in economic policy. Additionally, studies show that the Fear and greed index, which gauges market sentiment, might have an impact on bitcoin values. Cryptocurrency markets have been further influenced by the COVID-19 outbreak, which has changed investment behavior and increased volatility.

As cryptocurrencies continue to evolve, several emerging trends are shaping their future. Regenerative Finance (Refi) and green crypto projects are gaining momentum, focusing on sustainability by integrating blockchain with ecological restoration efforts (Schletz et al., 2023). The rise of decentralized identity (DID) solutions is transforming online security by giving individuals control over their personal data, while decentralized AI (deAI) is revolutionizing machine learning by enhancing transparency and privacy in data usage (Kang & Lemieux, 2021). Additionally, central bank digital currencies (CBDCs) are expected to modernize global financial systems, offering financial inclusion and efficiency in digital transactions. Advances in blockchain-based dispute resolution are also improving governance in decentralized ecosystems, ensuring greater security and transparency (Gabuthy, 2023). These trends highlight how cryptocurrencies are moving beyond speculative trading and becoming key drivers of financial innovation and economic transformation.

1.1. Problem Statement

Cryptocurrency markets remain less developed compared to other financial markets which are driven by individual investors who are more prone to behavioral biases. Attention theory states that investors have limited attention spans, and assign attention based on various factors (Da et al., 2011). The study also states that investors are likely to change their behavior during periods of high uncertainty and changing market sentiments. The impact of the changes in investor behavior on cryptocurrency returns

remains an unexplored issue. Focusing on this, our research problem spans over understanding the impact GSVI and cryptocurrency returns, using the UCRY to determine how market uncertainty affects crypto returns. Additionally, we examine how the pre & post covid periods affect crypto returns through abnormal searches. Previous research has stated that investor attention, measure in terms of search volume index (SVI) has positive impacts on the value of cryptocurrency, and when more attention is directed toward a particular cryptocurrency, its price tends to increase (Da et al., 2018).

Moreover, the interaction of investors in Bitcoin with the market prior to and during the Covid 19 period. Furthermore, the study mainly examines how investor fear in the cryptocurrency market interacted with Bitcoin prices before and during the ongoing COVID-19 pandemic. (Sah & Patra, 2023). In parallel, we aim to explore the role of uncertainty in shaping cryptocurrency returns through the Cryptocurrency Uncertainty Index (UCRY). UCRY leverages data-driven methodologies to quantify the level of uncertainty in the cryptocurrency market, taking into account factors such as news coverage, regulatory developments, and technological advancements. By incorporating the UCRY into our analysis, we aim to uncover how fluctuations in uncertainty impact cryptocurrency returns, shedding light on the underlying drivers of market volatility and investor decision-making.

1.2. Research Hypotheses

This research ascertains the coefficient correlation between market uncertainty, market sentiment, covid-19 pandemic with cryptocurrency returns through the google search volume index (GSVI) from 2015 to 2022 using regression analysis and statistical modeling techniques using Stata. Accordingly. For this, the following hypotheses were set,

H1: There is a significant association between the weekly cryptocurrency returns and the abnormal google search.

H2: The strength of association between weekly cryptocurrency returns and the abnormal searches is moderated by the degree of uncertainty.

H3: The strength of association between the weekly cryptocurrency returns and the abnormal google searches is moderated by the market sentiment.

H4: The strength of the association between the weekly cryptocurrency returns and the previous week's abnormal google search is moderated with Covid 19 impact

1.3. Scope of the study

The study investigates the relationship between market uncertainty, market sentiment, Google SVI, and the impact of COVID-19 on cryptocurrency returns. It analyzes whether changes in Google SVI can predict cryptocurrency price fluctuations and examines how market uncertainty, measured by the Uncertainty Index (UCRY), affects cryptocurrency returns. Additionally, the research explores the influence of market sentiment, indicated by the Fear and greed index, on cryptocurrency market

behavior and prices. The study also examines the effects of the COVID-19 pandemic and regulatory responses on cryptocurrency performance and volatility, by analyzing data from 2015 to 2022.

1.4. Significance of the study

Investor behavior and predictability of cryptocurrency returns

The cryptocurrency markets are still underdeveloped and are driven by individual investors/traders. Individual investors are prone to behavioral biases, especially during market uncertainty, and market moods. Therefore, the factors that predict cryptocurrency returns remain unexplored. The results of this study will explain whether the cryptocurrency returns can be predicted using Google searches, during uncertain periods, and when the market mood changes. Investor communities will find these results useful when forming profitable trading strategies. The findings will be valuable for investor communities in developing profitable trading strategies based on investor attention and sentiment indicators.

Regulatory implications and market stability

Regulators are closely watching cryptocurrency markets, due to their decentralized nature. The results of this study will show regulators whether the abnormal patterns in future cryptocurrency prices are predictable based on market conditions or investor behaviors/patterns. These behavioral insights will be beneficial when developing suitable regulations. The study contributes to potential investors by revealing how market fluctuations and uncertainty affects cryptocurrency returns.

Market uncertainty, sentiment, and post-COVID-19 impacts

For this study, the fear and greed index is used to measure market sentiment. Many of the investors in Binance may be spot traders and future traders and stakeholders investing in proof of stake consequences mechanisms, and miners. Our research is more beneficial for future traders among them. So small changes of the market can make a big impact on their capital.

As market uncertainty influences investor behavior traders should monitor uncertainty indicators and adjust their positions accordingly. Understanding sentiment and navigating uncertainty are essential skills. Cryptocurrencies may serve as safe havens during uncertain times and the pandemic reshaped financial landscapes, including cryptocurrencies.

Further, traders should analyze how pandemic-related factors impact returns. Factors such as behavioral shifts, government stimulus packages, and remote work trends all play a role in financial markets. Being adaptable and informed about post-COVID dynamics is vital for traders.

Practical and Theoretical Importance of Study

This research provides actionable insights for investors, analysts, and policymakers navigating the dynamic financial landscape of cryptocurrencies. By understanding the impact of sentiment and

uncertainty on cryptocurrency returns and the size of market fluctuations, the study equips stakeholders with the knowledge and tools necessary to make informed investment decisions, manage risk effectively, and capitalize on opportunities in the cryptocurrency market. Furthermore, this research contributes to advancing the academic understanding of cryptocurrency market dynamics and informs practical strategies for navigating this rapidly evolving asset class.

2. Literature Review

2.1. Investor attention

Da et al. (2011) explains investor attention as the level of interest and focus that investors have on a particular stock or opportunity. Attention can be influenced by various factors such as news articles, advertising, and the frequency of searches for information about stock on platforms like Google. Understanding investor attention is important because it can impact on the prices of stocks and the behavior of investors in the stock market. For example, higher levels of attention from investors might lead to increased buying or selling of a stock, which can affect its price.

Da et al. (2011) further states that market attention is a powerful mechanism that defines how people, and particularly investors, analyze and respond to information instances. Since investors have short-term memory horizons, investors often tend to focus on the noteworthy and outstanding aspects rather than the reliability of information. Collective attention can result in occurrences such as under reaction and post announcement price drifts. Indicators such as the GSVI capture the attention given to retail investors and associate it with price actions on stocks and have a negative bias on the investors, which means that investors give a stronger response to negative information that leads to fluctuations in the market price.

Investor attention, especially among individual investors can significantly influence market behavior, often leading to irrational decisions and market anomalies. Specifically, it highlights that by understanding how investors allocate their attention, it becomes possible to predict certain market phenomena, such as the post-revision drift (a delayed price reaction after analysts revises their recommendations). This reflects how investors' actions, reactions, and the flow of information in the market are deeply interconnected, demonstrating the complexity and uniqueness of investor behavior in financial markets.

2.2. Google searches and direct investment attention

Google search volume index (GSVI), which is highly related to our study, is a measurement of the popularity of a term, which is computed using a sample of searches. SVI captures investor attention on a timelier basis. Da et al. (2011) proposes a direct measure of investor demand for attention - active

attention - using search frequency in GSVI. They have established a strong and direct link between SVI changes and trading by less sophisticated individual investors. Increased retail attention as measured by SVI during the Initial Public offering (IPO) contributes to the large first-day return and long-run underperformance of IPO stocks. They have found strong evidence that increases in SVI temporarily push up stock prices, especially in the context of an IPO. Further, it was examined that stronger price momentum among stocks with high SVI, supporting the “momentum effect

Furthermore, (Cai et al.,2018) studied the effects of Google search on the return and risk of 268 cryptocurrencies over 181 trading days. Results indicate that the SVI of a given cryptocurrency exerts a significant and positive impact on its price and turnover. Additionally, (Li et al., 2014) employs machine learning techniques to predict cryptocurrency returns, where neural networks outperform random forest algorithms when predicting returns. Accordingly, the study emphasized enhanced predictability of machine learning models compared to traditional stock markets. Portfolios based on neural networks achieve the highest cumulative returns, providing valuable insights for investors, traders, and financial analysts navigating the complex cryptocurrency market.

2.3. Factors affecting Cryptocurrency Returns

2.3.1.Common risk factors

There could be a number of risk factors impacting cryptocurrency returns. Among them (Li et al., 2014) examined the common risk factors and their relationship with cryptocurrency returns. The study presents a three-factor model that captures the cross-section of expected cryptocurrency returns, including the cryptocurrency market, size, and momentum factors. The study analyzes various price and market-related factors in the cryptocurrency market and constructs their cryptocurrency counterparts. It also identifies successful long-short strategies that generate significant excess returns and shows that these strategies are accounted for by the cryptocurrency three-factor model.

2.3.2.Other risks factors

Kufo et al. (2024) have identified additional risks factors, namely, trading volume, information demand, stock returns, and exchange rates on the volatility of returns for decentralized and unbacked cryptocurrencies from 2016 to 2022 by employing the Generalized Auto Regressive Conditional Heteroskedasticity (GARCH) model.

The findings of this paper help investors in the decision-making process related to the behavior of cryptocurrency return volatility and portfolio optimization in the new and highly unpredictable crypto market. The cryptocurrency policy uncertainty (UCRY Policy) and cryptocurrency price uncertainty (UCRY Price) are captured by the newly developed Cryptocurrency Uncertainty Index (UCRY). The index is intended to demonstrate the impact of market and regulatory uncertainties on cryptocurrency markets. Further Colak et al. (2023) examines the relationship between financial uncertainty and

cryptocurrency returns. By analyzing the impact of financial uncertainty on the cross-section of cryptocurrency returns, the study uncovers a systematically priced risk factor in the cryptocurrency market. This finding provides valuable insights for market participants looking to understand the dynamics of cryptocurrency returns and how they can be influenced by financial uncertainty.

2.3.3. Investor fear in the cryptocurrency market

Nikhil et al. (2023) examines the relationship between investor fear in the cryptocurrency market and Bitcoin prices by considering the potential effects of the COVID-19 pandemic during the period of May 5, 2018, and December 10, 2020. Their results show that both negative and positive interactions between fear sentiment and Bitcoin prices occur during several subperiods. The nature of these interactions changes significantly before and during the pandemic.

2.3.4. Investor attention and cryptocurrency return

Prior literature has examined the relationship between investor attention and cryptocurrency returns and findings show investors underreact after recommendation upgrades. The cumulative abnormal returns are positive and significant even after 10 days following the revision. However, price reactions are faster for downgrades. Furthermore, the relationship between uncertainty levels and cryptocurrency returns also has been established and the impact of sentiment on cryptocurrency returns has been examined. The majority of the studies utilize pre-COVID sample periods.

The mediating impact of uncertainty and sentiment on the relationship between investor attention and cryptocurrency returns has been unexplored by prior literature. Our study aims to bridge this by investigating the impact of sentiment and uncertainty on cryptocurrency returns, utilizing innovative approaches such as the fear and greed index and the UCRY. The fear and greed index captures the general attitude of investors toward cryptocurrency assets and offers a thorough picture of market sentiment. This study attempts to comprehend how shifts in investor emotion, from extreme fear to extreme greed, impact market dynamics and investor behavior by examining the fear and greed index in conjunction with bitcoin returns.

Through the bitcoin UCRY, the influence of uncertainty on bitcoin returns will be studied. In order to measure the degree of uncertainty in the cryptocurrency market, UCRY uses data-driven approaches that take into consideration news reports, legislative changes, and technological advancements. Through this, the study attempts to clarify how changes in uncertainty impact cryptocurrency returns, market volatility, and the fundamental factors influencing investor decision-making by including UCRY in our analysis.

3. Data and Methodology

3.1. Selection of variables

This study follows a systematic approach to examining the relationship between cryptocurrency returns, investor attention, and market conditions. The selection of variables was guided by previous research. Investor attention is measured using the GSVI, which has been widely used to study its impact on asset prices (Da et al., 2011). Market uncertainty is represented by the UCRY developed by Lucey et al. (2022), which captures fluctuations in crypto-market stability. News sentiment is included as an explanatory variable, given its significant influence on financial markets (Tetlock, 2007). Additionally, the impact of COVID-19 is accounted for using a dummy variable, as prior research has shown the pandemic's substantial effect on financial markets (Sah & Patra, 2023). Control variables such as market capitalization (SIZE), momentum (CMOM), and excess market return (CMKT) are included, following the three-factor model proposed by Liu et al. (2021).

3.1.1. Data sources

Cryptocurrency transaction data for this study is extracted from the coin market cap website (<https://www.investing.com/crypto/bitcoin/historical-data>).

Furthermore, GSVI related data will be collected from the google trend site (<https://trends.google.com/trends/>). The uncertainty index developed by (Lucey et al., 2022) will be incorporated by the study to collect data regarding markets. (<https://brianmlucey.wordpress.com/2021/03/16/cryptocurrency-uncertainty-index-dataset/>).

Data on market sentiment, which is the general outlook or attitude of investors toward a particular security or the overall financial market. will be collected from the website named Daily News Sentiment Index (<https://www.frbsf.org/research-and-insights/data-and-indicators/daily-news-sentiment-index/>).

The World Health Organization officially declared COVID-19 as a pandemic on March 11, 2020, and ended its status as a public health emergency of international concern on June 12, 2023. We use data from both the post COVID-19 period and the pre-COVID-19 period to measure how weekly cryptocurrency returns relate to the previous week's abnormal Google searches, considering the impact of COVID-19

3.1.2. Data cleaning and preparation procedure

After the data was collected, the log return was calculated by using Stata. Then, R software was used to process them to weekly data. Stata was used to take abnormal Google search values related to the topic. Log uncertainty and log sentiment values were also calculated using same method. Finally, we run the regression model in Stata to obtain the final results for our analysis.

3.2. Variable definition

We analyze the impact of various factors such as abnormal Google search activity, market uncertainty, investor sentiment, and the effects of the COVID-19 pandemic on cryptocurrency returns. Additionally, we control general market conditions, size metrics, and momentum to provide a comprehensive understanding of cryptocurrency behavior during different periods and events. Table 4 under in appendices summarizes the variable definitions that will be used in this study.

3.2.1. Investor attention Variables

Google search volume data involves selecting relevant keywords, extracting search volumes from Google Trends, and creating a composite index. Abnormal search volume is then calculated by comparing actual search volumes to historical baselines and standardizing the results (Da et al., 2011).

3.2.2. Cryptocurrency market variables

In analyzing the cryptocurrency market, key variables such as market size, momentum, trading volume, and volatility are essential, as highlighted by (Li et al., 2014) who demonstrated their significance in explaining cryptocurrency returns. An analysis of the cryptocurrency market has shown that the size and momentum factor that conventional asset pricing model has indicated could be used in anticipation of returns. This paper observes that smaller cryptocurrencies measured by their market capitalizations—provides greater excess returns to the smaller firms when compared to larger cryptocurrencies like bitcoins. Further, Investing in cryptocurrencies with strong recent performance while selling underperformers a strategy known as relative strength often yields notable short-term gains.

3.3. Empirical Model

Based on previous literature, the following models were formed to test the hypotheses.

Model 1

Model 1 was formed to test the relationship between cryptocurrency returns and the variables, namely, abnormal GSVI index , UCRY index, impact of Covid -19, cryptocurrency market , size and momentum.

$$R_{i,t} = \alpha_i + \beta_1 ABGSVI_i + \beta_2 \log(UCRY)_{i,t} + \beta_3 \log(SENT)_{i,t} + \beta_4 COVR_t + \beta_5 Size_t + \beta_6 CMOM_t + \beta_7 CMKT_t + \epsilon$$

Beta $\beta \neq 0$

The following models were formed using interaction variables to test the relationship between the cryptocurrency returns with each variable.

Model 2

$$R_{i,t} = \alpha_i + \beta_1 ABGSVI_i + \beta_2 \log(URCY)_{i,t} + \beta_3 \log(SENT)_{i,t} + \beta_4 COVR_t + \beta_5 Size_t + \beta_6 CMOM_t + \beta_7 CMKT_t + \beta_8 (ABGSVI \times \log(URCY))_{i,t} + \epsilon$$

Model 3

$$R_{i,t} = \alpha_i + \beta_1 ABGSVI_i + \beta_2 \log(URCY)_{i,t} + \beta_3 \log(SENT)_{i,t} + \beta_4 COVR_t + \beta_5 Size_t + \beta_6 CMOM_t + \beta_7 CMKT_t + \beta_8 (ABGSVI \times \log(SENT))_{i,t} + \epsilon$$

Model 4

$$R_{i,t} = \alpha_i + \beta_1 ABGSVI_i + \beta_2 \log(URCY)_{i,t} + \beta_3 \log(SENT)_{i,t} + \beta_4 COVR_t + \beta_5 Size_t + \beta_6 CMOM_t + \beta_7 CMKT_t + \beta_8 (ABGSVI \times COVR)_{i,t} + \epsilon$$

4. Results and Discussions

4.1. Summary Table

Table 1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
log return	697	-.001	.424	-10.485	1.191
Abnormal GSVI	697	.059	.474	-2.267	2.398
CMKT	697	.02	.123	-.353	.377
SIZE	697	.031	.136	-.232	1.319
CMOM	697	.011	.111	-.429	.708
New sentiment	697	-.214	1.435	-4.599	2.315
log avg uncertainty	697	0	.007	-.015	.039

4.1.1. Analysis and Interpretation of Results

The data analysis is carried out in three stages, namely, a quantitative analysis of the variables based on their descriptive statistics, an exploration of the correlation matrix to assess relationships between the variables, a comprehensive presentation of the results, with a focus on the dependent and independent variables, encapsulated in the final results table.

4.2. Descriptive Statistics

4.2.1. Log return

Log return, or continuously compounded return, is calculated as the natural logarithm of the ratio of consecutive asset prices. This measure is additive over time, facilitating the analysis of returns across multiple periods. As indicated in Table 2, the mean log return of -0.001 suggests a negligible average decline in asset value over the observed period. However, the substantial standard deviation of 0.424 indicates significant volatility.

Normal distribution for log returns is shown in Figure 1. The minimum value of -10.485 reflects a severe drop in asset prices at least once, while the maximum value of 1.191 denotes the highest observed gain. These statistics highlight the asset's exposure to extreme fluctuations, which is crucial for risk assessment and portfolio management.

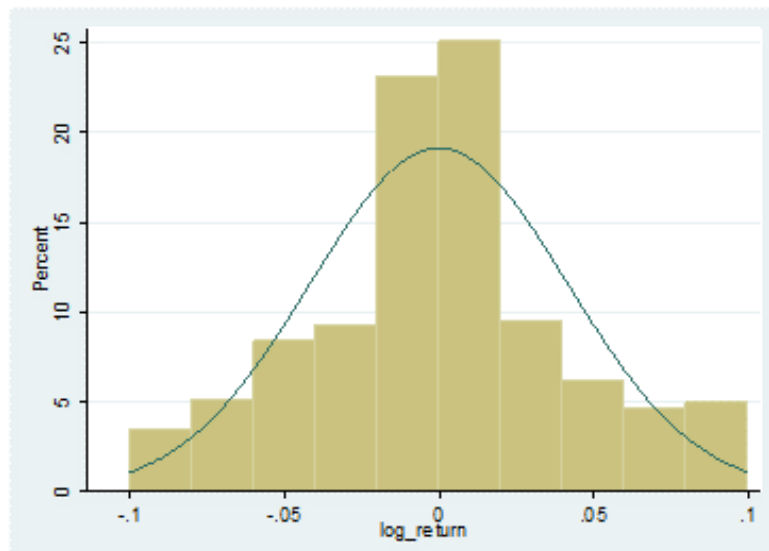


Figure 1 Distribution for log return

4.2.2. Abnormal GSVI

Abnormal GSVI measures deviations in the SVI from expected levels, indicating unusual public interest in a particular asset or topic. Table 1 indicates a positive mean of 0.059 and suggests a slight overall increase in search activity, implying heightened investor attention.

Normal distribution for Abnormal GSVI shown Figure 2. The standard deviation of 0.474 reflects variability in search interest, with values ranging from -2.267 to 2.398. This range indicates periods of

both lower and higher-than-expected search volumes, which can be associated with market events or news affecting investor sentiment.

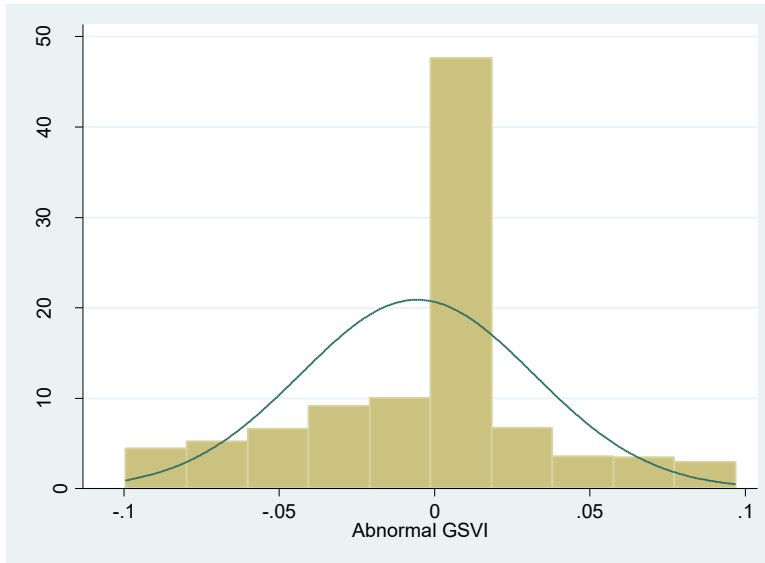


Figure 2 Distribution of Abnormal GSVI

4.2.3. Excess market return (CMKT)

CMKT represents the excess return of the market over a risk-free rate, serving as a benchmark for evaluating asset performance. The positive means of 0.020 in Table 1 indicates that, on average, the market outperformed the risk-free rate during the period. The standard deviation of 0.123 signifies moderate variability in excess returns, with a minimum of -0.353 and a maximum of 0.377. These figures reflect the market's performance in comparison to a risk-free benchmark, essential for assessing the attractiveness of investments.

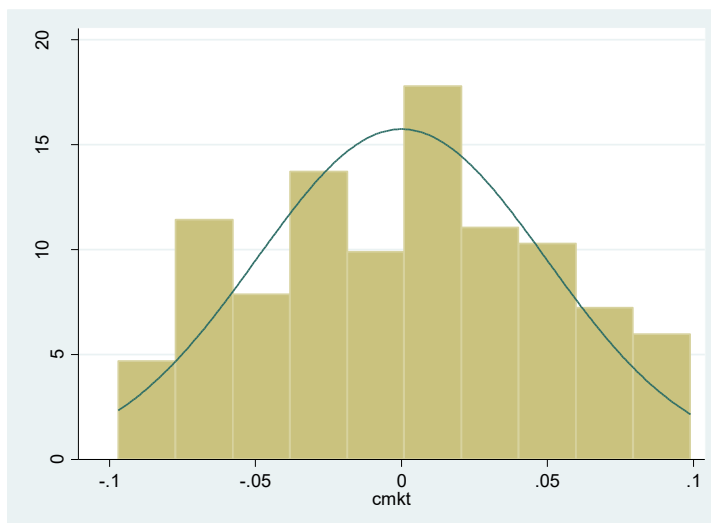


Figure 3 Distribution of Excess market return

4.2.4. Market capitalization (SIZE)

In financial analysis, 'SIZE' often refers to the natural logarithm of a firm's market capitalization, representing the company's scale. In Table 1, the mean value of 0.031 suggests a slight growth in firm size. The standard deviation of 0.136 indicates some dispersion in firm sizes, with values ranging from -0.232 to 1.319. Normal distribution Market capitalization shows in figure 4.

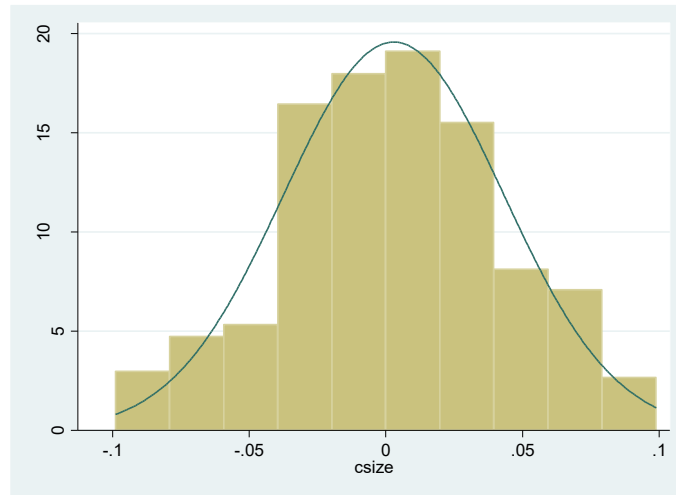


Figure 4 Distribution Market capitalization

4.2.5. Cumulative momentum (CMOM)

Momentum measures the rate of acceleration of a security's price or volume, indicating the tendency of assets to continue in their current price trend. The positive mean of 0.011 in Table 1 suggests a slight upward momentum on average. The standard deviation of 0.111 reflects variability in momentum, with a minimum of -0.429 and a maximum of 0.708. These statistics show the extent of upward and downward trends during the period, which are critical for momentum-based trading strategies. Distribution cumulative momentum shows in figure 5.

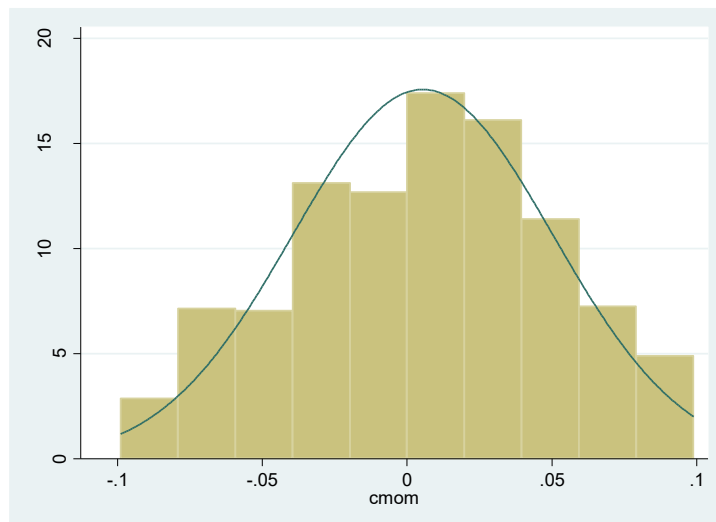


Figure 5 Distribution of cumulative momentum

4.2.6. News sentiment

News sentiment quantifies the tone of news articles related to an asset, with negative values indicating unfavorable sentiment and positive values indicating favorable sentiment. The negative mean of -0.214 as shown in Table 1 suggests that the overall news sentiment was slightly unfavorable during the observed period. The high standard deviation of 1.435 indicates significant variability in sentiment, with values ranging from -4.599 to 2.315. This wide range reflects diverse media perspectives, which can influence investor behavior and

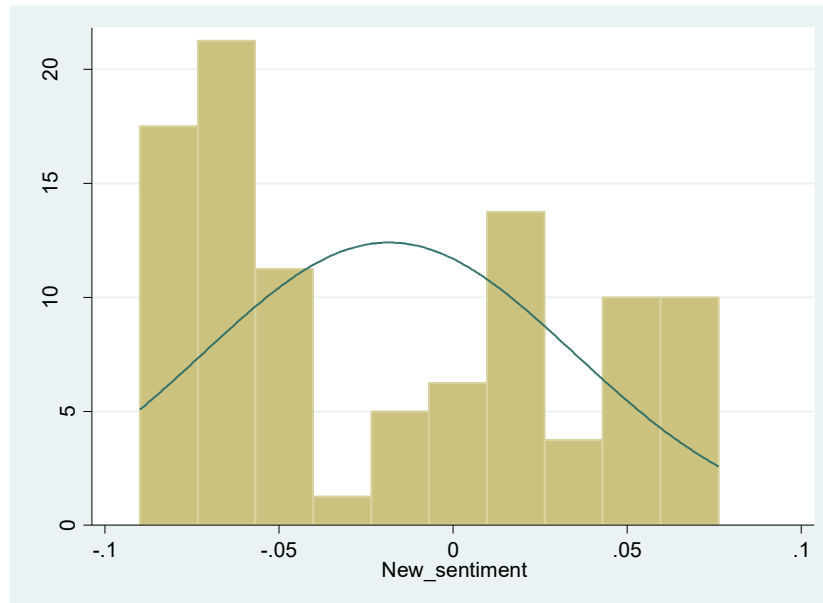


Figure 6 Distribution of News sentiment

4.2.7. Log average uncertainty

Log average uncertainty represents the logarithm of the average uncertainty in the market or specific asset, potentially derived from economic indicators or market volatility measures. Table 1 shows a mean value of 0.000 suggesting a neutral average uncertainty level. The low standard deviation of 0.007 indicates minimal variability in uncertainty, with a narrow range between -0.015 and 0.039. This implies relatively stable market conditions concerning uncertainty during the period, which is vital for risk assessment and strategic planning.

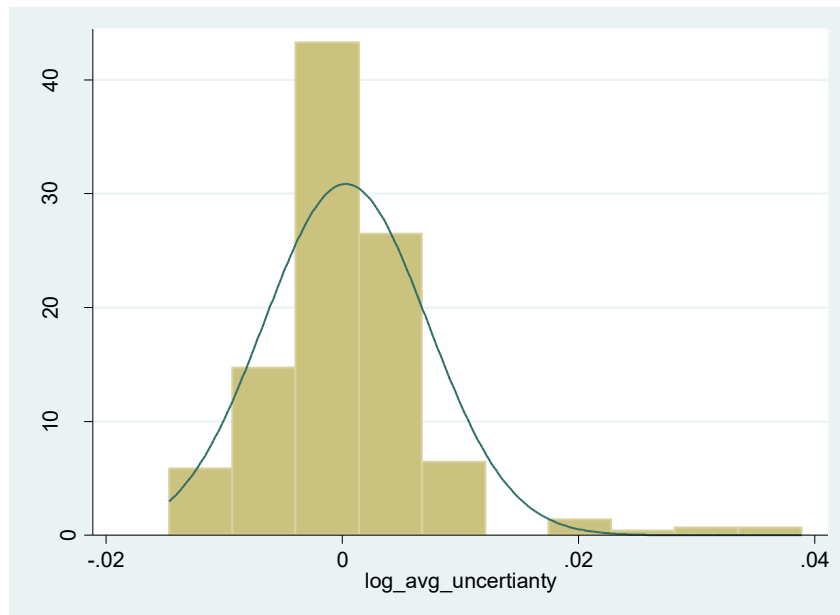


Figure 7 Distribution of Log average uncertainty

4.3. Pairwise correlations

Table 2 Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) log return	1.000						
(2) Abnormal GSVI	0.055 (0.064)	1.000					
(3) CMKT	0.101 (0.001)	0.078 (0.009)	1.000				
(4) SIZE	0.028 (0.347)	0.022 (0.466)	0.124 (0.000)	1.000			
(5) CMOM	0.042 (0.162)	0.053 (0.076)	-0.002 (0.944)	0.125 (0.000)	1.000		
(6) New sentiment	0.054 (0.068)	-0.029 (0.328)	0.014 (0.645)	0.143 (0.000)	0.034 (0.254)	1.000	
(7) log avg uncertainty	-0.008 (0.835)	0.039 (0.295)	0.115 (0.002)	-0.080 (0.033)	0.015 (0.681)	0.000 (0.996)	1.000

4.4. Correlation Matrix Analysis

The correlation matrix offers a detailed overview of the relationships between the key variables in this study, providing valuable insights into their associations and potential interactions.

Log returns exhibit a weak positive correlation with abnormal GSVI (**0.055**, $p = 0.064$), suggesting that investor attention has a limited impact on cryptocurrency returns. They also show a significant positive correlation with cumulative market returns (**CMKT**, 0.101, $p = 0.001$), indicating that broader market trends moderately influence individual asset performance. However, correlations with other variables, such as market size (**CSIZE**, 0.028), momentum (**CMOM**, 0.042), news sentiment (**0.054**), and uncertainty (**Log Avg uncertainty**, -0.008), are weak and statistically insignificant, implying minimal direct effects on returns.

Abnormal GSVI demonstrates a weak positive correlation with cumulative market returns (**0.078**, $p = 0.009$), indicating that heightened investor attention aligns with broader market activity during active trading periods. The weak correlations with momentum (**0.053**, $p = 0.076$) and uncertainty (**0.039**, $p = 0.295$) reflect marginal associations. The near-zero and negative correlation with news sentiment (**-0.029**, $p = 0.328$) implies that news sentiment does not strongly influence search behavior, although isolated events may deviate from this trend.

Cumulative market returns show a moderate and significant positive correlation with market size (**Csize**, 0.124, $p < 0.001$), highlighting the role of large-cap cryptocurrencies in driving market-wide movements. However, market returns exhibit no meaningful association with momentum (**-0.002**, $p = 0.944$) or news sentiment (**0.014**, $p = 0.645$), indicating that these factors may not significantly impact aggregate returns in the cryptocurrency space. A significant positive correlation between cumulative market returns and uncertainty (**0.115**, $p = 0.002$) suggests some level of interdependence between regulated and unregulated markets.

The relationship between news sentiment and market size (**0.143**, $p < 0.001$) underscores a tendency for larger cryptocurrencies to receive more favorable media coverage. However, correlations between news sentiment and momentum (**0.034**, $p = 0.254$) remain weak, further reinforcing the limited influence of sentiment on short-term market dynamics. The uncertainty index exhibits a significant positive correlation with cumulative market returns (**0.115**, $p = 0.002$), indicating that periods of heightened market uncertainty tend to align with aggregate market movements, possibly reflecting investor behavior during volatile conditions. However, its weak positive correlation with abnormal GSVI (**0.039**, $p = 0.295$) and near-zero relationship with log returns (**-0.008**, $p = 0.835$) suggest a limited direct influence on individual cryptocurrency performance or investor attention. Additionally, the index shows no significant correlation with news sentiment (**0.000**, $p = 0.996$) and a weak negative association with market size (**-0.080**, $p = 0.033$), implying that uncertainty is not strongly tied to sentiment-driven factors or larger-cap assets.

The correlation matrix highlights that the cryptocurrency market is influenced by greater market trends and investor attention. Strong associations between cumulative market returns, abnormal GSVI, and log returns reinforce these dynamics. However, the weak correlations with news sentiments suggest that media coverage may not drive the market directly, although its impact cannot be disregarded either. Furthermore, limited momentum across variables reflects the volatile and unpredictable nature of the cryptocurrency market.

These findings suggest that further analysis is required to uncover nonlinear relationships or lagged effects in understanding the dynamics of cryptocurrency markets. Thus, this provides a strong platform for further research in this area, focusing on the interplay between market trends, investor behavior, and external influences.

Table 3 Average return across Google Search Volume groups

Weekly Google Search Tercile	Full Sample (%)	BNB (%)	Bitcoin (%)	Dogecoin (%)	Solana (%)	Tether (%)
1 (Lowest)	-1.56** (-2.45)	-0.42 (-0.26)	-0.35 (-0.01)	-5.23*** (-2.99)	-1.60*** (-6.10)	-0.00 (-1.40)
2	0.60 (1.14)	-1.53 (-0.88)	1.85 (0.06)	2.75 (0.92)	2.40 (0.72)	-0.00 (-0.14)
3 (Highest)	4.71*** (7.09)	6.82*** (3.60)	3.65*** (4.27)	11.77*** (3.65)	7.83*** (2.87)	0.00 (0.62)
Highest Lowest	- 6.27*** (6.93)	7.24*** (2.99)	3.99*** (3.36)	17.01*** (5.23)	9.42*** (2.70)	0.00 (1.05)

Table 3 presents average weekly returns for various cryptocurrencies—Binance Coin (BNB), Bitcoin (BTC), Dogecoin (DOGE), Solana (SOL), and Tether (USDT), categorized into three groups (terciles) based on daily Google search volumes, serving as a proxy for investor attention. The returns are reported for the full sample and individually for each cryptocurrency, with t-statistics indicating statistical significance provided in parentheses. The analysis reveals a positive correlation between Google search volumes and cryptocurrency returns. For the full sample, the lowest tercile (indicating the least search interest) has an average return of -1.56%, with a t-statistic of -2.45, signifying statistical significance at the 5% level. The middle tercile shows an average return of 0.60% (t-statistic: 1.14), which is not statistically significant. In contrast, the highest tercile exhibits an average return of 4.71%

(t-statistic: 7.09), significant at the 1% level. The difference between the highest and lowest terciles is 6.27% (t-statistic: 6.93), underscoring a strong association between increased search interest and higher returns.

Examining individual cryptocurrencies, a similar trend emerges. For instance, BNB's highest tercile shows an average return of 6.82% (t-statistic: 3.60), while the lowest tercile has -0.42% (t-statistic: -0.26). Bitcoin's highest tercile records a 3.65% return (t-statistic: 4.27), compared to -0.35% (t-statistic: -0.01) in the lowest. Dogecoin demonstrates a pronounced disparity, with the highest tercile at 11.77% (t-statistic: 3.65) and the lowest at -5.23% (t-statistic: -2.99). Solana follows this pattern, with the highest tercile at 7.83% (t-statistic: 2.87) and the lowest at -1.60% (t-statistic: -6.10). Tether, designed as a stablecoin, shows negligible returns across all terciles, aligning with its purpose of maintaining price stability.

4.5. Regression analysis

Table 4 Abnormal Search Volume and Returns

	(1)	(2)	(3)	(4)
	Ret	Ret	Ret	Ret
<i>Abnormal Search</i>	0.0430*** (4.67)	0.0165** (2.37)	0.0194*** (2.69)	0.0222*** (3.23)
<i>News Sentiment</i>		0.00889 (1.63)	0.00796 (1.51)	0.00318 (-0.49)
<i>Log(Uncertainty)</i>		0.877 (0.86)	0.898 (0.87)	0.599 (0.62)
<i>Momentum</i>		0.0600 (0.97)	0.0535 (0.86)	0.0612* (1.80)
<i>Market</i>		0.232*** (3.78)	0.231*** (3.74)	0.191*** (3.20)

<i>Size</i>		-0.0509 (-0.95)	-0.0478 (-0.91)	0.0653* (-1.95)
<i>Covid 19 Dummy</i>		0.0507** (2.12)	0.0503** (2.30)	0.00401 (-0.17)
<i>_cons</i>	0.0110** (2.19)	-0.000175 (-0.03)	0.000913 (0.05)	-0.0119 (-0.56)
<i>N</i>	695	695	695	695
<i>Adj. R²</i>	0.020	0.093	0.094	0.166
<i>Coin Fixed Effects</i>	No	No	Yes	Yes
<i>Year Fixed Effects</i>	No	No	No	Yes

The regression analysis investigates the determinants of cryptocurrency returns across four models, each incorporating various independent variables and fixed effects to control for unobserved heterogeneity. In Model (1), Abnormal Search - representing deviations in search volume - exhibits a positive and statistically significant coefficient of 0.0430 (t-statistic: 4.67), indicating that heightened abnormal search activity correlates with increased returns. The intercept is also significant, suggesting a baseline return when all predictors are zero. However, the adjusted R² is 0.020, implying that only 2% of the variance in returns is explained by this model.

Model (2) introduces additional covariates: News Sentiment, Log (Uncertainty), Momentum, Market, Size, and a COVID-19 Dummy. Here, abnormal search remains significant with a reduced coefficient of 0.0165 (t-statistic: 2.37). The market variable shows a robust positive association with returns (coefficient: 0.232, t-statistic: 3.78), while the COVID-19 dummy indicates elevated returns during the pandemic period (coefficient: 0.0507, t-statistic: 2.12).

Other variables do not exhibit statistical significance. The adjusted R² improves to 0.093, suggesting enhanced explanatory power.

In Model (3), coin fixed effects are incorporated to account for unobserved heterogeneity across different cryptocurrencies. Abnormal Search remains significant (coefficient: 0.0194, t-statistic: 2.69), as does the Market variable (coefficient: 0.231, t-statistic: 3.74). The COVID-19 Dummy also retains significance (coefficient: 0.0503, t-statistic: 2.30). The adjusted R² is 0.094, comparable to Model (2).

Model (4) incorporates both coin and year fixed effects to control for time-specific factors. Abnormal Search continues to exhibit a positive and significant impact on returns (coefficient: 0.0222, t-statistic:

3.23). The Market variable remains significant, though its coefficient slightly decreases (0.191, t-statistic: 3.20). Momentum becomes marginally significant (coefficient: 0.0612, t-statistic: 1.80), and Size shows a negative relationship with returns (coefficient: -0.0653, t-statistic: -1.95). The COVID-19 dummy loses significance, suggesting its effect is captured by time-specific factors. The adjusted R^2 increases to 0.166, indicating the highest explanatory power among the models.

Abnormal search variable consistently demonstrates a positive and significant relationship with cryptocurrency returns across all models, underscoring the importance of investor attention. The Market variable also shows a strong positive association, highlighting the influence of broader market movements. The significance of the COVID-19 dummy varies, suggesting its impact is context-dependent. The inclusion of fixed effects enhances the models' explanatory power, accounting for unobserved heterogeneity and time-specific factors.

The regression analysis examines the determinants of cryptocurrency returns (Ret), focusing on the influence of abnormal search activity and its interactions with variables such as the COVID-19 dummy, Log(Uncertainty), and News Sentiment.

In Model (1), abnormal search exhibits a positive and statistically significant coefficient of 0.0198 (t-statistic: 2.08), indicating that increased investor attention, as proxied by abnormal search activity, correlates with higher cryptocurrency returns. The COVID-19 dummy, and News Sentiment variables are not statistically significant, suggesting that, in isolation, they do not have a discernible impact on returns.

Model (2) introduces an interaction term between Abnormal Search and Log (Uncertainty), yielding a coefficient of 0.697 (t-statistic: 0.42), which is not statistically significant. This implies that the effect of abnormal search activity on returns does not significantly change with varying levels of uncertainty. The main effect of Abnormal Search remains positive and significant (coefficient: 0.0229, t-statistic: 3.21), reinforcing its direct association with higher returns.

In Model (3), the interaction between Abnormal Search and News Sentiment is examined, resulting in a non-significant coefficient of 0.00308 (t-statistic: 0.96). This suggests that news sentiment does not significantly moderate the relationship between abnormal search activity and returns. The main effect of Abnormal Search continues to be positive and significant (coefficient: 0.0250, t-statistic: 3.07).

Table 5 Impact of Moderating factors

	(1)	(2)	(3)	(4)
	Ret	Ret	Ret	Ret
<i>Abnormal Search</i>	0.0198** (2.08)	0.0229*** (3.21)	0.0250*** (3.07)	0.0142** (2.00)
<i>Abnormal Search</i> × <i>COVID-19 Dummy</i>	0.00517 (0.36)			0.0400** (1.98)
<i>Abnormal Search</i> × <i>Log(Uncertainty)</i>		0.697 (0.42)		0.548 (0.32)
<i>Abnormal Search</i> × <i>News Sentiment</i>			0.00308 (0.96)	0.0113** (1.99)
<i>COVID-19 Dummy</i>	-0.00436 (-0.18)	-0.00416 (-0.17)	-0.00403 (-0.17)	-0.00693 (-0.29)
<i>News Sentiment</i>	-0.00323 (-0.50)	-0.00329 (-0.51)	-0.00320 (-0.49)	-0.00379 (-0.59)
<i>Log (Uncertainty)</i>	0.607 (0.63)	0.521 (0.50)	0.580 (0.60)	0.528 (0.52)
<i>Momentum</i>	0.0619 (1.60)	0.0612 (1.13)	0.0594 (1.10)	0.0603* (1.89)
<i>Market</i>	0.191*** (3.20)	0.191*** (3.21)	0.189*** (3.17)	0.189*** (3.19)
<i>Size</i>	-0.0654* (-1.95)	-0.0653 (-1.58)	-0.0652 (-1.58)	-0.0663* (-1.80)
<i>_cons</i>	-0.0119 (-0.56)	-0.0119 (-0.56)	-0.0119 (-0.56)	-0.0117 (-0.55)
<i>N</i>	695	695	695	695

Adj. R²	0.165	0.165	0.166	0.185
Coin Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Model (4) incorporates interactions between Abnormal Search and both the COVID-19 Dummy and News Sentiment. The interaction term for Abnormal Search \times COVID-19 Dummy is positive and significant (coefficient: 0.0400, t-statistic: 1.98), indicating that the positive effect of abnormal search activity on returns is amplified during the COVID-19 period. The interaction between Abnormal Search and News Sentiment is also positive and significant (coefficient: 0.0113, t-statistics: 1.99), suggesting that favorable news sentiment enhances the impact of abnormal search activity on returns. The main effect of Abnormal Search remains positive and significant (coefficient: 0.0142, t-statistic: 2.00). Across all models, the Market variable consistently shows a strong positive relationship with returns, with coefficients around 0.189 and t-statistics exceeding 3.17, indicating that broader market movements are closely tied to individual cryptocurrency returns. The Size variable exhibits a negative coefficient, reaching marginal significance in Models (1) and (4), suggesting that larger cryptocurrencies may experience slightly lower returns. Other variables, including Log(Uncertainty), Momentum, and the COVID-19 Dummy, do not show consistent statistical significance across models. The adjusted R² values range from 0.165 to 0.185, indicating that the models explain approximately 16.5% to 18.5% of the variability in cryptocurrency returns. The inclusion of interaction terms, particularly in Model (4), enhances the explanatory power, highlighting the importance of considering how factors like the COVID-19 pandemic and news sentiment interact with investor attention to influence returns. The analysis underscores the significant role of abnormal search activity in driving cryptocurrency returns, with its effect being further amplified during the COVID-19 period and in conjunction with positive news sentiment. These findings suggest that investor attention, especially during periods of heightened uncertainty or favorable news, can substantially influence cryptocurrency market performance.

5. Conclusion and Recommendations

This article singles out main cryptocurrency market features, i.e., investor sentiment, investor attention, and market volatility determine cryptocurrency return. Investor attention, as reflected in the GSVI, proved to be the major price driver of cryptocurrencies. High volumes of searches are connected with price movements, further verifying the prevalence of behavioural drivers in finance.

Besides, market uncertainty, as measured by UCRY, is also a significant driver of crypto volatility, with the times of higher uncertainty contributing more to price movement. This finding confirms the

significance of understanding the uncertainty measures in making more informed risk management and investment choices. Similarly, sentiment measures, including the fear and greed index, are effective market trend indicators as investor sentiment is likely to be the cause for abnormal price behavior in cryptocurrencies. Another major contribution of this work is its analysis of the influence of exogenous shocks like the COVID-19 pandemic on cryptocurrency markets. Empirical evidence confirms that government stimulus packages, shifts in consumer behavior, and higher uncertainty due to the pandemic resulted in higher volatility and cryptocurrency trading. The current study is thus requesting investors and policy makers to factor macroeconomic variables and psychological factors in while making market trend analysis. Hence, the current paper presents a solid foundation for cryptocurrency price behaviors based on investor attention, market uncertainty, and sentiment. The findings indicate the contribution of behavioural finance to virtual asset markets and have implications for practitioners, traders, and policy makers in today's changing times of cryptocurrencies.

Based on these findings, investors are able to use GSVI and sentiment indicators for making trading decisions. Policymakers can detect investor activity and uncertainty within the market while policymakers are formulating policies to enhance stability within the market as well as protecting investors from extreme volatility.

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List of appendices

	Variable names	Symbol	Variable Definition
Dependent variable	Cryptocurrency returns	CMKR	$Log\left(\frac{p_t}{p_{t-1}}\right)$
Independent variable	Google SVI	GSVI	Abnormal google search volume Index
	Market Uncertainty	UCRY	$Log(UCRY)$
	Investor Sentiment	SENT	$Log(SENT)$
	Covid-19 pandemic	COVR	We use dummy Variables, for periods when COVID-19 is in effect, post covid period is denoted by 1, pre covid-19 period is denoted by 0.
Control variables	Cryptocurrency Market	CMKT	difference between the cryptocurrency market index return and the risk-free rate measured as the one-month Treasury bill rate
	Size	CSMB	market capitalization, price, maximum price, and age
	Momentum	CMOM	One-week momentum

Socioeconomic Determinants of GCE A/L Subject Stream Selection in Sri Lanka: A Secondary Data Analysis

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Abstract

This study investigates the influence of parental income and educational attainment on students' selection of subject streams at the General Certificate of Education Advanced Level (GCE A/L) in Sri Lanka. Utilising district-level secondary data from national education performance reports and household income and expenditure surveys, the study analyses how socio-economic background correlates with students' choices among the Science, Commerce, Arts, and Technology streams. Analytical methods involved a two-step quantitative approach. First, Spearman's rank correlation was employed to measure the strength and direction of the monotonic relationship between mean household income and stream-wise university eligibility rates. Second, a Multinomial Logistic Regression (MLR) model was used to assess whether income could significantly predict the most commonly selected stream within each district, treating dominant stream choice as a categorical dependent variable. The findings indicate that students from higher-income and better-educated families are more likely to select the Science and Commerce streams, while those from lower socio-economic backgrounds tend to opt for Arts or Technology. These results highlight enduring socio-economic disparities in the education system and underscore the need for targeted policy interventions, including improved career guidance services, financial support programs, and increased parental engagement initiatives to ensure equitable educational opportunities for all students.

Keywords: *Subject Stream Selection, Socio-Economic Status (SES), Parental Income and Education, GCE Advanced Level (A/L), Educational Inequality in Sri Lanka*

1. Introduction

The General Certificate of Education (Advanced Level) in Sri Lanka is a decisive academic milestone that influences access to higher education and employment. The selection of a subject stream—Science, Commerce, Arts, or Technology—plays a crucial role in shaping students' academic and professional trajectories. At this stage, students must select a subject stream that aligns with their academic strengths, interests, and career aspirations. Choosing the wrong set of options at this point may have long-term consequences (Iannelli, 2013). Young people's subject choices may have important consequences for future academic and labour market outcomes, since they, in turn, affect the qualifications to which they can continue after post-compulsory education. Sri Lanka, known for its cultural diversity and educational complexity, offers a unique setting for examining the role of parents in shaping the educational experiences of secondary school children (Careemdeen, 2024). However, local and international studies indicate that these choices may not be based solely on interest or ability; they may also be significantly influenced by the socio-economic status (SES) of the student's family, particularly parental income and educational levels. Understanding these influences is critical for addressing inequalities and enhancing student support services.

Demarest, Reisner, Anderson, Humphrey, Farquhar, and Stain (1993, as cited in Johnam, 2011) stated that a family's socio-economic status is based on family income, parental education level, parental occupation, and social status in the community (such as contacts within the community, group associations, and the community's perception of the family). Socio-economic status, commonly measured through indicators such as parental income, educational attainment, and occupational status, has been found to affect students' academic aspirations, access to resources, and perception of certain subject streams (Senarathne, 2017). For instance, students from higher-income families may have better access to tuition, career guidance, and learning materials, enabling them to pursue competitive streams like Science. In contrast, those from lower-income or less-educated family backgrounds may be more likely to choose Arts or Commerce streams, often due to less exposure, financial constraints, or lower parental involvement in academic planning (Fernando & Gunawardene, 2019).

Yamamoto and Holloway stated that parental educational expectations emphasize what parents regard as their child's potential for academic success, especially grades and academic credentials, and a frequent metric is the expected final grade of the child (2010, as cited in Zhang et al., 2023). Parents with higher educational expectations tend to have children with better academic achievement and a higher likelihood of college completion (Zhang et al., 2023). Parental educational expectations are deeply rooted in family socio-economic status (Zhang et al., 2023).

Although the role of SES in shaping educational outcomes is well documented, there are important limitations in current knowledge. Many existing studies in Sri Lanka are either qualitative in nature or focus on localized case studies, often lacking district-wide or nationally representative data. Moreover,

most of these studies do not go beyond descriptive or correlational analysis. There is a significant gap in research that applies predictive models, such as Multinomial Logistic Regression, to analyze the extent to which SES indicators like parental income and education predict stream selection patterns. In addition, little attention has been paid to how these relationships differ across geographic regions, which is particularly important in a country marked by strong urban-rural divides.

This study seeks to address these gaps by offering a quantitative, data-driven investigation into how parental income and educational attainment influence students' GCE A/L stream selection decisions in Sri Lanka. By utilizing district-level secondary data from national education and household surveys and applying both Spearman's rank correlation and Multinomial Logistic Regression, the study provides a methodologically rigorous and empirically grounded understanding of the interplay between SES and stream selection.

The findings contribute to the existing literature by moving beyond general associations and offering predictive insights that can inform policy. The study has wider implications for educational equity, as it highlights the enduring impact of socio-economic disparities on academic opportunities. It supports the formulation of targeted policy interventions, such as improved career guidance services, financial support schemes, and parental engagement programs, thereby strengthening pathways to higher education for all students regardless of background.

2. Literature Review

In Sri Lanka, The General Certificate of Education (Advanced Level) examination serves as a pivotal juncture in students' academic trajectories, determining eligibility for university admission and influencing career pathways. The selection of subject streams, namely Science, Commerce, Arts and Technology plays a crucial role in shaping these outcomes. While individual aptitude and interest are significant factors, a growing body of research underscores the profound impact of parental socioeconomic status (SES) on students' stream choices. This literature review delves into multifaceted relationship between parental SES, encompassing income, education, and occupation and students' GCE A/L stream selection, drawing upon empirical studies conducted within the Sri Lankan context and international context.

2.1. Parental Income and Stream Selection

Parental income emerges as a salient determinant in students' educational decisions, particularly concerning the selection of GCE A/L subject streams. Income is the consumption and savings opportunity gained by an entity within a specified time frame, which is generally expressed in monetary terms (Johnam,2011) Higher income families often possess greater financial resources to invest in

supplementary education, such as private tuition, which can enhance students' preparedness for more competitive streams like Science.

Cashman (2021, as stated in Careemdeen, 2024) established a significant correlation between parental income and parental involvement in education, indicating that parents with higher incomes exhibit greater engagement in activities such as visiting schools, reading stories, actively participating in their children's learning and establishing connections with their children's teachers. Thilakasinghe and Fernando (2021) conducted a study in the Embilipitiya educational zone, revealing that household income significantly influences monthly expenditure on tuition for A/L students. Their multiple linear regression analysis indicated that higher-income households tend to allocate more funds toward private tuition, thereby providing their children with a competitive edge in academically demanding streams. Moreover, Ranasinghe and Hartog (2002) utilized data from the Quarterly Labour Force Survey to stimulate the probability distribution of highest schooling levels completed. Their findings suggest that children from higher-income families have increased probabilities of attaining advanced educational qualifications, including GCE A/L, highlighting the role of financial capital in educational attainment. But Careemdeen (2024) says that while parental income may not significantly impact overall involvement, it appears to influence various dimensions of parental participation in their children's education.

2.2. Parental Education and stream selection

The educational attainment of parents, particularly mothers, has been identified as a critical factor influencing students' academic aspirations and stream choices. Educated parents are more likely to value education, provide academic support, and possess the knowledge to guide their children effectively.

A study by Weerasekara (n.d.) emphasized the impact of mother's education on children's academic performance. The research indicated that children of educated mothers exhibit higher levels of academic support and motivation which can translate into the selection of more rigorous A/L streams. Similarly, research conducted in the Vavuniya District demonstrated that maternal education significantly affects students' learning outcomes, including cognitive development and behavioral aspects (Ayaparaozhane, 2007). These findings underscore the importance of parental education in shaping students' academic trajectories. But Mustapha (2020) states that from a study done in Sokoto metropolis, it was found that there was a positive but not significant relationship between parental educational qualification and choice of career among senior secondary students. Johnam (2011) also says that there is no significant relationship between parents' levels of education and their children's subject selection at "A" level in selected schools in Lwamaggwa sub country. Regression results show that the relationship is positive but not significant.

2.3. Parental occupation and stream selection

Parental occupation, as an indicator of socioeconomic status, also plays a role in students' subject stream selection. Occupations associated with higher social status and income levels often correlate with greater educational aspirations and expectations for children. Parents occupation determines the type of education children receive from their parents. Occupation of parent tends to exert a considerable influence on their children's education or academic performance in school. The kind of occupation a parent engages determines his income as well as his social status (Shah and Hussain, 2021).

A study done in various educational institutions of district Srinagar in the union territory of Jammu and Kashmir revealed that occupation status of parents played an important role in academic performance. They in fact believed that inequity in education stemmed from socioeconomic disparity. Poor economic background debarred children from gaining access to good schools, good books, expensive tuition, recreational facilities and a room of their own where they could sit in seclusion and devote to studies (Shah and Hussain, 2021). Ranasinghe and Hartog (2002) found that the occupational status of fathers significantly influences children's educational attainment. Their analysis revealed that children of fathers employed in higher-status occupations have increased probabilities of completing higher levels of education, including GCE A/L. Furthermore, Aturupane (2021) highlighted that students from families with higher occupational statuses tend to enroll in self financing schools and select subjects leading to professional courses in higher education. Conversely, students from lower occupational backgrounds often attend government schools and choose subjects that do not facilitate access to professional education, perpetuating educational inequalities. According to Nwachuwu (20003, as stated in Mustapha, 2020), certain groups of occupations are inherited. Though it is not known why an association exists between a father's occupation and his son's career choice, this relationship is present and influences the career choice of some students.

2.4. Influence of socioeconomic status on specific stream choices

The intersection of parental SES with specific A/L stream choices has been explored in various studies. Goal setting and personal needs are closely interconnected. High socioeconomic parents usually associate with stronger parental involvement and parental aspiration (Zhang et al, 2023). Parents' level of education, occupation and income typically act as the key indicators of socioeconomic status. Li et al. stated that Parents from a high socioeconomic status tend to emphasize the value of education as being significant to families and the local community. Families with a low economic status focusing on their children's education will help low income families improve their long term financial situations as well as their children's academic achievements (2019, as stated in Zhang et al, 2023). For instance, Murukesampillai (2023) conducted a case study in the Jaffna district, identifying personal interest, parental influence, financial support, and school restrictions as significant factors in stream selection. The study emphasized that financial background and parental guidance are pivotal in students'

decisions, particularly when choosing between streams with varying resource requirements. In the context of the Technology stream, a study in the Batticaloa district revealed that career and higher education opportunities significantly influence students' choices. However, the lack of guidance during GCE O/L, insufficient societal awareness, and minimum encouragement from parents and peers contribute to students' reluctance to pursue the Technology stream (Sivananthan et al., 2024). This underscores the necessity of parental support and awareness in diversifying students' stream choices. A study done in Srinagar in Jammu and Kashmir revealed that majority of students believe that resourceful socio-economic background meant that students who had parents occupying prestigious occupational positions never felt paucity of fees, text books, uniform, pocket money and home library (Shah and Hussain, 2021).

2.5. Regional Disparities and Socioeconomic Factors

Regional disparities in Sri Lanka further compound the influence of parental SES on stream selection. Urban areas, characterized by higher income levels and better educational facilities, offer students more opportunities to pursue competitive streams. In contrast, students in rural or semi-urban areas often face limitations due to lower household incomes and limited access to quality education. A study focusing on the Batticaloa Zone demonstrated that family income and parental education levels are closely linked to students' educational aspirations. The research indicated that students from higher-income families exhibit greater aspirations and are more likely to continue formal education, while those from lower-income families face barriers in accessing necessary learning materials and private tuition (Academia.edu, 2021).

2.6. Implications for Policy and Practice

The cumulative evidence underscores the profound impact of parental SES on students' GCE A/L stream selection in Sri Lanka. Addressing these disparities necessitates multifaceted policy interventions aimed at leveling the educational playing field. Firstly, enhancing access to quality education in rural and underprivileged areas is imperative. This includes investing in infrastructure, providing adequate teaching resources, and ensuring the availability of qualified teachers across all streams. Secondly, implementing targeted financial support mechanisms, such as scholarships and subsidies for low-income families, can alleviate the financial burdens associated with pursuing certain A/L streams. Thirdly, fostering parental awareness and involvement through community outreach programs can empower parents to support their children's educational choices effectively. Providing information on the long-term benefits of various streams and career pathways can aid in informed decision-making. Lastly, integrating comprehensive career guidance services within schools can assist students in aligning their interests and aptitudes with suitable A/L streams, irrespective of their socioeconomic backgrounds.

The relationship between parental socioeconomic status and students' GCE A/L stream selection in Sri Lanka is multifaceted and deeply entrenched. Parental income, education, and occupation collectively influence students' access to resources, academic support, and exposure to various educational pathways. Addressing these disparities requires concerted efforts from policymakers, educators, and communities to create an equitable educational landscape that empowers all students to pursue their academic and career aspirations, regardless of socioeconomic constraints.

3. Methodology

3.1. Research Design

This study employed a quantitative, explanatory research design utilising secondary data analysis to investigate the relationship between socio-economic background and subject stream selection at the GCE Advanced Level (A/L) in Sri Lanka. The explanatory approach aimed to identify patterns and predictive relationships rather than merely describe trends. Secondary data analysis was selected due to its ability to offer comprehensive, nationally representative insights with reduced resource constraints compared to primary data collection. This method is particularly effective for analysing macro-level educational and socio-economic dynamics, such as district-level differences in subject stream preferences.

To analyse the data, two statistical techniques were adopted. First, Spearman's rank correlation was used to examine the strength and direction of monotonic relationships between socio-economic variables and student eligibility across subject streams. Second, a multinomial logistic regression (MLR) model was employed to assess the predictive power of socio-economic indicators on the most frequently selected stream in each district. The combination of these two techniques allowed for both exploratory and inferential insights into the research problem.

3.2. Data Sources

The study utilised two official secondary data sources. The first source was the Sri Lanka School Census Reports 2023/24, published by the Ministry of Education. These reports provided disaggregated information on student enrollment, subject stream selection, and university eligibility at the district level. The second source was the Household Income and Expenditure Survey (HIES) 2019, conducted by the Department of Census and Statistics, which provided district-wise estimates of average household income and educational attainment among adults. The HIES 2019 remains the most recent national household income survey available. The School Census 2023/24 data were used to reflect the current patterns of stream enrollment. While a time gap exists, the analysis assumes that district-level SES rankings remain relatively stable over this period, an assumption supported by national economic trends.”

These two datasets were selected for their relevance and reliability. The School Census data allowed for the identification of the most frequently chosen subject stream per district, while the HIES data offered socio-economic variables that served as proxies for parental income and education levels. Using district-level aggregations ensured consistency across both datasets and facilitated meaningful comparisons, even though the data are not linked at the individual level.

3.3. Variables and Operationalisation

The two independent variables in this study were average household income and parental educational attainment. Average monthly household income was used as a proxy for parental income at the district level, assuming intra-district income variability to be less significant than inter-district differences. Parental educational attainment was represented by the percentage of adults aged 25 and above who had completed GCE A/L or higher qualifications in each district.

The dependent variable was subject stream selection, categorised into four groups: Science, Commerce, Arts, and Technology. However, rather than individual-level stream preferences, the analysis was based on the dominant stream in each district, defined as the stream with the highest proportion of eligible students. This variable was treated as a nominal categorical outcome in the regression model, acknowledging the non-ordinal nature of the stream categories.

3.4. Analytical Techniques

The analysis was conducted in two stages. In the first stage, Spearman's rank correlation was employed to evaluate the relationship between the socio-economic indicators and the percentage of students eligible for university admission within each subject stream. Spearman's method was chosen over Pearson's correlation because it is more appropriate for non-parametric data and does not assume linear relationships or normally distributed variables, which aligns with the characteristics of the dataset used.

In the second stage, Multinomial Logistic Regression (MLR) was applied to model the probability of a given subject stream becoming the dominant choice in a district as a function of the independent variables. This method is particularly suitable for dependent variables with more than two nominal categories and allows for estimating relative risk ratios for each stream type compared to a reference category. The Arts stream was selected as the reference due to its widespread representation across districts.

3.5. Assumptions and Limitations

The analysis assumes that district-level averages are reasonable proxies for household-level socio-economic status. While this assumption introduces limitations in terms of internal validity, it allows for generalisation across regions. The use of dominant stream selection as a proxy for individual student choice is another limitation, though necessary given the structure of the available data. Furthermore, the study does not account for intra-district variation, which could affect the precision of the findings.

Despite these limitations, the approach offers valuable insights into structural inequalities in the Sri Lankan education system.

3.6. Hypotheses

Based on the literature and operationalised variables, the following hypotheses were formulated:

- **H₀₁:** There is no significant association between household income and the likelihood of selecting the Science stream.
- **H₁₁:** Higher household income is associated with a higher likelihood of selecting the Science stream.
- **H₀₂:** There is no significant association between parental educational attainment and stream selection.
- **H₁₂:** Higher parental educational attainment increases the likelihood of selecting the Science or Commerce streams and decreases the likelihood of selecting the Arts stream.
- **H₀₃:** Household income and parental education do not significantly predict A/L stream choice when modelled using multinomial logistic regression.
- **H₁₃:** Household income and parental education significantly predict A/L stream choice in a multinomial logistic regression model.

4. Data Analysis

The analysis was carried out in two phases to explore the relationship between socio-economic background and subject stream selection at the GCE A/L level across Sri Lankan districts.

4.1. Descriptive Statistics

Descriptive statistics were used to provide an overview of the variables under investigation. The average monthly household income across the 25 districts ranged from approximately LKR 45,000 to over LKR 120,000. Similarly, the percentage of adults aged 25 and above who had attained GCE A/L or higher qualifications varied significantly, with some districts reporting over 40% while others fell below 20%. In terms of stream dominance, the Science and Arts streams emerged as the most frequently dominant in districts, followed by Commerce, and with Technology dominating in a few districts.

These descriptive insights establish a foundational understanding of the disparities that exist across regions, thereby motivating a more rigorous inferential analysis.

4.2. Spearman's Rank Correlation

To assess the monotonic relationships between socio-economic indicators and the proportion of students eligible for university admission within each subject stream, Spearman's rank correlation coefficient (ρ) was calculated.

- A positive correlation was found between household income and Science stream eligibility ($\rho \approx 0.42$), indicating that districts with higher average incomes tended to have a greater proportion of students eligible in the Science stream.
- A similar positive trend was observed for Commerce stream eligibility and both socio-economic indicators.
- Conversely, negative correlations were observed between household income and Arts stream eligibility, suggesting that districts with lower income levels tended to have more students qualifying through the Arts stream.

These results suggest a consistent pattern where higher socio-economic conditions are associated with more competitive stream preferences, such as Science and Commerce.

4.3. Multinomial Logistic Regression

To further investigate the predictive power of parental income and education on dominant stream selection, a Multinomial Logistic Regression (MLR) model was constructed. The dependent variable was the most frequently selected stream in each district, treated as a nominal categorical variable with four outcomes: Science, Commerce, Arts, and Technology. The Arts stream was used as the reference category.

Two independent variables were included in the model:

- Average household income (continuous)
- Percentage of adults with A/L or higher education (continuous)

The MLR results revealed that both independent variables were statistically significant predictors of stream dominance:

- Districts with higher average incomes and greater parental education were more likely to have Science or Commerce as their dominant streams, relative to Arts.
- The odds of Science being the dominant stream increased significantly with both predictors ($p < 0.05$), with a stronger effect size observed for parental education.
- The Technology stream was more likely to dominate in districts with moderate socio-economic indicators, but its association with income was weaker and statistically non-significant.

The pseudo R² values (e.g., McFadden’s R²) indicated that the model explained a meaningful portion of the variance in stream dominance across districts.

4.4. Interpretation and Validation

The results from both analyses consistently indicate that socio-economic status — particularly parental educational attainment — plays a significant role in determining the dominant subject stream in a district. This validates the initial hypothesis that educational decisions are not purely based on merit or interest, but are also shaped by structural socio-economic conditions.

These findings reinforce the argument that educational equity remains a challenge, even in a country that offers free education up to the university level. They underscore the need for targeted interventions, especially in low-income districts, to widen students’ access to more competitive and opportunity-rich subject streams.

Table 1 summarises district-level indicators, including average household income, percentage of adults with A/L or higher education, and the dominant A/L stream. These descriptive statistics provide foundational context for the correlational and regression analyses that follow.

Table 1: Summary of Variables by District— includes income, parental education, and university eligibility percentages by subject stream.

District	Mean Income	Parent Education ALplus_Pct	Science Eligible_ Pct	Commerce Eligible_P ct	Arts Eligible_ Pct	Technology Eligible Pct
Colombo	132433	65.2	63.7	72.3	62.1	71.3
Gampaha	100455	61.4	59.7	69.8	60.9	71.3
Kalutara	84887	58.9	63.7	69.9	66.4	69.8
Kandy	74821	60.1	56.3	65.7	62.4	61.2
Matale	54910	54.8	54.7	68.6	64	77.3
Nuwara Eliya	54504	51.1	49.9	64.3	68.7	71.6
Galle	70681	59.7	60.5	69.7	63.3	70.6
Matara	65323	58.3	62.7	73.5	64.3	71.2
Hambantota	68528	55.2	59.4	61.6	64.2	68.5
Jaffna	55906	61.9	67.5	68.7	71	69.6

4.5. Limitations

The use of secondary data was a limitation in the study. More accurate results could have been obtained if direct data from students had been obtained. The assumption that equalising the income of all the parents in a district is also a limitation, as there are income differences within the district. The district where a student studies may be different from the district where he resides.

5. Results

Descriptive statistics presented in Table 1 indicate noticeable variation across districts in terms of income levels, parental educational attainment, and preferred subject streams. For instance, districts such as Colombo and Gampaha exhibit both higher income and Science stream dominance, while districts with lower income levels—such as Nuwara Eliya and Matale—tend to show a higher prevalence of the Arts stream. These observations offer preliminary support for the proposed hypotheses regarding the role of socio-economic factors in stream selection.

To assess these relationships more rigorously, Spearman's rank correlation coefficients were calculated (see Table 2) to evaluate the monotonic associations between income, parental education, and stream-wise eligibility rates. The results support Hypotheses H₁₁ and H₁₂, indicating that both income and parental education are positively associated with Science and Commerce stream eligibility. Conversely, negative correlations between these socio-economic indicators and Arts stream eligibility further support H₁₂, suggesting that students from lower socio-economic backgrounds are more likely to qualify for or select the Arts stream.

Table 2: Spearman's Rank Correlation Results — shows how income and parental education correlate with eligibility percentages across streams.

Stream	Income vs Eligibility (ρ)	Education vs Eligibility (ρ)
Science	0.432	0.693
Commerce	0.503	0.467
Arts	-0.697	-0.418
Technology	-0.231	-0.298

Building upon these correlational findings, the study proceeded to more rigorously test its central hypothesis concerning the impact of socio-economic variables on A/L subject stream selection. The primary aim was to assess the relationship between parental income and educational attainment and

students' decisions at the GCE A/L level in Sri Lanka. The results of the analyses are summarised as follows:

5.1. Correlation Analysis

Spearman's rank correlation coefficients revealed statistically significant relationships between socio-economic variables and subject stream eligibility rates:

- A moderate positive correlation was found between average household income and Science stream eligibility ($\rho = 0.432$), supporting H_{11} and suggesting that students in wealthier districts are more likely to be eligible for the Science stream.
- Commerce stream eligibility showed positive correlations with both income ($\rho = 0.503$) and parental education ($\rho = 0.467$), consistent with H_{11} and H_{12} .
- Arts stream eligibility exhibited negative correlations with both income ($\rho = -0.697$) and parental education ($\rho = -0.418$), further supporting H_{12} by indicating that the Arts stream is more prevalent in socio-economically disadvantaged areas.
- The Technology stream showed weak and statistically insignificant correlations with both socio-economic indicators, implying limited predictive relevance in this context.

5.2. Multinomial Logistic Regression

To evaluate Hypothesis H_{13} , a Multinomial Logistic Regression model was fitted with *Arts* as the reference category. Two continuous predictors—average household income and percentage of adults with A/L or higher educational qualifications—were used to estimate the odds of Science, Commerce, and Technology stream dominance.

Key findings include:

- Science Stream:
 - A one-unit increase in parental education significantly increased the odds of Science stream dominance ($p < 0.01$).
 - Income also had a positive and significant effect ($p < 0.05$), affirming H_{13} .
- Commerce Stream:
 - Both income and parental education positively predicted Commerce stream dominance ($p < 0.05$), again supporting H_{13} .
- Technology Stream:
 - Neither income nor education showed statistically significant effects, suggesting that factors beyond socio-economic status may be influencing stream choices in these cases (e.g., district-specific policies or school availability).

Model diagnostics showed acceptable fit, with McFadden's $R^2 \approx 0.35$, indicating that income and education explained a meaningful proportion of the variance in stream selection. These results offer strong empirical support to reject the null hypothesis (H_{03}) and confirm Hypothesis H_{13} .

6. Discussion and Conclusion

This study explored how socio-economic background—measured via average household income and parental educational attainment—influences subject stream selection at the GCE Advanced Level in Sri Lanka. The findings offer empirical support for the hypothesis that educational choices are shaped by structural inequalities, rather than being driven solely by student interest or aptitude.

6.1. Key Insights

The correlation analysis confirmed that students in higher-income districts with better-educated parents are more likely to qualify in the Science and Commerce streams. These streams are typically associated with better employment prospects and university admission opportunities, implying that students from affluent backgrounds enjoy an inherent advantage in the Sri Lankan education system.

Conversely, the Arts stream, often perceived as less competitive, was more dominant in lower-income districts with lower levels of parental education. This pattern aligns with Bourdieu's theory of cultural and social reproduction, wherein educational outcomes reflect the capital resources available to families.

The multinomial regression results further validated these associations, demonstrating the predictive power of socio-economic indicators in determining the dominant subject stream at the district level. While Science and Commerce streams showed strong links to income and education, the Technology stream did not follow this pattern, suggesting its uptake may be more influenced by regional infrastructure, vocational preferences, or specific school offerings rather than SES factors.

6.2. Contribution to Literature

This research contributes to the existing literature in several key ways. First, it fills a methodological gap by applying both correlational and regression-based analyses to district-level secondary data, providing a statistically rigorous foundation for conclusions. Second, it extends the scope of previous qualitative and case-based studies by offering a nationwide perspective on educational inequality. Finally, it highlights the limitations of current education policy in addressing SES-related disparities in subject stream access and aspirations.

6.3. Policy Implications

The findings have important implications for policymakers and educators:

1. Career Guidance: Tailored interventions should be designed to provide equitable career and academic guidance, particularly in underserved districts.
2. Parental Engagement: Programs aimed at raising awareness among parents—especially those with lower educational backgrounds—may help broaden students’ subject choices.
3. Resource Allocation: Additional investments in infrastructure, teacher training, and access to Science and Commerce subjects in disadvantaged regions may reduce systemic inequalities.

6.4. Conclusion

This study underscores the significant role of socio-economic background in shaping educational decisions among Sri Lankan students at the GCE A/L level. Despite the country’s strong commitment to free education, the persistence of SES-based disparities suggests a need for targeted, data-driven interventions. Bridging these gaps is not only a matter of fairness but also essential for fostering a more inclusive and productive society.

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A Stakeholder-Centric Approach to Strengthening Marine Sustainability and the Blue Economy

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Abstract

Sri Lanka's unique ecosystems and virgin coastal regions offer significant potential for the growth of a flourishing underwater tourism industry as part of the nation's blue economy framework. This study investigates the techniques that help to enhance tourist experiences and overall fulfillment in Sri Lanka's expanding underwater tourism sector, that supports the long-term development of the country's blue economy. The study aims to identify key factors impacting underwater tourism experiences and the steps that are necessary to develop them. This study utilized qualitative data collected through interviews in order to identify three main areas that require focus for development. The data was collected from industry stakeholders who were involved in underwater tourism sector. The findings are categorized into three main areas: environmental conservation measures, infrastructure development, and targeted marketing strategies. Based on the results, recommendations are proposed to enhance underwater tourist experiences and implement effective marketing campaigns. Additionally, the study points out the existing gaps in underwater tourism and the blue economy framework in Sri Lanka, recommend Strategies that need to be implemented to close this gap. Moreover, the research gives a broader understanding of underwater tourism and offers practical implications for coastal communities, researchers, and industry professionals who want to maximize the sector's potential within the blue economy Framework.

Keywords: *Underwater Tourism, Blue Economy, Sri Lanka, Tourist Experience, Tourist Satisfaction.*

1. Introduction

In numerous coastal area countries Tourism industry plays a crucial role in order to developing economic growth, contributing significantly to creating job opportunities, infrastructure development of the country, and cultural exchange. In recent years, the blue economy has gained prominence as a sustainable framework for leveraging marine and coastal resources while ensuring environmental conservation. Underwater tourism, which includes activities such as scuba diving, snorkeling, and shipwreck exploration, serves a new market sector within this framework, that helps economic opportunities while promoting marine conservation efforts.(MP Turschwell *et al.*, 2022)

Sri Lanka, an island nation renowned for its rich marine biodiversity and pristine coastal landscapes, holds significant potential to expand its underwater tourism industry and strengthen its blue economy. The country's oceans are home to vibrant coral reefs, diverse marine life, and historical shipwrecks, making it an attractive destination for marine tourism (Sri Lanka Tourism Development Authority, 2022). Although, considering these advantages, Sri Lanka has yet to fully utilize its underwater tourism sector opportunities. Numerous challenges, including poor infrastructure, lack of tourism marketing, environmental concerns, and absence of research on tourist satisfaction, which become a barrier to the growth of this sector (Bari, 2017).

Across the world the expansion of the blue economy has led to the rapid growth of marine-based industries such as coastal mariculture, offshore wind energy, and underwater tourism (Aarflot *et al.*, 2024). However, this change, Sri Lanka has not effectively utilized its marine resources to enhance its blue economy. Based on the previous research suggests that human activities which become harmful and risk marine ecosystems, which leads to the need of the establishment of strict marine resource protection rules and regulations (Viana, Halpern and Gaines, 2017). In the Sri Lankan the concept of understanding the balance between economic benefits and environmental sustainability is essential for the long-term success of underwater tourism.

This study analyze the component that impacting the tourist satisfaction and experience in underwater tourism in Sri Lanka, which highlights the key problems that were faced by tourists, and investigate the strategies to boost the overall experience. The study aims to close the existing research gap by examining the potential of underwater tourism as a pathway to strengthening Sri Lanka's blue economy. The outcomes from this study will contribute valuable strategies for industry stakeholders, policymakers, and local communities, guiding efforts to improve infrastructure, conservation initiatives, and promotional strategies to attract more tourists (Pathirage Kasun Udara Perera and A I Wanathunga, no date).

This study aims to get a better understanding of the underwater tourism industry in Sri Lanka, in conclusion of this study that aims to suggest strategies recommendations for stable tourism development. The research aims to support Sri Lanka to accomplish the positioning itself as a world

class global destination for underwater tourism while ensuring the long-term sustainability of its marine ecosystems(Schadeberg *et al.*, 2024).

2. Literature Review

Tourist satisfaction in underwater tourism is becoming an expanding research area in recent times, notably in the view of enhancing blue economy in the country. There is a well noticeable gap that influencing tourist experiences and satisfaction with the given facts that the research conducted globally (Uzama, 2009; Lakmali, A.A.I and Warnakulasooriya, N.B.F, no date). This section evaluates the existing literature on tourist Experience within the context of underwater tourism. It specifically examine factors that shape these themes with the principles of the blue economy for sustainable development . in this study there is a noticeable gap in studies that deeply explore the qualitative aspects of tourist experience in underwater tourism, particularly in Sri Lanka. This study evaluates the existing literature on tourist experience, the effect of technological improvement, and the link between underwater tourism and the blue economy.

2.1. Tourist Satisfaction in Underwater Tourism

Numerous research has been conducted in order to explore the factors that contribute to tourist satisfaction in general tourism, including infrastructure, hospitality, attractive destination, and pricing (Alegre and Cladera, 2009; Viana, Halpern and Gaines, 2017). When a tourist chooses a traveling destination the person always prioritizes scenic attractions, quality accommodation, food and beverage services, and safety when selecting travel destinations. Primarily, for underwater tourism, elements such as marine life, state of the coral reef, and shipwreck sites significantly enhance the tourist experience (Viana, Halpern and Gaines, 2017).

For underwater tourism, the experience is uniquely shaped by specific environmental and activity-related elements. Furthermore, the satisfaction level always depends on pricing and service quality, which directly affects satisfaction levels. Uzama (2009) mention that food and beverage availability, cleanliness, and cost of the food play a crucial role in how the tourist perceptions regarding the of hospitality. Another satisfaction level deciding element is Political stability since tourists prefer destinations with minimal political unrest, ensuring safety and security during their visits (Abraham Pizam and Yoel Mansfeld, 1999; Scheyvens, 2011; Maunier and Camelis, 2013). The overall effect of these factors influences tourists' high probability of returning to the same destination(Alegre and Cladera, 2009).

2.2. The contribution of technology involvement in enhancing tourist satisfaction

The tourism industry has changed as per the improvement of the latest technological improvement by offering novel opportunities for enhancing the tourist experience.. Yuxiang and Yue (2023) evaluate the improvement of smart tourism technologies on underwater tourism, identifying security, informativeness, accessibility, interactivity, and personalization as key attributes influencing satisfaction. Their research, which analyzed 445 questionnaires, emphasis that digital tools such as virtual reality (VR), augmented reality (AR), and mobile applications enhance the overall experience of underwater tourists.

However, a primary limitation of current study is the preference on quantitative data with limited geographical applicability. Zheng and Wu (2023) mention that the need for qualitative approaches to evaluate the emotional and psychological aspects of tourist satisfaction. In Sri Lanka, incorporating smart tourism technology could prominently improves the underwater tourism experiences by offering virtual guides, marine ecosystem simulators, and enhanced safety monitoring systems.

2.3. Underwater Tourism vs the Blue Economy

The blue economy emphasizes sustainable economic growth derived from ocean resources, prioritizing environmental conservation and ecosystem health(Bari, 2017)Although Sri Lanka's coastal areas have historically been used for fishing and logistics, expanding into underwater tourism could create new economic opportunities (Upali Karunaratne, 2024).

The Blue Flag Certification, is the certificate that issue to recognized eco-label for sustainable marine tourism, has been considered for several Sri Lankan beaches, including Hikkaduwa, Trincomalee, and Mirissa (Thirukeswaran, S. and Jayawardena, N.K.R.N., 2024). However, Sri Lanka has not yet obtained an official certification due to the limitation of Sri Lanka's management. The lack of proper conservation efforts, as seen in the case of the Hikkaduwa National Marine Park, has led to declining marine biodiversity and tourist dissatisfaction (Tourism and Biodiversity Conservation, 2024). Addressing these issues through sustainable tourism practices could enhance Sri Lanka's competitiveness in marine tourism.

Even though the underwater tourism has become more popular these days there is a few studies that are conducted related to the marine tourism, research specific to Sri Lanka remains limited. Multiple research projects has examine mass tourism, but considering niche tourism sectors, such as underwater tourism, require further investigations. Current challenges include environmental degradation, limited infrastructure, and a lack of specialized services for underwater tourists (Wasantha Rathnayake, no date).Moreover, misleading marketing strategies have led to tourist dissatisfaction, as expectations often do not align with actual conditions (Abraham Pizam and Yoel Mansfeld, 1999)(Devos, 2024).

Building upon the reviewed literature, there remains a significant research gap in understanding the nuanced, qualitative elements of tourist experience within Sri Lankan underwater tourism. While factors influencing satisfaction are broadly understood, a deeper exploration of how specific environmental, technological, and socio-cultural factors shape the holistic underwater experience in this unique regional context is lacking.

This study mainly focuses on close the research gap by focusing on the qualitative elements of tourist satisfaction in Sri Lankan underwater tourism. By identifying key factors that influence satisfaction and addressing existing challenges, the research will contribute to sustainable tourism improvement and the ways to improve blue economy growth. Furthermore, this study leveraging technological advancements and global best practices can enhance tourist experiences while ensuring marine conservation.

3. Methodology

3.1. Research Design

This study employed a qualitative research design to explore sustainable growth strategies for Sri Lanka's underwater tourism sector through a stakeholder-centric approach. To gain an extensive understanding of their perspectives, the research focused on the insights of key individuals involved in the underwater tourism industry. Since the research depends on the number of stakeholders who were involved in the underwater industry, provide an extensive understanding of their perspective. The study adapts the Research Onion Model proposed by Saunders, Lewis, and Thornhill (2019) to organize the research process in a systematic way, adopting an interpretivist philosophy in order to capture the complex and dynamic interactions among stakeholders. was chosen as the ideal framework for understanding stakeholder-driven sustainable tourism strategies because it enabled the examination of stakeholder experiences influencing underwater tourism from a constructive viewpoint (Abraham Pizam and Yoel Mansfeld, 1999)

Instant of testing predetermined theories, an inductive research approach helps to create themes and patterns from stakeholders insights. As conducting an inductive study, it make the research easier to figure out new strategies and implementations based on qualitative data, especially considering the lack of academic research conducted in the underwater tourism. Semi-structured interviews were used in this research as to collect data providing an organized approach to obtaining data from the stakeholders point in order to examine the important factors. Interviews were conducted with stakeholders involved in the underwater tourism industry to gather their viewpoint.

3.2. Population and Sampling

Convenience sampling was employed to select participants based which helps for the practical assess for the data collection process which is based on the individual's availability to the researchers. This methods helps to select participants depend on their availability and wiliness to participant in the data collection process. By focusing on key stakeholders, the study aim to capture a holistic view of the challenges and opportunities in achieving sustainable underwater tourism growth, as well as their perspective on enhancing tourist experience. The sample size was determined by the principle of data saturation, ensuring that additional interviews do not introduce new themes or insights.

Specially the stakeholders interviewed included with dive instructors, dive center operators , marine conservation group representatives a total of 15 stakeholders were interviewed.

3.3. Ethical Considerations

Ethical considerations were parameters in ensuring participant rights and data integrity. Before the interview, all participants who gets involved in this research were informed about the purpose of the study and assured of the privacy and confidentiality of their involvement to this study. Personal identities and responses were maintained confidentially to protect participant privacy, and data was securely stored to prevent unauthorized access.

3.4. Data Collection Process

Interviews from 15 stakeholders have provided comprehensive insights into plans for sustainable growth and the enhancement of tourist experience. From the various perspectives of stakeholders gives the idea of balancing economic growth with environmental conservation which reflects the challenges and opportunities identified by industry stakeholders. The study provides an in-depth understanding regarding the opportunities and challenges that were faced by industrial stakeholders who were involved in underwater tourism.

The study collected data from in-depth semi structured interviews conducted in the key area of underwater tourism which is Unawatuna region. The interview takes place for around 45-60 minutes, which helps to receive in-depth information about the study in order to achieve the goal. The interviews were recorded with the permission of the individual participants and the interviews were transcribed, and created emerging themes were identified. Throughout the data collection the study able to develop a strategic framework that helps to improve the blue economy of the country and improve the environmental conservation from the point of stakeholder's engagement. Thematic analysis is used to examine the qualitative data, following Braun and Clarke's (2006) framework. The process involves familiarization with interview transcripts, identifying patterns, and coding responses to categorize themes related to conservation efforts, regulatory frameworks, and economic sustainability, and factors enhancing the tourist experience.

4. Results and Discussion

The section analysis and interpretation of the qualitative data information gathered from participants in Sri Lanka's underwater tourist sector which are presented in this chapter. With the focus of identifying vital components that impact the tourist satisfaction and expectation through a stakeholder-centric approach. Stakeholders participated in in-depth semi-structured interviews in order to accomplish these goals, and theme analysis was used to analyzed the data.

The data collected from the stakeholders were analyzed, leading to the generation of themes and identification of codes were also partially completed out of the interviews conducted by the stakeholders. This chapter focuses on analyzing the results of the data and giving a perfect strategy for the development of the blue economy.

"For detailed data, please refer to Annexure 1 and 2."

4.1. Tourist Expectations

Tourist experience plays a major role in enhancing the country's blue economy by shaping perceptions and encouraging repeat visits. The initial impression of the tourist experience is often formed by the destination itself, creating a dynamic interplay between expectation and reality. The collected data provided evidence of how tourists are willing to visit Sri Lanka's coastal areas. A diving instructor mentioned that "Some expect to explore the corals, and some look into the hotels, while others come purely for surfing." These different expectations highlight the necessity of market strategy and promotion Meeting tourists expectations is for maximizing satisfaction and fostering a positive overall experience(*Tourism and Biodiversity Conservation*, 2024). "There is not enough coral to explore here in Unawatuna." Which was mentioned by few of the diving master's repeatedly, which has become a crucial point in bridging the gap between proper advertising and promotion of underwater tourism in Sri Lanka to tourists which is the necessity of open advertising and long-term conservation initiatives.. For the tourism industry to grow sustainably and enhance the country's economy, it must align promotional efforts with conservation realities to ensure authentic and satisfying tourist experiences.

4.2. Safety Methods

In the underwater tourism industry safety are a paramount consideration, particularly for diving centers that prioritize compliance with stringent safety standards. The Professional Association of Diving Instructors (PADI) has rated the diving centers which were located in Sri Lanka which providing the centers a credibility and reputation in the service there provides to the tourist. This helps the centers that the tourist has the trust of they visit the center with the higher worldwide rating leads to the frequent visit of tourists. The dive masters consistently emphasized, "we check the equipment before we go for the dive," explaining that tanks are tested rigorously for safety: "we check for the maximum capacity in

the tank by filling it and if it doesn't burst, we get it certified." This demonstrates the stakeholders commitment towards the safety protocols which having a global standard.

These robust safety measures and continuous advancements are crucial for boosting tourist visits to Sri Lanka. ensuring the safety measures and providing proper training for the diving instructors the country will maintain a standard in global perspective which increase the visit of tourist to Sri Lanka and make the country as the world class tourist destination.

4.3. Diver Experience

Diving centers were observed to offers service with the facilitate accommodation with both experience and in experience divers by providing a basic training session before going to the actual diving. In contrast to beginners, the whole diving process is explained with detailed instruction: "we teach them here, and then go to the shallow and train them practically." Even to the prime diver the diving centres provide a trial dive is performed even before the actual location's prime dive.

On the other hand experience divers, they don't need a training session a diver state that "no need to specifically teach them." These divers have already gone through enough diving experience they have the fundamental ability to dive. While this customized strategy works well, it might be improved even more by providing advanced training sessions or specially designed diving tours for seasoned divers. However, ever tourist who is going to dive will have a training session how to dive with the equipment.

4.4. Tsunami Impact and Coral Degradation

The underwater tourism industry of Sri Lanka has been significantly affected by 2004 tsunami which cause the problem of degradation of coral which is the main attraction point to the tourist in order visit Sri Lanka. The loss of coral biodiversity has left many places unable to recover fully, resulting in a decreased appeal for divers and other marine life enthusiasts. One of the diving instructors highlighted the devastating effects Many coastal areas are not fully recovered by tsunami. A diver mentioned that "*The tsunami destroyed many corals, and there hasn't been much government action for restoration.*" The lack of action in this area makes the tourism industry of Sri Lanka into a questionable situation. Despite this, some private centers have initiated coral regeneration efforts, offering a glimmer of hope Even non divers visit Sri Lanka to enjoy the coral through glass bottom boats. Sri Lanka can become more attractive country while increasing Eco-tourism projects. In order to restore Sri Lanka's marine biodiversity and improve as an ecotourism destination, both the public and commercial sectors could work together to make a significant impact.

4.5. Communication Barriers

Effective interaction between tourists is another factor that can affect tourist experience and satisfaction. Language barrier appears when handling international tourists. Most of the tourists cannot speak English language which make the instructors to convey the instruction in an effective way. A dive

master explained, “If there’s a language barrier, we use instructional videos in the tourist’s native language and rely on hand signals underwater. “Even though the new real time technological devices helps to enhance the communication with tourists and could improve communication and make the tourist satisfaction. Despite advances in technology, the language barrier still presents a challenge in providing a seamless experience for international tourists.

However, communication can greatly enhance by the new technologies like underwater communication systems and language translation applications. These technologies can encourage tourists to visit the country. Tourist can fully enjoy their visit through a clear communication, which gives confident in their safety.

The use of more advancement technologies could greatly improve the communication and strength the bond between stakeholders and tourists.

4.6. Weather Conditions

Weather conditions play a major role in diving experience because it is important to have smooth weather conditions to make the diving feasible and quality of underwater tourism activities. Rough sea can make the diving risk which can impact the diving experience. A dive instructor state that, “*If the sea is rough, we inform tourists in advance so they can decide whether to proceed.*” This indicates that some risk-taking tourists are willing to go diving in a challenging condition but even though the safety precautions are strictly followed. Some travelers find the chance to dive in difficult conditions to be attractive, particularly those who are more adventures. But safety is still the first concern. Strict safety procedures are followed by the diving master’s to guarantee everyone's safety, even under these difficult circumstances.

4.7. Feedback and Tourist Satisfaction

The overall feedback received from tourists has been “*actually good.*” This was mentioned several times by all the stakeholders this rating can increase the visiting of the tourist frequently and acts as a good platform for tourism adverting purposes. The positive comments from the tourist can be a positive indicator for the stakeholders to develop their business. However, improvement in areas such as coral availability and offering high quality service can further boost tourist satisfaction.

This feedback provides a strong basement for future development and gives a solid reputation contribution to Sri Lanka to show itself as a top underwater destination. These nice comments can utilize as powerful marketing tools to improve new tourist visit to the country. Stakeholders utilize this feedback to improve their services and concentrate on areas that want improvement.

5. Practical Implication

The interviews which were taken from stakeholders reveal the critical path of the research study that can be notice a clear-cut mismatch between tourist experience and the actual marine resource in Unawatuna region as most of the stakeholders confirm that significant absence of coral in Unawatuna region. This issue mainly is especially relevant when talking about coral reef because many tourists visit Sri Lanka in the hope of see flourishing coral ecosystems. However, the majority of participants, such as diving instructors and tour operators, stated that there was a notable lack of coral in this area. "There is a significant absence of coral in the Unawatuna region," Alegre and Cladera (2009) state that meeting tourist expectations is crucial for satisfaction and repeat visitation. In Sri Lanka, the slow recovery of coral reefs post-2004 tsunami, has left the region underprepared to meet the growing demand for marine tourism.

In addition, while exploring shipwreck is a popular activity the major shipwrecks are located in western coastal rather than southern coastal tourists who travel to the southern coast expecting to see famous wrecks may be let down. According to previous research diver satisfaction is closely linked to the quality of the underwater experience.(Scheyvens, 2011)

While knowing entry-level training is provided for beginner divers, the study found that the research indicated many dive centers had the potential for much more to diversify their offerings for experienced divers. For instance, dive centers could offer more in-depth training sessions and advanced training courses, or even just curated dive tours tailored for experienced divers. These offerings can take form in technical diving courses, underwater photo/video courses, marine conservation dives, or even exploratory dives to places that few divers have been to before! And so forth, to suit different levels of divers interest, and from different styles of diver space that might entice them to come back more often.

And another factor is how international certification (PADI) influences the tourist visit makes the diving centres most credibility. In Sri Lanka PADI certified can earn the attraction of tourist which the engagement of the safety. Therefore, it is important to make sure that diving centers have these certifications and follow global safety guidelines in order to preserve Sri Lanka as a top underwater destination.

6. Conclusion

The research study concludes that emphasis on the key factors that affecting tourist experience and satisfaction in Sri Lanka's Underwater Tourism Industry. Though the stakeholder's point of view they mentioned Expectation, Safety measurements, communication barriers, weather conditions, plays a huge role in shaping up the overall tourist experience. A primary conclusion of this study is the critical

link between enhancing the tourist experience and boosting the country's economic growth.. Accurate information and promotion regarding the country's tourist destination will maintain a strong reputation which leads to the frequent visit of tourists. Moreover, to match the tourist experience it is very important to offer an effective communication which makes the tourist comfortable. Another important factor is safety measurements so the country's diving centers obtain internationally certified diving center such as PADI (Professional Association of Diving Instructors) that guarantees tourist that they are in a safe place which indicates that the diving center follows proper safety protocols. As per the stakeholders' interviews Sri Lanka's diving centers have excellent reputation which the institutions follow a proper safety instruction which attract the tourist more. Training experience is another consideration factor that affects the tourist satisfaction level. Good feedback and return business are the proof that the institution gives a good service to the tourists. The experience of a diving instructor is very important to guarantee smooth operation, especially during emergency situations. Anyhow environmental issues such as coral degradation is become a problematic for this industry. Most of the stakeholders point out that after the 2004 tsunami the government take few action to recover the corals. By addressing these problems and taking conservations efforts make county's tourism industry more appealing in the long future. The weather conditions play a vital role in the country's tourism industry. The experience of the diving center to able to manage the tourist expectations regarding the changing seasonal conditions and gives accurate information regarding climate change. Taking everything into consideration the study emphasis the urgent need of establishing new strategies to grow Sri Lanka's underwater tourism sector thought identifying the issues and resolving the problems through strategical solutions which make the country's economy strong.

6.1. Limitations and Future Directions

This Research provides invaluable insights with the limitation of Unawatuna region. To give more a fuller understanding of underwater tourism sector future studies could be expand to the other regions of Sri Lanka. Additionally Further investigation into effective coral regeneration would be beneficial for government and Stakeholders. Analyzing how tourist expecting regarding the marine resources may also offer crucial insights for enhancing the sustainability of the sector.

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Annexure 01

Theme	Description	Frequency (Dive Master)	Frequency (Industry Stakeholder)	Total Frequency
Tourist Expectations	The expectations tourists have when they come for diving, including seeing coral or exploring the area.	2	3	5
Coral	Discussion on the state of coral reefs and the challenges related to coral regeneration.	1	2	3
Surfing	Tourists' interest in surfing in Unawatuna and nearby areas.	1	1	2
Safety Measures	Ensuring safety before and during the dive, including equipment checks and procedures.	3	3	6
Equipment Checks	The process of checking and ensuring the safety and quality of diving equipment.	2	3	5

Tank Safety	Specific checks related to the safety and condition of tanks used for diving.	2	2	4
Diver Experience	How the diving center accommodates both experienced and beginner divers.	3	3	6
Beginner Divers	Handling and training for beginner divers, including equipment introduction and shallow water practice.	3	1	4
Experienced Divers	The handling and guidance required for experienced divers, such as less supervision and dive path guidance.	2	1	3
Diving Schedule	The timing of dives, with mention of day dives and special night dives.	1	2	3
External Factors	The influence of factors such as Easter attacks, political events, and external challenges on the business.	2	2	4
Tsunami Impact	The damage caused by the 2004 tsunami, particularly to the coral reefs in the area.	2	1	3
Coral Regeneration	Efforts and challenges related to regenerating coral reefs in Unawatuna.	2	1	3
Government Support	The lack of governmental initiatives or funding to	1	1	2

	regenerate coral or support the industry.			
Tourist Feedback	The positive feedback received from tourists regarding their diving experience.	1	2	3
Positive Reviews	The general positive reception from tourists about their diving experiences.	1	1	2
Language Barriers	Challenges faced when tourists speak different languages, and how the center addresses it.	2	2	4
Hand Signals	Use of hand signals to communicate with divers, especially when there are language barriers.	2	1	3
Weather Impact	The effect of weather conditions on diving, including rough seas and visibility.	1	2	3
Rough Sea Conditions	Specific mention of how rough sea conditions affect the diving experience.	1	2	3

Annexure 02

Theme	Code	Quote	Respondent
Career Shift and Motivations	Transition from Biomedical Science to Diving	"I was looking for a more fulfilling career, and diving gave me the chance to combine my passion for water sports with my scientific background."	Respondent 01
	Career Path and Industry Experience	"My background in biomedical science has been useful, but diving is an entirely different field that requires different skills."	Respondent 02
	Personal Journey and Business Motivation	"The journey from a lab to the ocean was both challenging and rewarding. I started my own diving business to share my love for the ocean."	Respondent 03
	Passion for Water Sports	"From a young age, I've always been passionate about water sports. It was a natural transition from surfing to diving."	Respondent 04
Marine Degradation and Environmental Protection	Marine Degradation	"Marine life has been suffering due to overfishing and pollution, and we as divers see it first-hand."	Respondent 02
	Environmental Responsibility and Challenges	"It's difficult to balance business and conservation. There's always pressure to bring in tourists, but the environment is suffering."	Respondent 03
	Impact on Marine Environment	"Tourism is contributing to coral destruction, even though we try to	Respondent 05

		educate tourists about sustainability."	
Tourist Expectations and Activities	Diverse Expectations	"Tourists today are more knowledgeable and have higher expectations about sustainable diving practices."	Respondent 06
	Tourist Awareness and Attitudes	"I've seen a shift in tourists' attitudes, where they now care more about the environment and their impact on it."	Respondent 07
	Tourist Satisfaction and Expectations	"Tourists expect a lot more in terms of experience and education on marine conservation now."	Respondent 03
	Tourist Feedback	"The tourists often leave positive feedback, especially when we incorporate environmental education into the dives."	Respondent 06
	Coral Exploration	"Tourists expect to dive and explore coral, but the thing is there is not enough coral to explore here in Unawatuna."	Respondent 01
Safety and Equipment Management	Safety Protocols and Training	"We conduct thorough safety briefings before each dive, especially when divers are new or inexperienced."	Respondent 01
	Equipment Check	"Every piece of equipment is checked twice to ensure safety, as even a small issue can lead to big problems."	Respondent 04
	Beginner vs. Pro	"Both beginners and experienced divers come... for a beginner we teach on the basics... for a	Respondent 04

		professional we only have to guide on the path of the dive."	
	Emphasis on Safety and Professionalism	"Safety is paramount. We ensure that all divers are briefed on emergency procedures before every dive."	Respondent 02
	Safety Check Process	"There are 3 main parts in our scuba diving gear: the tank, BCD, and the regulator. Those are important parts, and we check for the tank safety like I said earlier."	Respondent 01
	Safety Standards, Diving Certification	"We make sure all our divers have the right certifications. If they don't, we offer courses to help them get certified."	Respondent 03
Tourism Impact and Economic Challenges	Tourism During Crises	"The pandemic hit hard. Post-COVID recovery has been slow, but it's starting to pick up again."	Respondent 01
	Post-COVID Recovery	"Tourism is coming back after COVID, but it's not the same. We need to adapt to new tourist behaviours."	Respondent 04
	Foreign Dependency for Revenue	"Many local businesses rely heavily on foreign tourists for income, which makes them vulnerable during economic crises."	Respondent 05
Government and Community Inaction	Lack of Government Support	"The government hasn't done enough to support the diving industry, especially in terms of infrastructure development."	Respondent 02

	Need for Government Support	"Government support is lacking in terms of regulatory standards and investment in training programs."	Respondent 03
	Absence of a Diving Association	"There's no official diving association to help standardize practices or provide resources for divers."	Respondent 06
Environmental Responsibility and Challenges	Conservation Challenges	"There's a lack of awareness about the impact that tourists have on marine life, which makes it harder to protect the environment."	Respondent 07
	Environmental Impact of Diving	"While diving is a great experience for tourists, it also contributes to coral degradation if proper care is not taken."	Respondent 03
	Sustainability Concerns	"We try to implement sustainability practices, but there's only so much we can do without wider industry support."	Respondent 05
Tourism Promotion and Marketing	Digital Marketing and Social Media	"Social media has played a huge role in marketing our dive business and reaching international tourists."	Respondent 04
	Tourism Promotion and Marketing	"Our business heavily relies on digital marketing to attract tourists, especially post-COVID."	Respondent 06
	Price Comparison with Competitors	"We try to keep our prices competitive with other dive shops in the region, but it's difficult to maintain quality at lower prices."	Respondent 02
	Pricing and Market Positioning	"The cost of courses is an issue for many local divers. We need to balance affordability with quality."	Respondent 07

Diver Demographics and Challenges	Foreigners as Primary Customers	"Foreign tourists make up most of our clientele, and their behaviour and expectations are very different from local divers."	Respondent 01
	Evolving Tourist Expectations	"Tourists are now asking about sustainability and eco-tourism initiatives, which they weren't doing a few years ago."	Respondent 05
	Impact of Weather on Diving	"Weather plays a huge role in diving, especially with rough sea conditions during the monsoon season."	Respondent 06
	Operational Factors and Weather Dependency	"We depend heavily on good weather for diving operations. The weather conditions can cause serious disruptions to our business."	Respondent 04
	Coral Degradation	"The major problem is not having enough corals in Unawatuna, due to the Tsunami the corals were destroyed."	Respondent 01
Language Barriers	Communication Issues	"If a Russian comes for a dive, we use hand signals to communicate underwater. We also show instructional videos in their native language."	Respondent 03
	Non-English Tourists	"If a professional diver comes in, we have to use hand signals anyway... for beginners we show instructional videos in their native language."	Respondent 07
Political/Social Impact	Covid-19 Impact	"During the Covid, there were not many tourists... but now it is getting better, a noticeable increase in divers and courses."	Respondent 07

Collaborative Organisational Culture and Knowledge Management in D-SIBs: Insights from the SECI Model's Combination Phase

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Abstract

In today's knowledge-driven economy, effective knowledge management is leading to organizational success. Yet, its implementation hinges not just on systems, but crucially on organizational culture, particularly collaboration. While its importance is widely acknowledged, fostering a culture of continuous knowledge exchange remains a challenge, especially in dynamic sectors like banking, where strategic agility is vital. This study addresses the gap between recognizing collaborative culture's value and its practical application, focusing on how it influences KM practices within Domestic Systemically Important Banks. Specifically, the research investigates the impact of collaborative organizational culture on implementing KM practices, with a lens on the SECI model's combination phase. Employing a mixed-methods approach where qualitative interviews with 20 executives and a quantitative survey of 384, the study reveals that hierarchical, process-oriented, and freedom-driven collaborative cultures, all underpinned by strong leadership, significantly shaped KM implementation in D-SIBs. The findings underscore the need for D-SIBs to cultivate a multi-faceted collaborative culture. Recommendations include fostering hierarchical structures for consistency, process-oriented approaches for standardized execution, and a degree of freedom for innovation, all supported by leadership development to optimize knowledge sharing and utilization.

Keywords: *Knowledge Management, SECI Model, Combination, Organisation Culture.*

1. Introduction

In an increasingly knowledge-driven economy, effective knowledge management (KM) has become a critical determinant of organizational success and sustainability. KM refers to the systematic processes through which organizations create, share, use, and manage knowledge to enhance performance and innovation (Nonaka & Takeuchi, 1995). However, the success of KM initiatives is not solely dependent on technology and systems; rather, it is deeply embedded in the organizational culture (Alavi & Leidner, 2001). Among the various cultural dimensions that influence KM, collaborative organizational culture—characterized by trust, openness, teamwork, and knowledge sharing—is particularly pivotal (De Long & Fahey, 2000). Despite the widespread recognition of its importance, many organizations struggle to foster a culture that supports collaboration and continuous knowledge exchange (Choi et al., 2008). This gap becomes especially critical in dynamic and complex work environments where the ability to manage and mobilize organizational knowledge is vital for innovation and strategic agility (Gold et al., 2001). The lack of collaborative norms and practices often leads to knowledge hoarding, fragmented communication, and underutilization of intellectual capital (Cabrera & Cabrera, 2005). The rationale for this study lies in addressing the cultural barriers that hinder effective KM practices. While previous research has explored the role of culture in KM, fewer studies have specifically examined how a collaborative organizational culture directly influences knowledge creation, sharing, and retention within organizations (Donate & de Pablo, 2015). In light of this, there is a pressing need to investigate how collaborative values and behaviours within organizational settings can enhance KM practices, especially in knowledge-intensive sectors.

Despite the acknowledged importance of collaborative organizational culture for knowledge management (KM), existing research insufficiently details its direct influence on specific KM practices (knowledge creation, sharing, and retention). Therefore, the aim of this study is to identify the influence of collaborative organizational culture on implementing knowledge management practices in Domestic Systemically Important Banks (D-SIBs), identifying the key cultural enablers and inhibitors that shape the way knowledge is created, shared, and utilized in D-SIBs.

2. Literature Review

2.1. Knowledge Management

The foundations of knowledge management (KM) were laid by Nonaka and Takeuchi (1995), who introduced the knowledge-creating company concept. They emphasized that knowledge, particularly tacit knowledge, is a strategic asset and that its dynamic conversion into explicit knowledge is vital for innovation. Their SECI model—Socialization, Externalization, Combination, and Internalization—became a cornerstone of KM theory. Following this, Alavi and Leidner (2001), provided a

comprehensive review of KM systems, identifying KM as a systematic process of acquiring, organizing, and communicating both tacit and explicit knowledge to enhance organizational performance. They emphasized that the success of KM initiatives is as much cultural as it is technological.

2.2. SECI Model and the 'Combination' Phase

Nonaka and Konno (1998), further refined the SECI model by introducing the concept of “Ba”—a shared space for knowledge creation. They described the Combination phase as one where explicit knowledge is combined, edited, and systematized into more complex sets using documents, databases, and meetings. This stage is heavily dependent on organizational infrastructure and the degree of collaboration across departments. Grant (2007), emphasized that the Combination process benefits greatly from collaborative organizational structures, where boundaries are flexible, and information can flow freely. Without a collaborative environment, the integration of diverse explicit knowledge can be fragmented and less innovative.

2.3. Organizational Culture and Collaboration

De Long and Fahey (2000), were among the first to explore how organizational culture influences knowledge behaviors, arguing that shared norms and values either promote or inhibit knowledge sharing. They identified collaboration and trust as essential cultural elements for successful KM. Similarly, Cabrera and Cabrera (2005), found that collaborative cultures facilitate knowledge sharing by reducing perceived risks and encouraging reciprocal behaviors among employees. McDermott and O'Dell (2001), reinforced this view, noting that cultural traits like openness and teamwork are critical in translating KM strategies into practice. They observed that organizations with collaborative cultures are more likely to embed knowledge sharing into daily routines, thus creating a sustainable KM environment.

2.4. Collaborative Culture and KM

Donate and de Pablo (2015), proposed that knowledge-oriented leadership and collaborative culture are strong predictors of KM effectiveness. They found that shared vision, trust, and open communication significantly influence the success of each SECI phase, particularly the Combination stage, which relies heavily on systematizing and exchanging knowledge across units. More recently, Kim et al. (2021), examined the moderating role of collaborative culture in the relationship between IT-enabled KM and innovation performance. They confirmed that collaborative environments amplify the positive impact of KM, especially when organizations utilize IT tools to foster knowledge combination and reuse.

2.4.1. The hierarchical collaborative culture in implementation of KM Practices

The hierarchical organizational culture is closely tied to organizational structure and plays a significant role in shaping knowledge management (KM) practices. Mason and Pauleen (2003), through a study of New Zealand middle managers, identified key KM barriers—organizational culture, leadership, and

education—and key KM drivers such as competition, peer pressure, and productivity. They emphasized that organizational structure, trust, communication, and knowledge-sharing norms all influence KM effectiveness. Kaffashpoor et al. (2013), in a study of 14 Mashhad Municipality branches in Iran, affirmed KM's positive impact on organizational performance. They identified strategy, leadership, organizational culture, and structure as critical organizational culture (OC) factors affecting KM. Ali et al. (2016), argued that hierarchical cultures offer well-defined, structured processes, though limited research has focused on how such cultures affect knowledge creation and the SECI model, particularly in the combination phase. In decision-making under risk, Riabacke (2006), highlighted that managers rely on adequate information, expertise, and intuition to make informed decisions. They gather data, explore alternatives, and proactively mitigate risks. Similarly, Flüeler and Blowers (2007), emphasized that the quality of decisions depends on goal clarity, solution alternatives, and balancing values. Dezfuli et al. (2010), reinforced that risk analysis in decision-making requires differentiating potential outcomes, often driven by systemic programming or environmental stimulus. Earlier, D'Ambrosio et al. (1994), demonstrated how shared utility functions within hierarchical settings can coordinate group decisions, even when individual goals are misaligned. Panpatte and Takale (2019), underscored decision-making as a central organizational function involving accurate problem identification and intellectual processing to choose optimal solutions. A poor decision may risk organizational failure. Addressing the cognitive aspects, Sternberg et al. (2000), and Pretz (2008), emphasized the value of intuitive, experience-based tacit knowledge in solving poorly structured, high-stake problems. Pretz also noted that cognitive style, experience, and problem complexity influence whether analytical or intuitive strategies are more effective—novice decision-makers often benefit less from analysis alone. Lastly, Abubakar et al. (2019), stressed the necessity for measured and deliberate knowledge application, especially for making fast, informed decisions. They highlighted that while organizational performance depends on measurable goal achievement, this often relies on dynamic KM processes without rigid structures but with implicit requirements. Moreover, according to Xu et al. (2022), they found that tightly controlled, hierarchical teams generate less innovative knowledge than flat teams supporting the notion that structured oversight may constrain creative KM while facilitating error reduction

Ha1: There is an influence of hierarchical collaborative on Implementing Knowledge Management Practices in D-SIBs

2.4.2. Process collaborative culture in implementation of KM Practices

According to Morawski (2020), knowledge-oriented organizations need an environment with clearly defined processes that allow them to operate within comfort zones, turning them into active investors in their intellectual capital. Their engagement in knowledge sharing is essential for achieving long-term, sustainable competitive advantage. Teece (2000), emphasizes that planning is a vital component of knowledge management. Senior management, understanding both internal and external organizational

contexts, can implement suitable rules and regulations that guide KM initiatives. The effectiveness of KM practices depends on the organization's specific goals, rules, and services, highlighting the importance of contextual appropriateness. In the study by Abubakar et al. (2019), knowledge enablers and well-defined procedures are shown to contribute to organizational success through enhanced performance. Accurate decision-making strengthens internal relationships, and the connection between knowledge generation and performance can be moderated by decision-making styles—whether intuitive or rational. A streamlined process facilitates smoother decision-making. Zgirskas et al. (2021), found that standard process support helps reduce organizational workload, increase productivity, and minimize task errors, which all contribute to better decision-making. However, they noted that further research is necessary to validate these findings and linked their results to the importance of implementing quality management systems. Whereas the research findings of Iuliana et al. (2023), have highlighted that process standardization, when paired with digital infrastructure, significantly enhances knowledge transfer, process clarity, and systemic consistency.

Ha2: There is an influence of process collaborative on Implementing Knowledge Management Practices in D-SIBs

2.4.3. Collaborative Culture of Freedom in implementation of KM Practices

According to Hudson and Verschuur (1998), the belief that individual traits primarily cause rule and policy bending often shifts attention to solutions like training, incentives, and selection. However, their findings indicate that the root causes are largely external, such as poor planning, ineffective process improvement, and existing opportunities that allow such behavior. They argue that individuals in managerial and supervisory roles—who often possess greater personal strength—are more likely to seize such opportunities and exhibit initiative by bending the rules. Bonito (2012), highlights that decision-making is arguably the most critical function in management theory. However, he cautions against the assumption that only top executives are responsible for decisions. In reality, decision-making occurs at all organizational levels, branch, departmental, and operational—and must be supported by democratic processes to ensure effective outcomes. He stresses that group decisions by teams and committees are now integral to organizational functioning, necessitating sound decision-making across all levels. In the research by Dačiulytė and Pinchuk (2010), it was found that employees in surveyed firms felt their immediate supervisors did not adequately support learning, innovation, or risk-taking. The study also revealed significant differences between private and public organizations: employees in private firms reported receiving greater leadership support and were more inclined toward self-directed learning. They leveraged a wider variety of learning resources, including peer collaboration, specialist support, and learning through observation and personal experimentation. In contrast, public sector employees showed a lower tendency toward independent learning and utilized fewer learning opportunities. Based on the findings of Koivisto & Taipalus (2023), that revealed the

freedom and social trust are crucial enablers of tacit knowledge sharing; organizations with more fluid, less rigid norms exhibited stronger KM implementation.

Ha3: There is an influence of Collaborative culture of Freedom on Implementing Knowledge Management Practices in D-SIBs

2.4.4. Collaborative Culture of Leadership in implementation of KM Practices

Ovbagbedia and Ochieng (2015) found that knowledge transfer within Nigerian heavy engineering teams is hindered by personal interest, lack of confidence, overconfidence, discrimination, lack of trust, and inadequate encouragement from top management. These barriers create hesitation among team members to share valuable knowledge. According to Rahman et al. (2018), leadership ability plays a significant role in the process of knowledge transmission. Their study underscores that fostering a social unit within the organization is essential, as knowledge sharing is more likely to occur when employees cooperate or at least interact toward common organizational goals. The concept of open leadership is explored in Li (2010), who emphasizes that leadership traits have evolved due to technological advancement and the adoption of multimedia communication. Open leaders foster knowledge sharing by recruiting and promoting the right individuals, cultivating a culture of openness, eliminating barriers, encouraging risk-taking, and promoting recovery from failure. Mustafa and Robertson (2022), provided evidence that organizational culture and leadership styles significantly influence decision-making. Their study highlights the importance for managers, especially new ones, to understand their own leadership styles, adapt to their organization's culture, and make decisions with both organizational outcomes and employee impact in mind. Decision-making, in this context, becomes the most critical factor in evaluating company performance. In the study of Ewertz et al. (2009), it was shown that higher management can delegate authority to informal groups within a more decentralized structure. These informal groups may be empowered with autonomy to make investment decisions, thus reducing bureaucratic delays. Respondents emphasized that empowering employees helps accelerate decision-making processes, especially when those employees are confident and trusted. Bolden (2010), framed leadership as either the formal authority of a person or a broader organizational and social influence process. The selection of a leader is influenced not only by individual traits and life experience but also by cultural and societal factors. Wray (2017), introduced the concept of intuitive decision-making, where hidden knowledge derived from past experiences is used to facilitate quicker decisions. This right-brain-driven approach prioritizes intuition over logic. Busari et al. (2017), supported this view by describing intuitive decision-making as a spontaneous and loosely structured process for evaluating available information. Kahneman and Klein (2009), further noted that intuitive processes free the mind from intensive logical computation, allowing cognitive resources to be used elsewhere. This enables leaders to make effective decisions in uncertain and complex situations by relying on gut feeling and past tacit knowledge. According to Kumar et al. (2024), their research findings demonstrated that

participative leadership, enhanced by supportive coworker knowledge-sharing context, significantly improves creative validation a key KM outcome.

Ha4: There is an influence of Collaborative Culture of Leadership on Implementing Knowledge Management Practices in D-SIBs

3. Methodology

This study investigates the influence of collaborative organisational culture on knowledge management practices within Domestic Systemically Important Banks (D-SIBs), with a specific focus on the combination phase of the SECI model. Guided by an epistemological stance of pragmatism and employing an abductive research approach, this study adopted a mixed methods design to provide a comprehensive understanding of the phenomenon. Data collection was conducted in two distinct phases.

Phase 1: Qualitative Data Collection

The initial phase involved semi-structured interviews with 20 executive-level staff members across the four identified D-SIBs. A purposive sampling technique was used to select five participants from each bank who possessed relevant insights into their organisation's culture and knowledge management initiatives. The Human Resource Department of each bank has supported the researcher to select Heads of Department who have got over 10 years' experience category. The semi-structured interview questions that were checked with the research supervisor for clarity were designed to explore their perceptions and experiences related to collaboration, knowledge sharing, and the processes involved in the combination phase of the SECI model. The qualitative data collected from these interviews were analysed using thematic coding to identify recurring patterns, key themes, and nuanced perspectives.

Phase 2: Quantitative Data Collection

The second phase employed a structured survey questionnaire (the questionnaire was checked through four selected Heads of Department from each bank for clarity) to gather quantitative data from a larger sample of executive-level staff within the same four D-SIBs. A stratified random sampling method (four strata as there are only four D-SIBs in Sri Lankan context) was utilised to ensure representation from each bank. A total of 384 questionnaires were distributed, with 96 executive-level staff members selected from each bank who were employed during the period of December 2023 to March 2024. The questionnaire included validated scales to measure collaborative organisational culture and various dimensions of knowledge management practices, particularly those relevant to knowledge combination. The quantitative data obtained from the completed questionnaires were analysed using descriptive

statistics (e.g., means, standard deviations), correlational analysis to examine the relationships between variables, and chi-square tests to assess potential associations between categorical variables.

The integration of qualitative and quantitative data, guided by the principles of pragmatism and the iterative nature of the abductive approach, allowed for a richer and more robust understanding of the interplay between collaborative organisational culture and knowledge management practices within the specific context of D-SIBs. The qualitative findings provided contextual depth and helped to refine the understanding of the quantitative relationships identified.

4. Data Analysis

4.1. Phase 01 Data Analysis

4.1.1. *The hierarchical collaborative culture in implementation of KM Practices*

Hierarchical culture provides a platform for all the D-SIB staff to practice same policies, procedures and process to improve the uniformity of the service delivery. Hierarchical Culture & Decision Making has been emphasized by the interviews as the following. *Public bank 01: Supports staff in day-to-day decisions, cross-checking reduces risk. Easy decision-making if information access is clear, can refer to procedures. Public bank 02: Welcomes staff interaction and guides decisions to avoid errors. Managers also guide subordinates; clear information flow saves decision time. Private bank 01: Understanding bank structure facilitates finding solutions and seeking approvals, minimizing errors and risks through supervisor/manager involvement. Private Bank 02: Clear understanding of structure enables easier support and faster risk-free decisions.* Knowledge Availability & Control in Decision Making is another factor that shows in the collaborative culture support in KM practices, and which was also stated by interviewees. Making D-SIBs knowledge accessible helps staff follow correct instructions. Leaders control decision-making at different levels without impacting overall bank decisions. *Public bank 01: Staff seek approval for decisions needing it, enabling oversight of decision correctness. Public bank 02: Decision approval needed at different levels based on importance/urgency. Private bank 01: Flexible culture, but crucial decisions require HOD, branch manager, or higher-level approval. Private bank 02: Important decisions need higher-level approval to prevent wrong decisions and maintain control when dealing with customers.* Collaborative culture further established Seeking Support & Coordination in Decision Making Seeking manager/HOD support reduces mistakes as leaders verify decisions against instructions. Leader involvement speeds up necessary decisions, preventing aggressive actions by junior staff that could displease loyal customers. *Public bank 01: Policy documents provide clear decision-making instructions and customer information. Available resources and coordination facilitate decision-making. Public bank 02: Staff coordinate well within and across divisions due to proper structure and clear decision-making*

instructions, easing the process. Private bank 01: Visible organizational structure eases coordination. Clear instructions exist for seeking approval from immediate supervisors or higher levels. Private bank 02: Knowing who to contact for information enables correct decisions. Instructions are provided for staff to refer to and coordinate with relevant individuals for quick decisions.

4.1.2. Process collaborative culture in implementation of KM Practices

Performing jobs the same way across branches simplifies collaboration and ensures correct execution. Process culture supports convenient decision-making. Well-defined processes in D-SIBs enable employees to easily perform tasks and make necessary decisions. *Public bank 01: Banking culture relies on processes; knowing the correct process eases decision-making. Public bank 02: Processes vary by department, briefed during induction, enabling employees to know their job and required decisions. Private bank 01: Knowledge of banking processes is crucial. Supportive culture assists colleagues in making correct decisions even without process knowledge. Private bank 02: High reliance on processes ensures employees understand customer service processes, leading to faster service.* Rules define acceptable actions. Consistent processes across branches ensure uniform service delivery. *Public bank 01: Well-defined rules and procedures are shared with employees, who must adhere to them within their decision-making scope. Public bank 02: Policies are stored in databases for employee reference in decision-making. Set rules guide employee actions. Private Bank 01: Clearly defined rules, procedures, and policies are essential to avoid mistakes. New and existing employees have intranet access to relevant information. Private bank 02: Employees are well-aware of rules, regulations, and policies, crucial for providing correct customer solutions.* Making D-SIBs knowledge accessible helps staff follow processes and procedures in decision-making, indicating successful KM implementation through correct decisions. *Public bank 01: Easy to follow bank processes; knowing how to decide leads to right decisions. Public bank 02: Bank processes clearly define decision-making, leading to consistently correct decisions. Private bank 01: Adherence to bank processes ensures right decisions. Newcomers receive training to follow processes. Private bank 02: Following correct processes and procedures reduces mistakes.* Strong connection to and consistent adherence to processes minimizes errors and facilitates correct problem-solving decisions. Available policies and procedures reduce mistakes as staff know what and how to do things, enabling fast decisions. *Public bank 01: Similar daily cases have established processes, guided decision-making and reducing errors. Public bank 02: Staff make few decision-making errors due to clear understanding of required actions for problem-solving. Private bank 01: Repeated processes and CCTV-based training help staff learn and make error-free decisions. Private bank 02: Following correct processes and procedures reduces mistakes due to a strong connection and consistent adherence, minimizing errors.*

4.1.3. Collaborative Culture of Freedom in implementation of KM Practices

Unfettered freedom in decision-making could be risky. Banking culture permits free decision-making under supervision. D-SIBs generally develop necessary policies. However, some top management allow branches to adopt policies based on local needs for better customer service. *Public bank 01: Policies align with government regulations and are generally followed. Branches can bend policies based on their specific needs with approval. Private bank 02: Branches have freedom to amend loan policies based on local area requirements, subject to approval.* Top management grants freedom for departmental and branch-level decision-making, trusting staff experience and knowledge. *Public bank 01: Involves team in decision-making within the division; branches also have decision-making opportunities. Public bank 02: Departmental decisions are made without higher management approval if they don't impact strategy. Branches, call centers, and card centers have freedom for simple decisions. Private bank 01: Decisions affecting bank-wide processes require approval, but day-to-day decisions are permitted, and teams are allowed to make certain decisions. Private bank 02: Departmental and branch staff can make certain decisions without frequent permission. Branch-level staff understand local issues better than head office and are empowered to decide quickly.* Departmental staff have in-depth knowledge, granting them decision-making freedom over director board involvement. Staff at branch and department levels have freedom to make simple daily decisions without supervisor involvement. HODs trust their self-directed teams to make correct decisions with less supervision. *Public bank 01: Allows staff to make certain daily decisions without requiring approval for every single action, relying on their experience and knowledge. Has a self-directed team.*

Public bank 02: Well-trained and self-directed teams collaborate, enabling monitoring and independent decision-making without interference. Private bank 01: Has a capable self-directed team that can make decisions independently, seeking advice occasionally but eventually operating autonomously. Private bank 02: Aims to build strong, independent teams capable of making the right decisions autonomously. The division has self-directed teams that operate without direct involvement.

4.1.4. Collaborative Culture of Leadership in implementation of KM Practices

Leadership involves developing self-motivated teams and enhancing their skills for future responsibilities. D-SIB leaders are open-minded, considering different perspectives for correct decision-making and team guidance. *Public bank 01: Leaders should be open-minded to listen and consider different perspectives for necessary actions. Public bank 02: Leaders (HODs, Managers, top employees) have good vision, fostering open-mindedness for correct decisions. Private bank 01: Top management is open-minded, allowing input before decisions, which is appreciated. Private bank 02: Team leaders strive to be open-minded to see problems from various angles before deciding.* D-SIB leaders have a clear vision and actively participate in critical team decisions, aligning them with the bank's vision. They understand uncertain situations and guide staff in dealing with difficult customers.

Public bank 01: Leaders make daily decisions understanding the situation, balancing bank needs with staff management in uncertain times. Public bank 02: Top managers with experience understand current affairs and act quickly in uncertain situations, balancing employee and bank needs, which is a learning experience. Private bank 01: Understanding the context is crucial for decision-making in a financial institution facing uncertain situations, balancing impact on staff and the bank. Private bank 02: During crises, the bank had a significant responsibility to make correct decisions considering the country, customers, staff, and the bank equally. Leaders' predominant style fosters trust and builds staff confidence in decision-making through guidance, incorporating staff ideas, and active listening. Public bank 01: Leads team in the right direction while encouraging involvement in decision-making and challenges to build self-confidence. Public bank 02: Top-level management's clear vision provides leadership; encouraging subordinates to decide builds their self-confidence. Private bank 01: HODs and branch managers involve themselves in decision-making through guidance, encouraging staff to develop confidence in giving ideas and solving problems. Believe in the importance of predominant leadership in guiding staff. Private bank 02: Director board members' predominant leadership is crucial for correct decision-making in difficult times and supports job performance. Their trust builds staff self-confidence in working towards the bank's vision.

4.2. Phase 02 Data Analysis

The descriptive and inferential statistical analysis results for the study as given below.

Table 1: Descriptive Statistical Analysis

		Hierarchical_	Process_Cult	Culture_of_F	Leadership_
		Culture	ure	reedom	Culture
N	Valid	384	384	384	384
	Missing	0	0	0	0
Mean		3.6115	3.5563	3.5401	3.8505
Mode		4.00	4.00	4.00	4.00
Std. Deviation		.69560	.73606	.66549	.72756

The descriptive statistics gathered from 384 valid responses provide insightful trends regarding the influence of various dimensions of collaborative organisational culture on knowledge management practices, particularly within the Combination Phase of the SECI model. Among the four cultural dimensions assessed—Hierarchical Culture, Process Culture, Culture of Freedom, and Leadership Culture—Leadership Culture emerged with the highest mean score (M = 3.8505). This suggests that leadership plays a pivotal role in facilitating the integration and systematisation of knowledge, which

is critical during the combination phase of knowledge management. The consistency of responses is also relatively strong, as evidenced by a moderate standard deviation of 0.72756. Following closely are Hierarchical Culture (M = 3.6115) and Process Culture (M = 3.5563), indicating that structured authority and systematic processes moderately support knowledge combination, possibly through formal channels and controlled dissemination of information. Culture of Freedom, while slightly lower (M = 3.5401), still reflects a moderately positive environment for open idea sharing and innovation. Notably, all four variables have a mode of 4.00, suggesting that the most frequent perception among respondents was that these cultural attributes are positively present within their institutions. In terms of variability, Culture of Freedom shows the lowest standard deviation (SD = 0.66549), indicating that respondents' views were more consistent regarding the openness and flexibility within their organisational culture. Meanwhile, Process Culture had the highest variability (SD = 0.73606), possibly implying divergent experiences related to formal procedures and systems across different institutions or departments.

Table 2: Inferential Statistical Analysis

	Value	Asymp. Sig. (2-sided)	Pearson Correlation
Hierarchical_Culture	393.820a	0.000	.241**
Process_Culture	1707.866a	0.000	.779**
Culture_of_Freedom	2535.901a	0.000	.872**
Leadership_Culture	2778.619a	0.000	.953**

According to the Chi-square test results, all four cultural dimensions—Hierarchical Culture ($\chi^2 = 393.820$), Process Culture ($\chi^2 = 1707.866$), Culture of Freedom ($\chi^2 = 2535.901$), and Leadership Culture ($\chi^2 = 2778.619$)—yielded asymptotic significance values of 0.000. These p-values are well below the conventional threshold of 0.05, indicating that the observed relationships are statistically significant. This supports the overall assertion that these cultural factors are not independent of knowledge management practices in D-SIBs but are closely associated with their implementation. Furthermore, the Pearson correlation coefficients demonstrate the strength and direction of these relationships. The Leadership Culture dimension shows an exceptionally strong positive correlation ($r = 0.953$, $p < 0.01$), indicating that as collaborative leadership behaviours increase, the effectiveness of knowledge integration during the combination phase also significantly improves. This underscores the critical role of visionary and participative leadership in fostering an environment conducive to knowledge sharing and synthesis. Similarly, Culture of Freedom demonstrates a very strong correlation ($r = 0.872$, $p < 0.01$), suggesting that environments which encourage autonomy and openness significantly boost the

organisation's ability to implement knowledge management effectively. Process Culture also reveals a strong positive correlation ($r = 0.779$, $p < 0.01$), which highlights the importance of structured, repeatable processes in supporting the combination and integration of knowledge assets across organisational silos. Lastly, Hierarchical Culture presents a weaker yet still significant correlation ($r = 0.241$, $p < 0.01$). While this indicates that a structured authority framework contributes to knowledge management practices, its relatively lower correlation suggests that overly rigid hierarchies may inhibit the collaborative nature required for effective knowledge combination.

5. Discussion

The findings of this study reveal that collaborative organizational culture, especially under a hierarchical structure, plays a significant role in influencing KM implementation in Domestic Systemically Important Banks (D-SIBs). This is in line with the literature that highlights the influence of structure, leadership, and cultural context on KM effectiveness (Mason & Pauleen, 2003; Kaffashpoor et al., 2013).

Interview data shows that hierarchical cultures in D-SIBs enable uniformity in decision-making by providing clear processes, approval hierarchies, and accessible knowledge systems. Staff frequently rely on upper management for guidance, and this structure minimizes errors and enhances efficiency. These findings align with Ali et al. (2016), who emphasize that hierarchical cultures offer structured environments conducive to knowledge control and risk-reduction in decision-making. Moreover, consistent with Riabacke (2006) and Flüeler & Blowers (2007), managers at various levels in D-SIBs are empowered to make decisions based on information clarity, rules, and tacit experience, reinforcing how a strong hierarchical structure supports systematic KM. Decision-making here is both informed and monitored, facilitating the SECI model's "Combination" phase, as emphasized by Ali et al. (2016). The statistical findings further validated Ha1, with strong correlations between hierarchical collaboration and KM practices, particularly regarding knowledge availability and control, policy-driven decision-making, and managerial support.

A process-oriented culture reinforces D-SIBs' ability to deliver services consistently across branches. The interview evidence showed that standardized procedures enhance inter-departmental coordination, promote peer assistance, and guide employees in correct decision-making, even when facing unfamiliar situations. This supports Morawski (2020) and Zgirskas et al. (2021) who found that knowledge-oriented organizations thrive in environments where standard processes support employee comfort and reduce errors. The presence of clearly defined policies, intranet databases, and structured induction programs confirms Teece's (2000) assertion that senior management's role in defining KM rules is essential for effective knowledge transfer. These rules are not just compliance-based but form the

bedrock of organizational learning and operational accuracy. Statistical analysis confirms Ha2, with significant influence observed between process collaborative culture and KM practices—particularly on the variables of rule compliance, procedural knowledge availability, and task execution consistency.

Although D-SIBs are largely process- and structure-oriented, there is growing recognition of the need for freedom in learning, innovation, and intuitive decision-making. Interviewees highlighted that supervisors' encouragement and informal support mechanisms allowed staff to explore new solutions and share ideas, although public banks showed more limitations compared to their private counterparts. These observations support Hudson and Verschuur (1998) and Bonito (2012) who contend that while policy-bending is often viewed as negative, it can reflect initiative-taking when systemic support is lacking. Dačiulytė & Pinchuk (2010) also reinforce the idea that employees need leadership encouragement for self-directed learning and innovation—attributes found more in private banks, as per the interview insights. Statistical findings confirmed Ha3 by showing a positive, albeit weaker, correlation between freedom-based culture and KM implementation. This suggests that while freedom enhances innovation and tacit knowledge sharing (as per Sternberg et al., 2000; Pretz, 2008), it requires strong leadership support and trust to translate into effective KM.

Interview data underscored the critical role of leadership in fostering KM practices through trust-building, intuitive decision-making, and supportive delegation. Employees were more confident in making decisions when empowered by leadership finding consistent with Ovbagbedia & Ochieng (2015) and Rahman et al. (2018), who argue that top-down encouragement is vital for effective knowledge sharing. The emergence of open leadership, as emphasized by Li (2010) and Wray (2017), is evident in how D-SIBs balance hierarchical control with autonomy. Interviewees noted faster decisions and fewer bureaucratic delays when leaders empowered informal groups—a process linked to Busari et al. (2017) and Kahneman & Klein (2009), who advocate intuitive and experience-based leadership as a catalyst for decision-making in complex environments.

Table 3: Summary table of findings

Cultural Dimension	Secondary (Literature)	Research	Qualitative Findings (Interview Data)	Quantitative Findings (Survey Data)
Hierarchical Culture	Hierarchical facilitate structured oversight, and decision errors (Ali et al., 2016; Riabacke, 2006).	cultures KM, reduced	Staff rely on clear structures and approval hierarchies. Decision-making is risk-averse, guided by accessible procedures and manager oversight. Knowledge is controlled yet available.	Mean = 3.61; Pearson r = 0.241** (significant, moderate). Indicates structured support for KM but lower correlation compared to others.
Process Culture	Standardized processes help transfer knowledge and ensure consistency (Teece, 2000; Zgirskas et al., 2021).		Emphasized role of uniform procedures, policies, and intranet databases in supporting accurate decisions. Reduces mistakes, promotes peer learning, and ensures consistency across branches.	Mean = 3.56; Pearson r = 0.779** (strong, significant). Confirms structured process enhances KM implementation, particularly in task execution and procedural clarity.
Culture of Freedom	Autonomy fosters creativity and tacit knowledge sharing when backed by trust (Bonito, 2012; Sternberg et al., 2000; Hudson, 1998).		Branches have some decision autonomy. Encouragement for team-based decisions and innovation is more visible in private banks. Freedom balanced with policy guidelines allows adaptive decisions based on local needs.	Mean = 3.54; Pearson r = 0.872** (very strong, significant). Suggests that flexible, open cultures significantly aid KM practices when combined with leadership trust.

Leadership Culture	Visionary, participative leadership is crucial for KM success and employee trust (Rahman et al., 2018; Li, 2010; Wray, 2017).	Leadership is open-minded, intuitive, and trust-based. Encourages self-directed teams, timely decisions, and collaborative problem-solving. Staff confidence grows through leader guidance and involvement.	Mean = 3.85; Pearson r = 0.953** (exceptionally strong). Indicates leadership is the strongest predictor of effective KM practices in D-SIBs.
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6. Conclusion and Recommendations

This study confirms that a hierarchical collaborative culture is closely linked to organizational structure and plays a critical role in shaping knowledge management (KM) practices within Sri Lanka's D-SIBs. The hierarchical model promotes consistency, reduces risk, and establishes clear lines of authority, making it suitable for structured KM in highly regulated banking environments. Additionally, a strong process collaborative culture supports KM by ensuring uniform task execution, accurate decision-making, and adherence to internal policies across the organization. At the same time, a culture of freedom fosters innovation, personal initiative, and experiential learning, although it requires stronger leadership support and broader institutional backing to reach its full potential. Leadership, in particular, emerges as a key enabler across all cultural dimensions, facilitating structured collaboration, inspiring trust, and promoting effective knowledge sharing. Overall, the findings highlight that a collaborative organizational culture—reflected in hierarchical, process-oriented, freedom-driven, and leadership-centered approaches—directly contributes to the successful implementation of KM practices in D-SIBs.

The study recommends that top management of D-SIBs foster an organizational culture that supports hierarchical, process, freedom, and leadership dimensions, as these significantly influence the successful implementation of knowledge management (KM) practices. Emphasis is placed on effectively executing the combination stage of the SECI model, which involves sharing newly created knowledge among employees to support informed decision-making. This process includes three key stages: capturing new knowledge using tools like data mining, intranets, and web portals; disseminating this knowledge via emails, intranets, and platforms such as WhatsApp; and applying it in daily operations using advanced IT systems like content management platforms, business intelligence tools, and workflow systems. Moreover, decision-making should be decentralized by providing employees

with clear, CBSL-compliant procedures rather than relying solely on hierarchical structures. Strong leadership is also critical; hence, it is recommended that leadership development and mentoring programs be conducted biannually for second- and third-level managers to strengthen their capacity to lead, make sound decisions, and support their teams effectively.

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Impact of Board Characteristics and Audit Quality on Financial Performance in Sri Lankan Listed Commercial Banks

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Abstract

The study mainly focuses on how better corporate governance affects financial performance and how corporate governance practices affect Sri Lanka's licensed commercial banks. By the board size, Board Independence, CEO Duality, Gender Diversity, Board Composition, and Audit quality, the study defines corporate governance and financial performance considers the dependent variables. This study's objective is to analyze the levels and direct connection between corporate governance and factors and the financial performance of Sri Lankan commercial banks. In order to allow the banking industry in Sri Lanka to establish a strategy for improving corporate governance, the study identifies various factors that are of major importance as regards bank management. This will help the Banks to improve their competitive position in the banking sector and ensure that they can survive, particularly during an era of extreme competition. This study focuses on the sample of 11 banks out of 24 licensed commercial banks and the study collects data over the period from 2018 to 2022. The panel regression analysis was used to analyze the relationship between the variables. The results suggest that the Board size has a significant negative impact to ROE and positively significantly affects to ROA and Board Independence positively and significantly affects ROE.

Keywords: *Commercial Banks, Corporate Governance, Financial performance, Audit Quality*

1. Introduction

1.1. Background of the Study

In the early nineteenth century, before the development of the limited liability company, business was conducted as a sole proprietorship, partnership, or unincorporated organization. If the company collapses, creditors may sue the owners until they become bankrupt. The incorporation of legal entities is regarded as one of the best systems ever devised. Shareholders in a limited liability business are no longer liable for the firm's funds. Ownership, however, remained the foundation of power. The BOD is elected by shareholders, and they are responsible for stewardship and reporting to shareholders. (Tricker, 2011).

The basic principles of Corporate Governance, which are very important in terms of organization growth, efficiency, effectiveness, sustainability, and competitiveness, are broadly accepted throughout the world. The characteristics of a good corporate management system shall therefore include strong organizational ethics, solid policy and practice, and efficient and effective monitoring systems. The board size, percentage of independent directors of the board, gender diversity, number of board meetings held annually, CEO duality, and audit quality are necessary components of CG for successful board performance and prompting sound CG.

The Sri Lankan Institute of Chartered Accountants (ICASL) and the Securities and Exchange Commission's (SEC) code of best practice on CG require Sri Lankan banks to adhere. This demonstrates that regulatory bodies are particularly interested in CG since it is directly related to bank performance. Aspects of CG are important because they promote effective corporate mechanisms, sound decision-making, and investment possibilities with integrity.

1.2. Problem Justification and Problem Statement

1.2.1. Justification of the Research Issue

CG procedures are vital to gaining and sustaining public confidence and faith in the banking system, and hence to ensure a smooth operation of banking and the economy. However, CG in the banking industry has received attention, particularly in developing countries. This study highlights many elements important to CG in the context of COBs in Sri Lanka, allowing the banks to build strategies to strengthen CG. This improves the bank's competitive position in the banking industry and assures the bank's survival, especially in this period of fierce competition.

Even there is a strong regulatory framework exists, it also requires having a strong entity level governance mechanism as well. Considering the Sri Lankan financial history, Pramuka Bank crisis is identified as the first bank collapse in Sri Lanka. The Central Bank made some announcements about the behavior of the bank's management and about its decision to close the bank and divide the available assets of Pramuka among depositors and creditors. It has informed the BOD of Pramuka that insolvency

was caused by ineffective management, risky, inappropriate, and careless practices at the bank by those responsible for the affairs of Pramuka Savings and Development Bank.

According to the findings of (Palanippan , 2016), there is a negative correlation between the firms' performance indicators and the extent of board characteristics. The focus also reveals a manifestly large negative correlation between the size of the board and Tobins Q, ROA, and ROE. The available evidence indicates that the independence of the board and frequency of meetings moderate the connection between finance performance in terms of returns on equity and ROA, by strengthening these elements within CG mechanisms.

By considering all above facts, the primary purpose of this study is to assess the impact of CG factors and characteristics impacting the FP in terms of Sri Lankan banking sector due to having a dearth of previous studies in Sri Lankan context. Accordingly, the secondary objective of this study is to contribute to the existing literature by identifying the impact of CG on determining FP in terms of ROA and ROE.

1.2.2. Problem Statement

Based on the above justification, the problem statement for the study is, “What is the impact of CG practices on the firm FP of licensed COBs in Sri Lanka.”

1.3. Research Questions and Objectives

1.3.1. Research Questions

Based on the previously covered research issue, the study's Objectives can be stated as follows,

1. What is the level of existing CG systems in place at Sri Lanka's COB?
2. What is the level of perceived performance?
3. How do CG practices and firm FP relate to one another?

1.3.2. Research Objectives

The two key objectives of this study are based on the above-mentioned research questions and key objectives as follows,

1. To assess the level of existing CG practices and mechanisms of COBs in Sri Lanka.
2. To examine the relationship between CG practices and organizational FP.

2. Literature Review

2.1. Corporate Governance

A Cadbury report was published in 1992 which set out several recommendations relating to CG. (Cadbury Report, 1992) Defines CG as the system in which companies are managed and controlled. BOD plays a significant role in the governance of companies. Shareholders have the responsibility of appointing directors and auditors and ensuring that an effective governance structure is in place. The Board's main responsibilities shall be to set the strategic objectives of the enterprise, ensure that leadership is in place enabling it to take effect, manage its operations and report on their management to shareholders. Law, regulation, and the shareholders' general meeting shall govern the work of the Board.

In 1999, the OECD Principles on CG came into force. The principles aim at providing guidance for governments on how to improve the legislative, institutional, and Regulatory Framework underpinning CG (OECD, 1999). It shows that the separation of powers between the management, the BOD, and the majority and minority shareholders is largely the basis for effective CG. In addition to providing standards and recommendations for the stock exchange, investors, corporations, and other parties who play a significant role in promoting better CG, the OECD's principles of CG support member and non-member governments in their efforts to assess and enhance the legal, institutional, and regulatory framework for CG in their nations. For banks operating on a global level, these CG standards and structures are particularly important. For that purpose, the principle of the OECD may serve as a model for governance structures in multinational financial institutions.

The BOD has the responsibility of ensuring that the information provided by the company is accurate. An adequate number of independent directors who are executives of the company should also be appointed to the board.

A further review of the OECD principles on CG has been carried out by the OECD Corporate Governance Committee. 2014, the review process was initiated and concluded in 2015. This review has been justified, as it ensures that the Principles remain of high quality, relevance and usefulness in view of current developments in the corporate sector and capital markets. The outcome is a sound benchmark for the establishment of an effective CG framework, which will allow policymakers, regulators, and other regulatory bodies to carry out their tasks effectively. The new principles were revised to six principles and those principles explain establishing the foundation for a system for efficient CG, the rights of shareholders and essential aspects of ownership, the fair handling of shareholders, stakeholders' involvement in CG, disclosure, and openness, and the board's duties.

The revision of these principles clearly underlines the importance of a regulatory framework for CG, which is designed to promote market efficiency and facilitate effective enforcement with clear responsibility among all supervisors, regulators, and enforcement authorities.

2.2. Corporate Governance for Licensed Commercial Banks in Sri Lanka

The Monetary Board shall issue instructions for improving and maintaining the CG of licensed COB in Sri Lanka under paragraph 46(1) of the Banking Act No 30 of 1988, with a view to enhancing the stability of the overall banking sector. Several principles have been set out and applied in the context of CG. (Central Bank of Sri Lanka, 2013) Those are the responsibilities of the board, the Board's composition, criteria to assess the fitness and propriety of directors, criteria to assess the fitness and propriety of Directors, management functions delegated by the Board, the Chairman and the Chief Executive Officer, board-appointed committees, related party transactions, and Disclosures.

2.3. Theoretical Perspectives

CG theory considers the board of directors as a mechanism for reducing problems arising from extensive separation of ownership and control. The Agency Theory observes that a modern company is highly separated from its owners and management, resulting in conflicts of interest between the owners and their agents. Resource dependency theory is considered directors as boundary-spanning network nodes that can link the business to its strategic environment. This viewpoint studies the interconnectedness of organizations in a market and can help to eliminate ambiguity in corporate choices (Tricker, 2011).

(Jensen & Meckling , 1976) interpret the agency theory in their research study. They define agency as activities of one or more individuals (BOD) carrying out on behalf of someone else (Shareholders). This relationship leads to an agency problem when both parties try to maximize their interest. (Alhassan, Zyambo, & Boakye, 2012) provide support for both agency and resource dependency theory. Studies suggest that having large board and well-functioning audit committees positively impact FP. Furthermore, the study discloses that NEDs play a crucial role in addressing agency conflicts. (Assenga, Aly, & Hussainey, 2018) In the context of agency theory, this theory supports the separation of chairman and CEO. Findings of this research do not provide support the link between outside directors and FP. In relation to resource dependency theory, the study reveals the gender diversity of the board has a positive impact on FP.

The managerial and class hegemony viewpoint on CG focuses on how directors see themselves, how it affects their conduct, and what it means for CG. In certain businesses, directors saw themselves as an elite club. They are compelled by their view of themselves as elite to dominate the internal structure of the business and its exterior relationships. Appointing top management ensures that newcomers blend into the elite and preserve their reputation. Similar to this, new independent directors will probably only be proposed for and selected provided they continue the governing group's control. Class hegemony acknowledges that board conduct and performance may be impacted by directors' self-perceptions.

Additionally, executive directors may control board choices due to their access to information, familiarity with current operations, and ability to make judgments. (Tricker, 2011).

(Donaldson & Preston, 1995) have argued that the stakeholder theory is a "managerial" concept, and therefore recommend attitudes, structures, and procedures which are taken together to form an enterprise management philosophy. The theory goes beyond a purely descriptive assessment that "organizations have shareholders" which, although true, has no direct management implications.

2.4. Relationship of Better Corporate Governance to Firm Financial Performance

Hakimi, et al., (2018) indicate a positive and statistically significant correlation between board duality and bank performance as measured by both ROA and ROE. In addition to that they have found the board size has a positive and significant impact only when the profitability is measured by ROE. Having considered on another study, (Grove, et al., 2011) state CEO duality is negatively associated with FP, indicating that having the same individual for both chairman and chief executive officer positions of the board leads adverse impact on the firm performance. Based on the analysis done (Nas & Kalaycioglu, 2016) considering 221 exporting firms for four years, findings reveal about board composition and its impact on export performance. There was a systematic positive correlation between board size and all measures of export performance. Contrarily higher proportion of outside directors on the board has shown a negative impact on export performance. Furthermore, the separation of the chairman and CEO has a positive impact on export performance. This implies that having two separate individuals for these two positions enables the firm to achieve favourable outcomes. By analyzing CG structures of 391 Indian companies out of 500 companies listed on the national stock exchange over five financial years, (Mishra & Kapil, 2018) suggest that the CG impact more on the market base measurements compared to accounting-based measure. Further they have indicated that there is a significant positive relationship between board size, board independence, number of board meetings, and firm performance. Moreover, the study reveals that the separation of the chief executive officer and the chairman of the board is creating value for the firm. On the other hand, study reveals that overburdened directors hurt firm performance. Another research study (Abang'a, et al., 2022) discloses that board meetings, board skill, and gender diversity show a significant and positive association with capital budget realization ratio (CBRR) by analyzing a sample of 45 state-owned enterprises (SOEs) in Kenya. Moreover, this study implies that the aggregate CG disclosure index, the presence of board sub-committees, board size, and the inclusion of independent NED are positively related to CBRR. However, these relationships are not statistically significant. (Varghese & Sasidharan, 2019) Attempt to investigate the effect of ownership structure and board characteristics on business value in both Indian and China economies. In China, the dual nature of the CEO increases the value of the company, but the results are not positive for Indian companies. In addition, companies in China are negatively affected by board independence as it is positively correlated with company value in India. In the end, the study has shown that increased board size is beneficial to more appropriate decision-making.

2.5. Research Gap

By considering all these prior studies, most of the results show that there is a positive, favourable impact on the outcomes and FP of the organizations. Upon reviewing existing research, it indicates that there is a lack of studies exploring the relationship between CG practices and the FP of COBs within the local context. Identifying this research gap, this study aims to address this by focusing on COBs in Sri Lanka. By undertaking this research, the study aims to contribute valuable insights to the existing literature on this subject matter.

3. Research Methodology

3.1. Research Approach

The positive paradigm is a way of measuring reality in terms of independent components. Additionally, it was shown that the procedures utilized in the positivistic paradigm included hypothesis verification, quantitative approaches, surveys, and experiments (Guba & Lincoln 1994). Coghlan and Brydon-Miller (2014) state that the positivist approach is a widely used method in the social sciences where the goal is to gather numerical data to more accurately analyse the data. argue that the positivist approach is a well-known strategy employed in the social sciences where the objective is to obtain numerical data with the purpose of more reliably analysing the data.

3.2. Research Method

Many more studies were conducted in the quantitative method to support the objectives of the respective research, as referred to by the related prior work carried out for this study.

Furthermore, it has been noted that this current research study also focuses on defining levels of governance factors, (bank board characteristics and audit quality) and the FP of the banks to achieve its established objectives. This study should also be implemented quantitatively, taking into consideration both the nature of objectives as well as expected results.

3.3. Population and Study Sample

The population is extracted from the licensed COB registered at the Central Bank of Sri Lanka. The registered list includes 24 licensed COBs, out of that population, those which have not been listed under the CSE and annual reports are not published properly and the banks and non-banking financial companies and financial institutions which are having their financial accounting periods as of 31st March have been excluded.

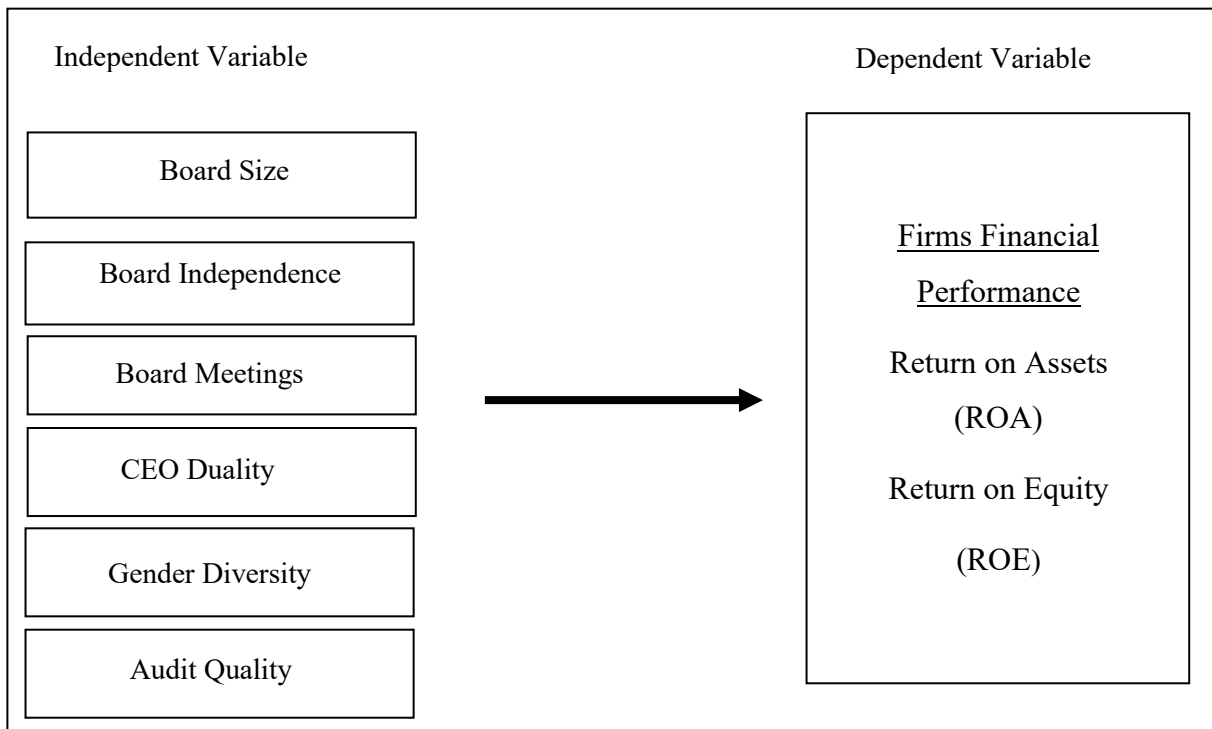
3.4. Sample Size and Selection of Sample

From the licensed COBs in Sri Lanka which are listed in the CSE, the sample will be selected. There are 24 licensed COBs under the supervision of the central bank of Sri Lanka. The sample consists of 11 COBs, including Bank of Ceylon, Commercial bank of Ceylon PLC, DFCC Bank PLC, Hatton National Bank PLC, Sampath Bank PLC, Amana Bank PLC, Seylan Bank PLC, National Development Bank PLC, Nations Trust Bank PLC, Pan-Asia-Banking Corporation PLC and Union Bank of Colombo PLC.

3.5. Conceptual Diagram

Figure 1 shows the conceptual framework which has been initiated based on the previous studies (Palanippan, 2016) where the CG factors are considered as the main independent variable and the FP is considered as the dependent variable.

Figure 1- Conceptual Framework



Source: *Author Compiled*

3.6. Hypotheses

Based on the conceptual framework shown in the conceptual diagram section and by referring to the prior literature (Palanippan, 2016) the following hypotheses are developed.

Hypothesis H1: There is a significant impact of board size on the Sri Lankan commercial banks' financial performance.

Hypothesis H2: There is a significant impact of the number of independent directors of the board on the Sri Lankan commercial banks' return on assets.

Hypothesis H3: There is a significant impact of the number of independent directors on the board on the Sri Lankan commercial banks' return on equity.

Hypothesis H4: There is a significant impact of the board meetings on the Sri Lankan commercial banks' financial performance.

Hypothesis H5: There is a significant impact of the CEO duality on the Sri Lankan commercial banks' ROE.

Hypothesis H6: There is a significant impact of Gender diversity within the boards on the financial performance of Sri Lankan Commercial Banks.

Hypothesis H7: There is a significant impact of audit quality on the Sri Lankan commercial banks' return on equity.

3.7. Operationalization

Table 1- Operationalization

<i>Variable</i>	<i>Definition</i>	<i>Measurement</i>	<i>Related Studies</i>
<i>Dependent Variable</i>			
FP	PBDIT/Total assets	ROA (ROA)	(Palanippan, 2016)
	PBDIT/Paid-up equity capital + reserves funds	ROE (ROE)	
<i>Independent Variable</i>			
Board Size (BS)	Number of directors on the board.	Number of directors on the board for the entity <i>I</i> period <i>t</i> .	(Fernando, et al., 2019)
Board Independence (BI)	Number of non-executive independent directors on the board	Number of non-executive independent directors on the board for the entity <i>I</i> period <i>t</i> .	(Palanippan, 2016)
Board Meetings (BM)	A number of annual meetings of the board.	Several board meetings were held during the year for the entity <i>I</i> period <i>t</i> .	(Palanippan, 2016)

CEO (CEODUAL)	Duality	CEO duality is the circumstance in which one individual occupies the roles of chairman and CEO in the same organization.	1= if the CEO and Chairperson are held by the same person, 0= if not for the entity I period t.	(Palanippan, 2016)
Gender (GD)	Diversity	percentage of females on a company's BOD out of all members.	percentage of females on a company's BOD out of all members.	(Danquah, et al., 2022)
Audit Quality (AQ)		Banks who were audited by one of the Big 4 Public Accounting Firms will receive a value of 1, while those who were audited by another firm will receive a value of 0.	Banks who were audited by one of the Big 4 Public Accounting Firms will receive a value of 1, while those who were audited by another firm will receive a value of 0.	(Mahrani & Soewarno, 2018)

Source: Author Compiled

3.8. Sources and Collection of Data

Data is collected from annual reports published on the CSE official website and official websites of the COBs in Sri Lanka for five years covering 2018, 2019, 2020, 2021, and 2022.

3.9. Data Analysis Strategies

Data for the study is collected from the annual reports of the COBs are going to be analyzed under the data analytic soft wares, Stata 15 for descriptive statistics analysis.

Panel regression analysis is appropriate to estimate the relationship between a dependent variable and a set of independent variables. To detect multiple regressions, the following model has been developed. It is expected to determine the relationship between the dependent variable (ROA and ROE) and independent variables (Board characteristics and audit quality) using this multivariate regression analysis.

The panel data regression analysis along with the Hausman test is needed to be done in order to verify the relationship between independent variables and dependent variables with the usage of Stata-15 data

analytic application. Given the nature of the study involving panel data series, it is mostly recommended to use the panel data regression analysis over normal regression analysis for comprehensive analysis.

$$\text{ROA} = a + b_1\text{BS} + b_2\text{BI} + b_3\text{BM} + b_4\text{CEODUAL} + b_5\text{GD} + b_6\text{AQ} + e$$

$$\text{ROE} = a + b_1\text{BS} + b_2\text{BI} + b_3\text{BM} + b_4\text{CEODUAL} + b_5\text{GD} + b_6\text{AQ} + e$$

The key indicators of a company's performance are ROA and ROE, as well as the parameters for explainable variables, are b_1 , b_2 , b_3 , b_4 , b_5 , and b_6 . A is the constant number in this formula, and e is the standard error.

4. Data Analysis

4.1. Reliability Analysis

This study used the scale reliability coefficient to show how reliable the data set was and the average interitem covariance value to find out how closely each item in the data set was linked to the others. Cronbach's alpha is a measure of the scale reliability coefficient as shown in the below table. When the Cronbach alpha value is equal to or greater than 0.7 and the average interitem covariance value is smaller, the data set is more reliable. Based on the table below, a Cronbach alpha value greater than 0.7 (in particular 0.7047) indicates a higher level of reliability for the data set, implying that the data set reflects internal consistency. The comparatively low average interitem correlation (0.1569102) implies that the items in the data set are not strongly connected. This illustrates a diversity among the items, which can be seen as a positive characteristic. Therefore, the researcher can conclude that the scale exhibits acceptable reliability, and the items have a modest level of correlation with one another.

Table 2- Summary of reliability test results

Average interitem covariance	.1569102
Scale reliability coefficient	0.7047
Number of items in the scale	8

Source: Author Compiled

4.2. Descriptive Analysis

The ROA value of 6.972% indicates the average return for the total assets during the period of 2018 to 2022 generated by PLC banks in Sri Lanka, with a considerable variability around this mean as indicated by the standard deviation of 4.675. the average ROE of 3.291% indicates that the PLC banks are producing a strong return on their shareholders' equity investments. The significant standard deviation

of 2.253, on the other hand, indicates a significant heterogeneity in ROE values, showing a broad range of performance results among the PLC banks in Sri Lanka. The natural logarithm of board size (ln_BS) has an average value is 2.309, and the data exhibit relatively low variability with a standard deviation of 0.261. The natural logarithm of the board independence (ln_BI) and board meeting (ln_BM) have mean values of 1.863 and 2.612, with lower levels of standard deviations of 0.241 and 0.111, respectively. The average CD value is 0.182, indicating that CEO duality is not commonly observed in the dataset. The standard deviation of 0.389 implies a certain degree of variability in the CEO duality status among the observations, with values spanning from 0 to 1. The existence of variability indicates the few banks where the positions of chairman and CEO are held by the same individual (CD=1) and banks where these positions are held by separate individuals (CD=0). The mean value of AQ is 0.636, suggesting that, on average, there is a significant presence of banks audited by one of the Big 4 Public Accounting Firms in the dataset. The standard deviation of 0.485 indicates variability in audit quality across observations, with a range of 0 to 1. The presence of variability implies that there is a mix of banks audited by the Big 4 (AQ=1) and those audited by other firms (AQ=0) in the dataset. The mean GD value is 14.94, suggesting that the average proportion of females on the boards of directors in the observed companies is roughly 14.94%. The standard deviation of 9.717 indicates a certain degree of heterogeneity in gender diversity among the observations, with values ranging from 0% to 40%. The standard deviation measures the degree to which the percentages of gender diversity differ from the average, emphasizing the spread in gender representation on boards. A higher standard deviation signifies increased variety in gender diversity percentages across the companies in the sample.

Table 3- Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	55	6.972	4.675	.46	14.2
ROE	55	3.291	2.253	-5.96	7.01
ln BS	55	2.309	.261	1.386	2.639
ln BI	55	1.863	.241	1.099	2.303
ln BM	55	2.612	.111	2.303	2.773
CD	55	.182	.389	0	1
GD	55	14.94	9.717	0	40
AQ	55	.636	.485	0	1

Source: Author Compiled

4.3. Correlation Analysis

The correlation coefficient, ranging from -1 to 1, quantifies both the strength and the direction of the relationship between the variables. Closer to 0 values signify a weak link, whereas positive values denote a direct association, and negative values denote the reverse.

The correlation coefficients indicate a strong positive association between ROA and ln_BS (0.238), as well as ln_BM (0.319). The ROA exhibits a negative correlation with the CD, GD, and AQ. The relationship between ROE and ln_BI is negative, with a correlation coefficient of -0.101. Similarly, there is a negative relationship between ROE and ln_BM, with a correlation coefficient of -0.153. The variable ln_BS exhibits a strong positive association with ln_BI (0.847), ln_BM (0.290), GD (0.344), and AQ (0.361), whereas it demonstrates a negative link with CD (-0.221). The variable ln_BI demonstrates a significant positive association with ln_BS (0.847) but displays lesser connections with ln_BM (0.148), CD (-0.370), GD (0.368), and AQ (0.333). The variable ln_BM exhibits a positive correlation with ln_BS (0.290) and a negative correlation with CD (-0.083). The correlation coefficient between it and ROE is -0.153, indicating a negative association. There exist moderate positive relationships between GD and ln_BS (0.344), ln_BI (0.368), and AQ (0.115). There exists a lower negative association between it and ROA, with a correlation coefficient of -0.089. There exists a direct relationship between AQ and ln_BS (0.361), ln_BI (0.333), and GD (0.115). ROA and ln_BM have negative relationships, with coefficients of -0.212 and -0.144, respectively.

Table 4 - Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ROA	1.000							
(2) ROE	-0.163	1.000						
(3) ln_BS	0.238	-0.301	1.000					
(4) ln_BI	0.110	-0.101	0.847	1.000				
(5) ln_BM	0.319	-0.153	0.290	0.148	1.000			
(6) CD	0.277	0.005	-0.221	-0.370	-0.083	1.000		
(7) GD	-0.089	0.129	0.344	0.368	0.140	-0.166	1.000	
(8) AQ	-0.212	-0.081	0.361	0.333	-0.144	-0.134	0.115	1.000

Source: Author Compiled

4.4. Hausman Test

According to this test, the researcher could develop the following hypotheses.

H0: Random effect model is preferred.

H1: Fixed effect model is preferred.

4.4.1. Hausman test for ROA

The results of the Hausman (1978) specification test show a chi-square test value of 10.563 with a corresponding p-value of 0.032. The low p-value of 0.032 suggests that the researcher would reject the null hypothesis at the conventional significance level of 0.05. This implies that there is evidence to suggest a systematic difference between the coefficients obtained from the random effects and fixed effects models. Hence, the FE model is preferred for regression analysis.

Table 5- Hausman (1978) specification test for Model 1

	Coef.
Chi-square test value	10.563
P-value	.032

Source: Author Compiled

4.5. Hausman Test

4.5.1. Hausman Test for ROE

The Hausman (1978) specification test in this scenario produces a chi-square test statistic of 0.33, accompanied by a p-value of 0.988. Considering a p-value of 0.988, significantly greater than the standard significance level of 0.05, a researcher would not reject the null hypothesis. There is insufficient evidence to establish a consistent difference between the coefficients obtained from the random effects and fixed effects models. In short, the random effects model is seen as more reliable and effective when compared to the fixed effects model.

Table 6 - Hausman (1978) specification test for Model 2

	Coef.
Chi-square test value	.33
P-value	.988

Source: Author Compiled

4.6. Normality Test

The Shapiro-Wilk test is a statistical technique used to ascertain if a particular dataset follows a normal distribution. The study analyzed the residuals of the regression model. The researcher might suggest the following hypotheses to evaluate the normality of the dataset;

H0: Data set follows a normal distribution.

H1: Data set does not follow a normal distribution.

If the p-value is smaller than the predefined significance level (often 0.05), a researcher would reject the null hypothesis of normality. If the p-value exceeds the significance level, a researcher would not reject the null hypothesis, indicating a lack of substantial evidence to support the claim that the data deviates from a normal distribution.

4.6.1. Normality Test for Model 1

According to the table below, the p-value of 0.018 is less than 0.05, indicating that a researcher would reject the null hypothesis of normality. Therefore, based on the Shapiro-Wilk test, there is evidence to suggest that the data may not follow a normal distribution. The researcher has two alternatives to conducting panel regression analysis: either using the fixed effects (FE) model, which does not require the assumption of normality, or using robust regression. Due to the Hausman test indicating greater consistency, the researcher could perform panel regression using the FE model. Hence, the researcher can use the FE model to mitigate the presence of non-normality.

Table 7 - Shapiro-Wilk W test for Model 1

Variable	Obs	W	V	z	Prob>z
residuals	55	0.948	2.661	2.099	0.018

Source: Author Compiled

4.6.2. Normality Test for Model 2

According to the table below, the p-value of 0.548 is less than 0.05, indicating that a researcher does not have enough evidence to reject the null hypothesis of normality. Therefore, based on the Shapiro-Wilk test, there is evidence to suggest that the data may follow a normal distribution. Hence, the researcher could proceed the panel regression analysis with RE model.

Table 8- Shapiro-Wilk W test for model 2

Variable	Obs	W	V	z	Prob>z
residuals1	55	0.981	0.946	-0.119	0.548

Source: Author Compiled

4.7. Heteroskedasticity Test

The researcher can formulate the following hypotheses to evaluate the presence of heteroscedasticity in the dataset:

H0: There is homoscedasticity.

H1: There is heteroscedasticity.

4.7.1. Heteroskedasticity Test for Model 1

The White's test results in a chi-squared test statistic of 34.10 and 25 degrees of freedom, leading to a p-value of 0.1057. The outcome does not support the rejection of the null hypothesis of homoskedasticity, indicating that there is not enough evidence to assert unrestricted heteroskedasticity. The decomposition conducted by Cameron & Trivedi reveals that heteroskedasticity is associated with a chi-squared value of 34.100, 25 degrees of freedom, and a p-value of 0.106. The collective evidence from both tests strengthens the conclusion that there is no statistically significant evidence of unconstrained heteroskedasticity in the data, as the p-values surpass the standard significance level of 0.05.

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroskedasticity

chi2(25) = 34.10

Prob > chi2 = 0.1057

Table 9 - Cameron & Trivedi's decomposition of IM-test for model 1

Source	chi2	df	p
Heteroskedasticity	34.100	25	0.106
Skewness	13.610	6	0.034
Kurtosis	2.640	1	0.104
Total	50.360	32	0.021

Source: Author Compiled

4.7.2. Heteroskedasticity Test for Model 2

The White's test produces a chi-squared test statistic of 18.93 with 25 degrees of freedom and a p-value of 0.8006, suggesting that there is no statistical significance. This finding corroborates the notion that the errors' variance remains consistent across all observations. The decomposition conducted by Cameron & Trivedi provides a detailed breakdown of the chi-squared contributions, highlighting that the sole source of heteroskedasticity produces a chi-squared value of 18.930 with 25 degrees of freedom

and a p-value of 0.801. The cumulative evidence from both tests, with a chi-squared value of 29.710 and 32 degrees of freedom, strengthens the conclusion that there is no substantial evidence of unrestricted heteroskedasticity in the data, as the p-values significantly above the conventional 0.05 significance level.

White's test for H_0 : homoskedasticity

against H_a : unrestricted heteroskedasticity

chi2(25) = 18.93

Prob > chi2 = 0.8006

Table 10- Cameron & Trivedi's decomposition of IM-test for model 2

Source	chi2	df	p
Heteroskedasticity	18.930	25	0.801
Skewness	8.480	6	0.205
Kurtosis	2.300	1	0.129
Total	29.710	32	0.583

Source: Author Compiled

4.8. Autocorrelation Test

The researcher can formulate the following hypotheses to evaluate the presence of autocorrelation in the dataset:

H_0 : There is no autocorrelation among the error terms.

H_1 : There is autocorrelation among the error terms

4.8.1. Autocorrelation Test for Model 1

The test produced a test statistic (F) of 0.057 with degrees of freedom (1, 10) and a p-value of 0.8166. The higher p-value signifies insufficient statistical evidence to reject the null hypothesis, implying the absence of significant first-order autocorrelation in the error terms of the panel data regression model. Therefore, based on these results, it is reasonable to assume that there is no autocorrelation. This means that the estimated coefficients in the model are not affected by any bias caused by first-order autocorrelation.

Wooldridge test for autocorrelation in panel data

H_0 : no first-order autocorrelation

$$F(1, 10) = 0.057$$

$$\text{Prob} > F = 0.8166$$

Table 11- Autocorrelation test for model 1

F (1, 10)	0.057
Prob > F	0.8166

Source: Author Compiled

4.8.2. Autocorrelation Test for Model 2

The test produced a test statistic (F) of 4.556 with degrees of freedom (1, 10), and the corresponding p-value is 0.0586. Although the test statistic surpasses the crucial threshold, the p-value is somewhat greater than the traditional significance criteria of 0.05. Therefore, the findings indicate a situation that is on the edge, prompting one to approach it with a critical understanding. Although there is a slight indication of possible first-order autocorrelation, it does not meet the standard threshold for statistical significance. Hence, the researcher could conclude that there is no autocorrelation among the error terms.

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

$$F(1, 10) = 4.556$$

$$\text{Prob} > F = 0.0586$$

Table 12- Autocorrelation test for model 2

F (1, 10)	4.556
Prob > F	0.0586

Source: Author Compiled

4.9. Multicollinearity Test

According to the table below, VIF values for all the independent variables are less than 10, suggesting a mean VIF of 2.267. As per the decision criteria stated before, VIF values are in the acceptable range indicating there is a lower-level risk of multicollinearity. Therefore, the researcher could proceed with the multiple regression analysis to test the hypotheses.

Table 13- Variance inflation factor

	VIF	1/VIF
ln BS	4.382	.228
ln BI	4.327	.231
AQ	1.253	.798
ln BM	1.246	.802
CD	1.221	.819
GD	1.17	.854
Mean VIF	2.267	.

Source: Author Compiled

4.10. Panel Regression Analysis

In this study, the researcher utilized panel regression to analyze the data collected from 11 publicly listed banks in CSE over the period of 2018 to 2022. Two models were used for the regression analysis. In model 1, the dependent variable was ROA, while in model 2, the dependent variable was ROE. All the independent variables are included in both models, with some variables being in natural logarithm form, such as board size, board independence, and board meeting. As previously discussed, a Hausman specification test was conducted for both models to determine the preferred model for running regression analysis. This test helps to determine whether the random effects (RE) model or the fixed effects (FE) model is more appropriate.

4.10.1. Regression Analysis for ROA

Based on the Hausman test, the FE model is applied to conduct a panel regression for model 1. This model examines the relationship between the dependent variable, ROA, and several independent variables (ln_BS, ln_BI, ln_BM, GD). However, two dummy variables, CD and AQ, are excluded from the analysis due to perfect collinearity. The normality test showed the non-normal of the data set, which needed to run the panel regression with the FE model to avoid non-normality issues.

According to the table below, overall model significance is tested by Prob>F, which is 0.103, suggesting that the overall model is not significant at the 5% level since the p-value is more than 0.05. Although the Prob>F value is slightly above 0.1, it is not statistically significant at the 10% level. However, it is close to that threshold. Overall R squared (0.134) indicates that approximately 13.4% of the changes in ROA are explained by the ln_BS, ln_BI, ln_BM, and GD.

When examining the coefficient values in the table, ln_BS is 7.229 with a p-value of 0.037, implying that a director added to the board, ROA is estimated to increase by 7.229% while all the other independent variables are held in constant. Moreover, the below table suggests independent variables

which are ln_BI, ln_BM, and GD do not show statistical significance with the dependent variable (ROA) since their respective t values (-1.45, 0.50, and 0.71) are less than 2 and p values (0.179, 0.631, and 0.492) are more than 0.05. Because the P-value (0.037) is less than 0.05 and the T-value (2.40) is larger than 2, the ln_BS has a statistically significant relationship with the ROA of publicly listed commercial banks in Sri Lanka. The constant coefficient value indicates that the absence of directors on the board leads to a decrease of 6.787% in ROA.

Table 14- Regression results for model 1

ROA	Coef.	St.Err.	t- value	p- value	[95% Conf	Interval]	Sig
ln_BS	7.229	3.008	2.40	.037	.528	13.931	**
ln_BI	-2.843	1.967	-1.45	.179	-7.225	1.54	
ln_BM	.795	1.605	0.50	.631	-2.78	4.371	
o	0	.	.	.	.	.
GD	.019	.026	0.71	.492	-.04	.077	
o	0	.	.	.	.	.
Constant	-6.787	9.055	-0.75	.471	-26.963	13.389	
Mean dependent var		6.972	SD dependent var		4.675		
R-squared		0.134	Number of obs		55		
F-test		2.683	Prob > F		0.103		
Akaike crit. (AIC)		148.978	Bayesian crit. (BIC)		157.007		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author Compiled

Based on the results of panel regression analysis, the researcher might develop the following regression equation.

$$Y = -6.787 + 7.229(X1) - 2.843(X2) + 0.795(X3) + 0.019(X4)$$

Y = Return on Assets (ROA)

X1= Logarithm of Board Size (ln_BS)

X2= Logarithm of Board Independence (ln_BI)

X3= Logarithm of Board Meetings (ln_BM)

X4= Gender Diversity (GD)

4.10.2. Regression Analysis for ROE

Based on the Hausman test, the RE model is applied to conduct a panel regression for model 2. This model examines the relationship between the dependent variable, ROE, and several independent variables (ln_BS, ln_BI, ln_BM, CD, GD, and AQ). The RE model can be applied without any issues as the dataset satisfies all the assumptions that were tested, including normality, heteroskedasticity, and autocorrelation.

According to the table below, overall model significance is tested by Prob>chi2, which is 0.036, suggesting that the overall model is significant at the 5% level since the p-value is less than 0.05. Overall R squared (0.220) indicates that approximately 22% of the changes in ROA are explained by the ln_BS, ln_BI, ln_BM, CD, AQ, and GD.

When examining the coefficient values in the table, ln_BS is -6.882 with a p-value of 0.003, implying that a director added to the board, ROE is estimated to decrease by 6.882% while all the other independent variables are held in constant. Similarly, ln_BI has a coefficient value of 4.761 with a p-value of 0.055, revealing that if an independent non-executive director were added to the board, it would result in increased ROE by 4.761%. Moreover, the below table suggests independent variables which are ln_BM, CD, GD, and AQ do not show statistical significance with the dependent variable (ROE) since their respective t values (-0.16, 0.39, 1.64, and 0.11) are less than 2 and p values (0.876, 0.694, 0.102, and 0.916) are more than 0.05. Because the P-value (0.003) is less than 0.01 and the T-value (2.98) is larger than 2, the ln_BS has a statistically significant relationship with the ROE of publicly listed commercial banks in Sri Lanka. Moreover, the t-value of 1.92 for ln_BI is slightly below 2, but the p-value of 0.055 suggests a noteworthy relationship between ln_BI and ROE. Based on the analysis conducted, it is evident that the presence or absence of certain directors on the board has a significant impact on the return on equity (ROE). Specifically, the coefficient value of constant term suggests that the absence of directors and independent non-executive directors on the board results in a notable increase of 10.61% in ROE.

Table 15- Regression results for model 2

ROE	Coef.	St.Err.	t- value	p- value	[95% Conf	Interval]	Sig
ln_BS	-6.882	2.307	-2.98	.003	-11.404	-2.36	***
ln_BI	4.761	2.482	1.92	.055	-.103	9.624	*
ln_BM	-.451	2.897	-0.16	.876	-6.129	5.226	
CD	.321	.816	0.39	.694	-1.278	1.919	
GD	.052	.032	1.64	.102	-.01	.115	
AQ	.07	.663	0.11	.916	-1.229	1.369	
Constant	10.61	7.275	1.46	.145	-3.648	24.868	
Mean dependent var		3.291	SD dependent var		2.253		
Overall r-squared		0.220	Number of obs		55		
Chi-square		13.499	Prob > chi2		0.036		
R-squared within		0.013	R-squared between		0.765		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author Compiled

Based on the results of panel regression analysis, the researcher might develop the following regression equation;

$$Y = 10.61 - 6.882(X1) + 4.761(X2) - 0.451(X3) + 0.321(X4) + 0.052(X5) + 0.07(X6)$$

Y = Return on Equity (ROE)

X1= Logarithm of Board Size (ln_BS)

X2= Logarithm of Board Independence (ln_BI)

X3= Logarithm of Board Meetings (ln_BM)

X4= CEO Duality (CD)

X5= Gender Diversity (GD)

X6= Audit Quality (AQ)

4.11. Hypotheses Testing

Hypothesis H1: *There is a significant impact of board size on the Sri Lankan commercial banks' financial performance.*

In this study, the researcher used both the measurements of ROA and ROE to assess the financial performance of publicly listed commercial banks in Sri Lanka. According to the table below, both models suggest that Board Size has a statistically significant impact on the ROA and ROE since their respective t-values (2.40 and -2.98) are more than 2 and p-values (0.037 and 0.003) are less than 0.01. Therefore, the researcher has enough evidence to reject the null hypothesis which states that there is no significant impact of board size on the Sri Lankan commercial banks' financial performance. This result is consistent with previous studies conducted by Ghazali (2020) and Palaniappan (2017), which demonstrated that the size of the board of directors has a significant impact on the performance of the company. In addition, Ghazali (2020) suggests that a larger board size facilitates the inclusion of a wide range of viewpoints, talents, and experiences, which as a result improves the quality of decision-making. According to Palaniappan (2017), there is a negative relationship between the size of the board and the performance of the firm. This implies that as the board size increases, the financial performance of the company tends to decline.

Hypothesis H2: *There is a significant impact of the number of independent directors of the board on the Sri Lankan commercial banks' return on assets.*

Based on the findings from Model 1 in the table below, it appears that Board Independence does not have a significant effect on the ROA of publicly listed commercial banks in Sri Lanka. The result is supported by the t-value of -1.45, below the threshold of 2, and the p-value of 0.179, which exceeds the significance level of 0.05. Thus, the researcher lacks sufficient evidence to reject the null hypothesis, which suggests that there is no significant impact of board independence on the return on assets of Sri Lankan commercial banks.

Hypothesis H3: *There is a significant impact of the number of independent directors on the board on the Sri Lankan commercial banks' return on equity.*

Based on the findings from Model 2 in the table below, it appears that Board Independence does not have a significant effect on the ROE of publicly listed commercial banks in Sri Lanka. The result is supported by the t-value of 1.92, slightly below the threshold of 2, and the p-value of 0.055, which slightly exceeds the significance level of 0.05, but is below the 0.1 significance level. Thus, the researcher has sufficient evidence to reject the null hypothesis, which suggests that there is no significant impact of board independence on the return on equity of Sri Lankan commercial banks.

Palaniappan's (2017) study provides evidence that aligns with the H2 hypothesis of the present study, indicating that the level of board independence has a significant impact on the performance of Indian manufacturing enterprises. The findings of (Morri, 2013; Dani, 2018; and Kiptoo, 2021) provide more support to the argument that companies with a greater proportion of independent directors exhibit better results. Opposite to the findings of H2, but consistent with the findings of H3, Ghazali (2020) emphasized that board independence does not have a significant impact on company performance in Malaysia. This suggests that concerns regarding the effectiveness of board independence persist. The current study's findings provide additional validation due to the inconsistent outcomes shown in prior research regarding the influence of board independence on company performance.

Hypothesis H4: *There is a significant impact of the board meetings on the Sri Lankan commercial banks' financial performance.*

The researcher applied both ROA and ROE metrics to evaluate the financial performance of publicly listed commercial banks in Sri Lanka. Based on the table below, both models indicate that the frequency of board meetings each year does not have a significant effect on the ROA and ROE. This is confirmed by the respective t-values of 0.50 and -0.16, which are both below 2, and the p-values of 0.631 and 0.876, which are both above 0.05. Thus, the researcher lacks sufficient information to reject the null hypothesis, which claims that board meetings have no significant effect on the financial performance of Sri Lankan commercial banks. To the opposite of this result, Ghazali (2020) emphasized the significant influence of the number of board meetings during the year has a substantial impact on the company's performance.

Hypothesis H5: *There is a significant impact of the CEO duality on the Sri Lankan commercial banks' ROE.*

According to the table, model 2 suggests that CEO duality has an insignificant effect on the ROE because its t-value (0.39) is below 2 and its p-value (0.694) is over 0.05. Therefore, the researcher does not have sufficient evidence to reject the null hypothesis, which states that CEO duality does not have a substantial impact on the ROE of Sri Lankan commercial banks. Palaniappan (2017) and , Nguyen (2022) showed that CEO duality has a substantial impact on firm performance, which is contrary to the current study's findings. Additionally, they clarified that consolidating the roles of CEO and chairman into one individual will lead to improved performance for the organization.

Hypothesis H₆: *There is a significant impact of Gender diversity within the boards on the financial performance of Sri Lankan Commercial Banks.*

The researcher utilized both ROA and ROE metrics to assess the financial performance of publicly traded commercial banks in Sri Lanka. According to the table provided, both models suggest that the gender diversity of the board does not have a substantial impact on the ROA and ROE. These findings are supported by the respective t-values of 0.71 and 1.64, both of which are less than 2, as well as the p-values of 0.492 and 0.102, both of which are greater than 0.05. As a result, the researcher does not possess sufficient evidence to reject the null hypothesis, which posits that gender diversity does not have a significant influence on the financial performance of Sri Lankan commercial banks. In contrast to this result, Dani (2018) found that Gender diversity has a substantial effect on the firm performance in Brazilian companies.

Hypothesis H₇: *There is a significant impact of audit quality on the Sri Lankan commercial banks' return on equity.*

According to the table, model 2 suggests that Audit quality has an insignificant effect on the ROE because its t-value (0.11) is below 2 and its p-value (0.916) is over 0.05. Therefore, the researcher does not have sufficient evidence to reject the null hypothesis, which states that CEO duality does not have a substantial impact on the ROE of Sri Lankan commercial banks. Korent (2014) discovered that the quality of audits has a notable influence on the success of firms, indicating that companies audited by the four major audit firms exhibit better financial results.

Table 16- Summary of Regression Statistics

Variable	Model 1 – ROA		Model 2 – ROE		Conclusion
	<i>t-values</i>	<i>p-values</i>	t- values	p-values	
Ln_BS	2.40	0.037	-2.98	0.003	Do not reject the null hypothesis for both models
Ln_BI	-1.45	0.179	1.92	0.055	Reject the null hypothesis for model 1 Do not reject the null hypothesis for model 2
Ln_BM	0.50	0.631	-0.16	0.876	Do not reject null hypothesis for both models

CD	-	-	0.39	0.694	Do not reject the null hypothesis for model 1
GD	0.71	0.492	1.64	0.102	Do not reject null hypothesis for both models
AQ	-	-	0.11	0.916	Do not reject the null hypothesis for model 1

Source: Author Compiled

5. Conclusion

There is a higher grade of risk of the failure of various Sri Lankan banks even today due to their lack of CG mechanisms, according to the problem justification and the prior literature. Even if there is a robust regulatory framework in place, it is equally necessary to have a strong regulatory framework and a better governance structure. CG procedures are necessary to establishing and maintaining creditability in the banking system, and as a result, to guarantee the economy's and banking sector's smooth functioning. CG in the banking sector has drawn attention, nevertheless, especially in developing countries. This study identifies several aspects of Sri Lankan COBs' CG that are crucial, enabling the banks to develop strategies to improve CG. This boosts the bank's ability to compete in the financial sector and ensures its survival, particularly in this era of intense competition.

With the identification of practical and empirical significance, the significance of this study is spread to two directions. The empirical significance reveals by analyzing the CG effects determinants on the FP of Sri Lankan COBs, this study addresses the research gap in the literature. There is a lack of exploration in the local context, despite previous studies on CG and financial success. This report offers insightful information about the significance and role of CG in the industry of Sri Lanka's banking. When considering the practical significance of this study, reveals a significant correlation between factors of CG and a firm's performance. This relationship varies depending on the country's nature, context, and culture. It helps regulatory parties like the SEC (Securities Exchange Commission), the Central Bank of Sri Lanka, and the CSE (CSE) identify proper governing mechanisms for financial institutions. Policymakers should prioritize internal CG aspects, and managers play a key operational role in selecting, implementing, and controlling CG practices. The design of the research project that will employ the quantitative method and the positivist paradigm based on secondary data is thoroughly detailed in the last section. The sample is drawn from listed COBs on the CSE. For the data analysis, SPSS 23 will be used to perform correlation analyses and regression analyses.

In conclusion, this study will analyze the effects of each board governance factor and audit quality on the performance of finance of Sri Lankan COBs, and it is expected to result in a satisfactory outcome at the implementation stage.

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The Impact of Personal Traits, Quality of Working Life, and Psychological Well-Being on Job Burnout among Sri Lankan Big 4 External Auditors

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Abstract

Given the detrimental effects of job burnout on both external auditors and external audit firms, the current study seeks to determine how personality traits, the quality of the auditors' working life, and their psychological well-being on job burnout in external auditing. The focus on a specific audit industry, where socioeconomic, political, and cultural factors differ greatly from those of Western and European developed economies, makes the current study particularly exceptional and unique. The authorities, lawmakers, and audit companies may find value for the findings offered in this study. The considered population under this study is the people who are currently working in the Big 4 audit firms. The sample is considered from the people who work as associates, supervisors, and managers. The sample is selected as 250 auditors working at junior, senior, and manager levels in the KPMG, EY, PWC, and Deloitte (SJMS Associate). Data was gathered through the distribution of questionnaires, which were then analysed using IBM (SPSS-23) software in order to arrive at conclusions. In line with previous research and this research expectations, this study indicates that the personal traits, quality of working life, and psychological well-being of Sri Lankan external auditors have a negative effect on job burnout.

Keywords: *Job Burnout, Quality of Working Life, Psychological Well-being, External Auditors*

1. Introduction

1.1. Introduction and Background of the Study

In the twenty-first century, with globalization and digital technologies, human resources have become an important determinant in organizational performance. One of the hallmarks of a good organization is how it handles its employees' physical and mental health, partly because human resources are an organization's most precious asset and assess the performance and efficacy of its activities. According to earlier literature, quality of working life is no longer a novel concern, and most managers prioritize the qualitative components of work environment and employee mental health to achieve their objectives (Walton, 1973). According to Muftah (2011), one of the significant areas of HR management that have gained great attention from academics is quality of working life, which recognizes personnel as an "asset" rather than a "cost" to the organization.

Employees who experience a good work environment and have their needs met personally tend to stay loyal to their employer. In other words, it has been suggested that meeting individual needs are essential to increasing an organization's effectiveness and efficiency. According to Maslow's hierarchy of needs, which divides individual needs into physiological, safety, love, self-esteem, and self-actualization needs, is seen as being like the quality of working life in this regard. It suggests that each individual need is distinct from the others and that a need that is significant to one employee may not be significant to other employees. In general, a person's occupation is a significant component of their life. People's psychological requirements, like social contacts, self-assurance, skill, and mental fortitude, and physical well-being are all satisfied by their occupations. Under certain conditions, occupations may be linked to several unfavorable consequences, such as a bad working environment, high work demands, difficult job duties, and changes in working conditions. Following such events, job burnout is frequently cited as the most important phenomenon that slowly develops over time and is probably going to result in serious problems for both people and businesses (Salehi and Dastanpoor, 2018).

According to Freudenberger (1974), coined the term "burnout" in its present context. He described "job burnout" as mental and physical tiredness caused by working conditions. When considering prior studies there has been a vast corpus of research on burnout in various areas. Burnout is thought to be induced by mental and physical tiredness (Narehan, et. al. 2014). Furthermore, according to Narehan (2014), there is a three-dimensional burnout framework that includes emotional exhaustion (occurs while individuals have no emotional connections or, more precisely, when one's emotional reserves are depleted and they feel lethargic), poor personal accomplishment (regarding lack of motivation, low self-esteem, and career advancement), and depersonalization (emotional callousness and emotional distance from clients and colleagues). In addition to these characteristics, the conflict has been linked to burnout, which is characterized by an obsession with and willingness to engage with the problems of others (Maslach et al. 2001; Schwarzkopf et al. 2016).

According to Abuaddous, Bataineh, and Alabood (2018), different professions may experience varying degrees of burnout. It was found that the burnout rate experienced by external auditors, one of the two categories of the auditing profession (internal and external auditor), is greater than the average when compared to other professions like physiotherapists and social workers. External auditors frequently have cynical attitudes about their clients or coworkers, as well as high levels of stress and weariness (Mohd Nor, M. 2011). Later, it was discovered that, particularly during the hectic season, families also engage in this cynical conduct. Additionally, external auditors frequently lack the will to continue working and hold a strong dislike for their line of work (L. Diana, personal communication, October 30, 2020).

Being overworked has always been a problem in the accounting industry. Accounting studies from the 1980s showed that excessive time pressure could lead to abnormal auditor performance (Kelley and Seller 1982). According to subsequent research (Sweeney and Summers 2002; Fogerty, Singh, Rhoads, and Moore 2000), a high workload is a factor in employee burnout, higher attrition, and poorer performance. Accounting businesses have expanded attempts to monitor and manage workloads as they have grown more conscious of these issues. As an illustration, PwC states that its procedures are "designed to assist our staff members properly manage their workloads" (PwC 2014, 12). Similar to Deloitte, Ernst & Young evaluates the workloads of its audit executives "to ensure that they have the time necessary to carry out quality work" (EY 2015, 13) and Ernst & Young conducts "a detailed review of partner and senior manager duties annually" (Deloitte 2017, 19).

The British left behind an economic, political, and governmental structure in Sri Lanka that was all their own. The British ruled the country for more than 150 years before it gained independence in 1948. Prior to 1970, Sri Lanka's accounting and auditing standards were based on those of the Companies' Ordinance of Ceylon, a piece of then-current UK law (Perera, 1975). The Joint Stock Companies Ordinance No. 4 of 1861 established the first British company law in Sri Lanka. The Companies Ordinance of 1938, which required business auditors to register, highlighted the need to establish a regulating body and lay the groundwork for a formal admission process into the field of accounting in Sri Lanka. In Sri Lanka, this is where the auditing profession had its start.

It may be said that the founding of the Accounting Boards in 1941, and the ICASL in 1959 served as a catalyst for the development of the Sri Lankan auditing sector. Companies Act No. 17 of 1982 and Companies Ordinance of 1938 were replaced by the Companies Act No. 7 of 2007. The Sri Lanka Accounting and Auditing Standards Act (No. 15) of 1995 was written by the Ministry of Finance and Planning (MOFP) with the assistance of accountants and representatives from the business and financial sectors. This Act designates particular businesses as Specified Business Entities (SBEs) and regulates the audit of SBE financial statements for the durations starting in January 1999 (ADB, 2002). The ICASL creates accounting and auditing standards in Sri Lanka in accordance with the Sri Lanka Accounting and Auditing Standards Act of 1995. These standards have been somewhat amended to take

into account regional business requirements based on the ISA released by the IAASB of the IFAC. Accounting and auditing in Sri Lanka's corporate sector are directly impacted by international organizations like the IFAC, International Accounting Standards Board (IASB), International Monetary Fund (IMF), World Bank (WB), and Asian Development Bank (ADB).

In such a kind of situation, this study mainly focuses on what is the impact of personality traits, quality of working life, and psychological well-being on job burnout among Sri Lankan external auditors.

1.2. Problem Justification and Problem Statement

After nearly 30 years of civil conflict, the country's capital market has experienced a considerable upswing in the last ten years. About US\$19.5 billion was the overall market capitalization in January 2016 (Wickramasinghe, J.B. 2015). KPMG, Ernst & Young, PWC, and BDO Partners are the four biggest international accounting firms operating in Sri Lanka; together, they audit 84% of the publicly listed companies in the Colombo Stock Exchange. As of December 2013, these publicly traded firms accounted for 98% of the market capitalization. Most of the remaining audits are performed by medium size audit firms. In Sri Lanka, there are 20 medium-sized audit companies with at least four audit partners (Wickramasinghe, J.B. 2015).

According to previous research done in Sri Lanka (Panchali, J., & Seneviratne, S. M. 2019), external auditing is considered one of the most stressful jobs that need both the best knowledge and the suspicious mind. Organizations like audit firms rely largely on their staff. Therefore, firms should consider the mental and physical health of employees to provide better services to society.

The facts mentioned in the introduction section identify that there have been many studies performed to evaluate burnout in various areas. However, there has been a lack of research performed in Sri Lanka to identify the impact of personality traits, quality of work life, and psychological well-being on job burnout among Sri Lankan external auditors.

1.3. Research Questions

Therefore, based on the problem justification previously mentioned, the following may be said about the research questions of this study:

- What is the relationship between personality traits and external auditors' job burnout?
- What is the relationship between quality of work life and external auditors' job burnout?
- What is the relationship between psychological well-being and external auditors' job burnout?

1.4. Research Objective

Based on the previously mentioned research questions, this study aims to:

To examine the impact of personality traits, quality of working life, and psychological well-being on job burnout among Sri Lankan external auditors.

1.5. Scope of the Study

This study examines the impact that personal traits, quality of working life, and psychological well-being on job burnout among Sri Lankan external auditors. From the people who are working in the external auditing field, this study considers the people who are working in the Big 4 audit firms in Sri Lanka.

This research is limited only to the people who are currently working in the Big 4 audit firms as audit associates, senior team members, and managers. Also, this study uses primary data from distributing questionnaires to external auditors. There are many audit firms in Sri Lanka scaling from small to large. Employees of the main four audit companies in the Colombo district are taken into consideration for the study due to the practical challenges in acquiring data.

Having considered the selected sample it seems that this study is restricted due to the sample size and the time frame.

2. Literature Review

2.1. Personal Traits

The word "personality trait" describes patterns of behavior and thought that are constant across time and an extensive variety of situations. According to many recent empirical studies (Boone & Hendriks, 2009; Bozionelos, 2004; Kauer, et al., 2007), personality traits have an impact on people's values and attitudes. One of the personality traits that has gotten a lot of attention in the organizational literature is locus of control. The degree to which a person believes that influential outsiders are in charge of events (external locus) as opposed to that individual's internal locus is referred to as locus of control (Rotter, 1966). People who have an extensive internal locus of control believe they are in charge of certain elements of their workplace. Prior research (Judge & Bono, 2001) has shown a favorable relationship between an internal locus of control and outcomes for desirable employment, such as job satisfaction, organizational commitment, and job performance. When it comes to their accomplishments and failures, internal people take ownership of their actions, whereas external people feel helpless and blame other forces for their circumstances (Aube, et al., 2007).

This study mainly focuses on personal traits such as work experience, level of education, field of study, gender, and position.

2.2. Quality of Working Life

The phrase "quality of work life" (QWL) has many definitions, according to Nadler and Lawler (1983). According to Nadler and Lawler (1983, p. 26), the focus of QWL should be on resolving how individuals can perform their jobs more effectively as well as how work may improve an individual's mood or state of being. A group of measures for QWL was created by Sirgy et al. (2001) and addresses a variety of employee demands, including those for respect, actualization, knowledge growth, health and safety, financial security, and social support. QWL assesses how satisfied employees are with their ability to meet a variety of requirements by acquiring and preserving resources, taking part in a range of organizational tasks, and accomplishing their individual and professional goals at work (Sirgy et al., 2001). According to Nadler and Lawler (1983), the involvement of employees in problem-solving, work enrichment, and decision-making autonomy would likely increase as a result of QWL activities.

2.3. Psychological Well-being

Positive affect, negative affect, mental health, emotional tiredness, happiness in life, domain happiness, psychological effect, and personal, psychological, and emotional well-being are all generally referred to as being in a state of well-being (Wright & Huang 2012, p. 1188). All elements that have a major impact on how people perceive and think about their lives might be considered components of psychological wellbeing (Rath et al., 2010). According to Robertson and Flint-Taylor (2009), on page 6, "the affective and purposive psychological state that people experience while they are at work" is the definition of employee psychological well-being in the organizational domain.

Two perspectives on the idea of psychological well-being are "hedonic" and "eudaimonic" (Boniwell & Henry, 2007; Fredrickson, 1998). The term "hedonic" refers to a state of well-being that includes pleasant sentiments and general contentment with life. People's attention and actions can be expanded by positive emotions, which contributes to an increase in psychological health (Fredrickson, 1998). According to Robertson and Cooper (2010), the alternative strategy, known as "eudaimonic," refers to having meaningful life events that give people's actions direction and values. In conclusion, two essential elements of psychological well-being are enjoyment and purpose, suggesting that cultivating psychological wellness in the workplace should involve both contentment and a distinct sense of purpose in one's work (Robertson & Flint-Taylor, 2009).

2.4. Job Burnout

Burnout is a work-related condition characterized by ongoing drowsiness, cynicism, and decreased professional competence, according to Maslach et al. (2001). A loss of a person's power reserves, continual fatigue, and chronic tiredness are characteristics of exhaustion. Cynicism is the propensity to

disengage from one's work and to create negative evaluations of it. Finally, diminished professional effectiveness has been defined as a reduction in one's perceptions of competence and professional accomplishment (Maslach & Leiter, 2008). Although there are several extra explanations for burnout (such as Demerouti et al., 2010), many approaches incorporate the traits of exhaustion and cynicism. Job burnout, then, is a chronic psychological condition that results from a person's incapacity or reluctance to put in the required effort at work.

2.5. External Auditors

According to the literature, the external auditing profession has long provided an accountability service. The auditing role was created within the framework of the agency relationship (principal/agent) as a method to reduce the risk of the "owner or principal" who allocated assets into the trusteeship for an "agent". The agent's primary duty is to see to it that the assets are used properly and that the principal receives accurate accounting reports within a certain time frame.

Researchers and professional organizations have recognized the responsibilities of external auditors (Masoud, 2017; Porter et al., 2012; Porter, 1993). Fraud detection, assurance of a going concern, assurance of the correctness of financial information, and reporting to regulatory authorities were the areas of greatest concern for most respondents. As a result, numerous modifications have been made to broaden the duties and responsibilities of an auditor. Almost all studies have acknowledged that the auditor should take a more active and accountable role when it comes to fraud and going concern reporting. The studies also claim that to keep up with changes in the regulatory environment, auditor responsibilities must be modified.

Auditors are required by law to adhere to the statutory framework established by the in-force laws and regulations relating to accounting and auditing. Every listed company's set of financial statements is audited by a member of the Institute of Chartered Accountants of Sri Lanka who has been granted a license to operate by the Institute of Chartered Accountants of Sri Lanka. The auditors express an opinion in their audit report that the financial statements were prepared and presented in compliance with Sri Lanka Accounting Standards and that the audit was carried out in line with Sri Lanka Auditing Standards (CA Sri Lanka, 2017).

2.6. Personal traits and job burnout

There is widespread agreement that the field of auditing and the job of auditors are essential and inevitable in today's business and politics. When performing to the best of their ability, professional assurance services, auditors must be in good physical and mental health. There is evidence to support the claim that a public accounting firm's human resources play a significant role in determining its success or failure. More significantly, auditor personality traits are thought to influence an auditor's judgment as well as performance (Utami and Nahartyo, 2013). Most of the previous research on audit & assurance makes the case that the background in which auditors operate includes several features that

are most probable to reduce the quality of an audit (Utami & Nahartyo, 2013). Accordingly, job stress has been identified as the most important factor impacting the audit profession. Several stressors, including burnout, have been identified as substantial contributors to the work stress experienced by auditors (Larson, 2011; Utami & Nahartyo, 2013). According to Fogarty et al. (2000), job or work overload is a component of burnout. Thus, the researchers contend from both quantitative and qualitative viewpoints that role overload might result in job burnout. Particularly, an excessive amount of qualitative labor causes auditors to become distracted and fail to properly accomplish their jobs (Zohar, 1997; Maslach and Jackson, 1984). This frequently happens when auditors believe they don't have enough time to finish the assignment before it's due (Cordes and Dougherty, 1993).

Prior research on burnout often points to elements in the workplace that contribute to job burnout. However, several individual and personal characteristics can have a big impact on whether burnout occurs (Utami and Nahartyo 2013). According to some meta-analyses' findings, for instance, the role stress model may be moderated by personality traits or type (Jackson and Schuler, 1985). In this regard, 58 auditors employed by public accounting firms in Yogyakarta, Semarang, Jakarta, and Palembang participated in Utami and Nahartyo's (2013) survey. The results indicate that personality type A is likely to increase the relationship between role overload and burnout. The domestic research by Amiri et al. (2011) examines job burnout between bank employees and provides solutions to the problem. Their findings demonstrate that job burnout is a serious issue that requires full attention.

According to the research, factors such as marital status, gender, number of children, educational background, workplace, and work experience have a big impact on job burnout. According to the findings of this study, senior managers must learn to manage job tiredness, role stressors, and unfavorable selfevaluations of their performance at work. Mahdunia et al. (2015) investigate the connection between workplace stressors and workers' increased job burnout in an industrial setting. The findings indicate a substantial link between personal characteristics (chronic illness, accidents, educational attainment, and work experience) and job burnout.

They discovered that job burnout is more likely to result from four different types of stressors at work, including demand, role overload, communication, and turnovers. To put it another way, they provide some evidence that hostile workplace interactions, workload, employees who are unfamiliar with the organization's goals and tasks, employees who are unaware of the importance of their role within the organization, staff organization, and job turnovers all contribute to job burnout.

Based on the prior literature can build the following hypothesis,

H1: There is a negative relationship between personality traits and auditors' job burnout.

2.7. Psychological well-being, Quality of working life (QWL), and job burnout

Numerous studies (e.g., Sheppard and Herrick, 1972; Simmons and Mares, 1985; Knox et al., 2001; Sirgy et al., 2006; Ahmad, 2013) have discovered a significant relationship between the physical and social work environment and employees' psychological well-being. According to Knox et al. (2001), the quality of working life is largely influenced by the degree of strengths and weaknesses that are present in the working environment. Similar to Bagtasos (2011), they view the quality of working life as an advantage within an organization that contributes to the health and welfare of the workers.

Employees not only complete their regular activities but also obtain a significant amount of new knowledge and ability when their known "job requirements or facets" are totally achieved (Narehan et al., 2014). This collection of research indicates that a number of factors might cause workplace burnout, including high workloads, overtime shifts, conflicting role expectations, and unmet job demands. As audit firms and their auditors are known to be a high-stress job encompassing significant turnover and busy periods (PricewaterhouseCoopers, 2004; Herda, 2012), these factors, along with the QWL consequences mentioned earlier in this section, are frequently significant in the practice of auditing.

Particularly, independent auditors usually struggle to manage a number of professional problems such as statutory deadlines, completing Chartered Accounting examinations, and work overload that leaves little time for their own lives. The recent economic downturn and the rise of offshore audit & assurance services have also resulted in several significant layoffs in the audit industry (Daugherty and Dickins 2009; Herda, 2012). Auditors are affected by these occurrences, which can cause emotional tiredness, tension, frustration, and, more generally, job burnout.

According to accounting research, burnout can have serious negative effects on individuals who are auditors and audit firms, including increased work turnover, bad work performance, workplace unhappiness, and job frustration (Jones et al. 2010; Herda, 2012). Herda (2012) looks at the interaction among external auditors and auditing companies in this regard and how it affects both job stress and intention of leaving the position. Their findings imply that good connections among auditors and their company depend on treating employees fairly.

Furthermore, it is less probable that auditors will become burned out on the job and quit the company if the audit firms employ fair methods in their internal decision-making. Additionally, successors are more likely to receive predecessors' firm obligations than vice versa. Marvian Hosseini and Lari DashtBayaz (2015) investigate the effect of job burnout on the relationship between job stress and auditors' job performance for a sample of Iranian auditors. The results show a significant relationship between burnout, job stress, and performance. According to the researchers, improved auditor performance may dramatically lessen job burnout and role stress.

Based on the prior literature can build the following hypotheses,

H2: There is a negative relationship between quality of working life and auditors' job burnout.

H3: There is a negative relationship between psychological well-being and auditors' job burnout.

3. Research Methodology

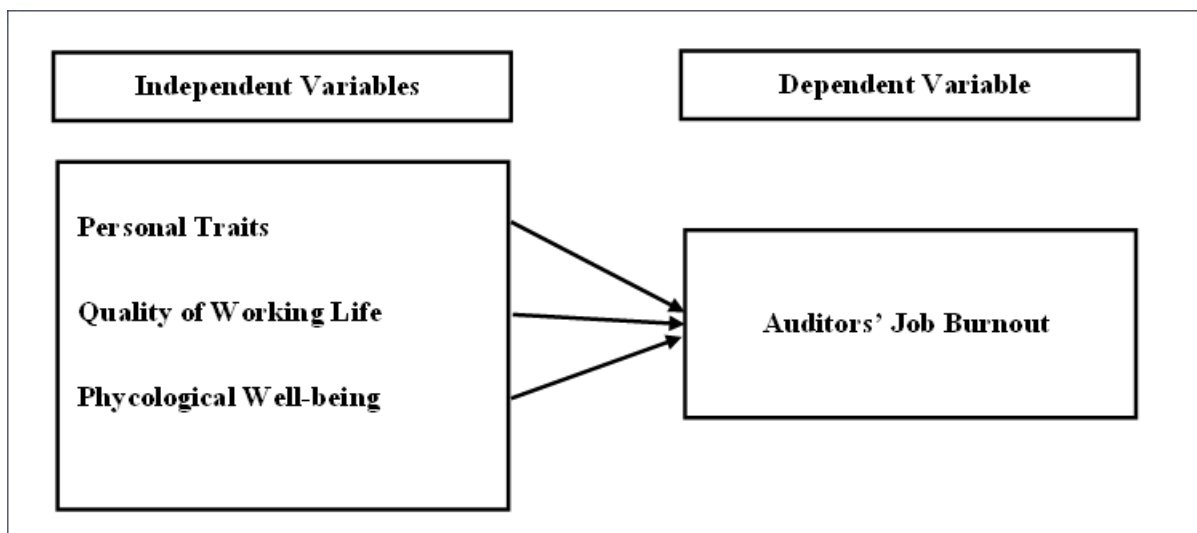
3.1. Introduction

A deductive technique is used based on this framework to ensure that the results are accurate. This suggests that the ideas already in existence are used to draw conclusions about how to solve current issues or fill in research gaps found in the literature study. The goal of the research is to find the necessary solutions, not to propose or create new theories, by either expanding the current body of knowledge to meet the goals of the study or by refining it by reorganizing the existing information to make it more appropriate for the current research goal. A deductive method will result in more accurate discoveries in order to do this than putting forth new theories.

3.2. Conceptual Diagram

Table 1 represents the basic overall research framework including the direct relationship between independent variables and dependent variables.

Table 1 - Conceptual Framework



Source: Author Compiled

3.3. Operationalization

Table 2 - Operationalization

Variable	Working Definition	Measurement
<i>Dependent Variable</i>		
Auditors' Job Burnout	Job burnout can define as chronic psychological condition that results from a person's incapacity or reluctance to put in the required effort at work.	Five-point Likert scale (Salehi, M., Seyyed, F. and Farhangdoust, S., 2020)
<i>Independent Variables</i>		
Personal Traits	Personal Traits describes patterns of behavior and thought that are constant across time and across an extensive variety of situations.	Factors such as Job position, gender, field of study, level of education, and work experience (Salehi, M., Seyyed, F. and Farhangdoust, S., 2020)
Quality of working life (QWL)	QWL assesses how satisfied employees are with their ability to meet a variety of requirements by acquiring and preserving resources, taking part in a range of organizational activities, and accomplishing their personal and professional goals at work (Sirgy et al., 2001).	Five-point Likert scale, ranging from strongly disagree to strongly agree (Salehi, M., Seyyed, F. and Farhangdoust, S., 2020)

Psychological well-being Psychological well-being broadly refers to Five-point Likert scale, "positive affect, negative affect, mental health, emotional exhaustion, life satisfaction, domain satisfaction, agree (Salehi, M., dispositional affect, and subjective, Seyyed, F. and psychological, and emotional well-being Farhangdoust, S., 2020) (Wright & Huang, 2012).

Source: Author Compiled

3.4. Research Approach and Justification

This study is conducted under the **positivistic paradigm** where the quantitative approach is used to conduct the research.

The positivism paradigm is the method of quantitatively measuring the truth of independent factors' reality. Further, it was identified hypothesis verification, quantitative methodologies, surveys, and experiments as the methodologies used in the positivistic paradigm by Guba & Lincoln (1994) and Healy & Perry (2000). By providing a clear idea of the positivism paradigm of the research study, Coghlan and Brydon-Miller (2014) state that the positivism approach is a famous method used among the social sciences where gathering numerical data to analyses the data more reliably.

As per referred related prior studies to the current study, many more studies performed through a quantitative approach to bring forward the objectives of respective research. Therefore, as per the most used method and the applicability, it is ascertained to use a quantitative approach under the positivism paradigm.

3.5. Hypotheses

Based on the conceptual framework shown in Figure 1 and by referring to the prior literature related to the subject, the hypotheses are developed as follows.

H1: There is a negative relationship between personality traits and auditors' job burnout.

H2: There is a negative relationship between quality of working life and auditors' job burnout.

H3: There is a negative relationship between psychological well-being and auditors' job burnout.

3.6. Population and Study Sample

The population consisted of people who are working as external auditors in Big 4 audit firms in Sri Lanka. The sample is selected from the people who are currently working as associates, supervisors, and managers of Big 4 audit firms.

3.7. Sample Size and Selection of Sample

The sample size is 250 external auditors (Associates, Senior team members, and Managers) who are currently working at Big 4 audit firms (KPMG, Ernst & Young, PWC, and Deloitte) which are currently located in Colombo.

3.8. Sources and Collection of Data

By distributing questionnaires to employees of the Big 4 audit companies, data have gathered.

4. Data Presentation, Analysis and Discussion

4.1. Introduction

The ultimate objective of this section is to thoroughly review and show the data gathered via the questionnaire in order to compile and perform statistical analysis on them. Questions were assessed for validity and reliability. Each type of replies was supplied independently to enable a more thorough evaluation of the results.

There will be responses to research questions. This study aims to identify relationships between demographics, quality of work life, and psychological well-being among undergraduates. Data analysis has done using a quantitative methodology. Survey responses were analyzed to assess job burnout among Big 4 external auditors. Data was acquired using a survey and analyzed through SPSS software version 23 to identify the relationship between factors.

4.2. Data Preparation for Analysis – Screening and Cleaning Data

To ensure that the obtained data is consistent with quality, reliability, and validity to an appropriate degree, screening and cleaning procedures must be performed before the data is processed to provide answers to the study objectives. Here, the researcher determines if the data set is accurate enough to allow for further research. In order to identify the missing values and outliers, the researcher used the Statistical Package for Social Sciences (SPSS-23) software.

4.2.1. Missing Value

The values for the variables in the current observations that are not stored are known as missing values. Non-ignorable and ignorable missing values make up the two primary categories of missing values.

Because the researcher does not anticipate receiving answers to specific inquiries, they can disregard the ignorable missing data. When answers are expected by the researcher but are not given to respondents, this is referred to as non-ignorable missing values. Therefore, non-ignorable missing values must be given appropriate attention and cannot be disregarded. There aren't any missing values in this investigation. The researcher is not interested in changing the existing data collection in any way. The findings of the analysis of the missing values are shown in Table 3,

Table 3 - Summary of Valid and Missing Values for the Independent and Dependent Variables

		Job Position	Gender	Field of Study	Level of Education	Work Experience
N	Valid	250	250	250	250	250
	Missing	0	0	0	0	0

Source: Author Compiled

Utilizing descriptive data analysis, the attributes and traits of the variables are enumerated. Here, the researcher has presented the data analysis through the use of tables. Researchers examine frequency distribution analysis for variables and frequency distribution analysis of personal traits under descriptive data analysis.

4.2.1. Frequency distribution analysis of demographic characteristics

Demographic analysis for the study can be identified as Big 4 firm, job position, gender, field of study, level of education, and work experience. The data can be represented as follows,

4.2.1.1. Big 4 Audit Firms

As per the Table 4 responses are mainly received from people who are currently working in Big 4 audit firms and mainly for this analysis based on those Big 4 audit firms. Which are KPMG, EY, Deloitte, and PWC. Most respondents are currently working at KPMG firm, and which is around 56.4%.

Table 4 - Frequency analysis for Big 4 audit firms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Delloitte	28	11.2	11.2	11.2
	EY	52	20.8	20.8	32.0
	KPMG	141	56.4	56.4	88.4
	PWC	29	11.6	11.6	100.0
	Total	250	100.0	100.0	

Source: Author Compiled

4.2.1.2. Job Position

According to the Table 5 respondents' job positions were categorized into 5 categories Trainee Associate/Associate 1/Audit Associate, Associate 2/ Senior Accountant, Supervisor/Audit Executive/Senior Associate, Project Manager, and Assistant Manager/Manager. Of these job positions, 85 respondents are working as Trainee Associates out of 250 total respondents. Which is 34% of the total respondents. The least no of respondents are working in Assistant Manager positions which is around 1.6% respondent percentage.

Frequency distribution analysis for job positions is as follows,

Table 5 - Frequency analysis for Job Position

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Assistant Manager/Manager	4	1.6	1.6	1.6
Associate2/Senior Accountant	72	28.8	28.8	30.4
Project Manager	12	4.8	4.8	35.2
Supervisor/Audit Executive	77	30.8	30.8	66.0
Trainee Associate/Associate 1	85	34.0	34.0	100.0
Total	250	100.0	100.0	

Source: Author Compiled

4.2.1.3. Gender

The gender of the respondents was divided into two categories, male and female, based on Table 6. According to the following table, of the total responses, 34.4% fall into the female category and 65.6% into the male category. It demonstrates that men make up the bulk of respondents.

Table 6 - Frequency analysis for Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Female	86	34.4	34.4	34.4
Male	164	65.6	65.6	100.0
Total	250	100.0	100.0	

Source: Author Compiled

4.2.1.4. **Field of Study**

Under the field of study, there are 4 categories as shown in Table 7 that respondents can respond to Accounting, Economics, Management, and Other. Out of these 4 categories, most employees have an accounting background. Which is around 76%. Some employees have an Economics background as well, which is around 3.2%.

Table 7 - Frequency analysis for Field of Study

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Accounting	190	76.0	76.0	76.0
Economics	8	3.2	3.2	79.2
Management	51	20.4	20.4	99.6
Other	1	0.4	0.4	100.0
Total	250	100.0	100.0	

Source: Author Compiled

4.2.1.5. **Level of education**

There are 4 education categories the researcher used for the analysis and shown in Table 8. Such as Bachelor, Certificate, Diploma, and Master. Out of this level of education most employees are following a bachelor's degree. From 250 total respondents there are 3 employees who has a Master qualification.

Table 8 - Frequency Analysis for Level of Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Bachelor	224	89.6	89.6	89.6
Certificate	7	2.8	2.8	92.4
Diploma	16	6.4	6.4	98.8
Master	3	1.2	1.2	100.0
Total	250	100.0	100.0	

Source: Author Compiled

4.2.1.6. Work experience

According to the Table 9 the researcher is categorized work experience as less than 1 year, 1-2 years, 2-3 years, and more than 3 years. Out of total 250 respondents 86 respondents are having 2-3 years of experience. There are 13 respondents who are having more than 3 years of experience.

Table 9 - Frequency analysis for Work Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-2 years	74	29.6	29.6	29.6
2-3 years	86	34.4	34.4	64.0
Less than 1 year	77	30.8	30.8	94.8
More than 3 years	13	5.2	5.2	100.0
Total	250	100.0	100.0	

Source: Author Compiled

4.2.2. Descriptive analysis of Dependent and Independent variables

To explain descriptive of independent and dependent variable use central tendency and dispersion measures.

"The statistical measure that identifies a single value as representative of an entire distribution," according to the definition of central tendency. It strives to give a precise account of all the facts. It is the lone value that best typifies or reflects the information gathered. For the purpose of describing this part of data description, the term "number crunching" is used. The three most frequently employed measures of central tendency are the mean, median, and mode. The mean is the unit of central tendency that is most frequently used. The average of the group is known as the mean, or more precisely, the arithmetic mean. Only numerical variables are usable when calculating the mean. The middle score is the median. The score at the fifty percentiles in the distribution of scores is another method to describe the median. The most frequent score is the mode. The score that appears the most frequently is another way to describe the mode. The distance between data points and the center of the distribution is referred to as variability. The proportions of fluctuation in the dataset are summarized in measures of variability in statistics. The measure of variability reveals how widely apart data points often fall, whereas a measure of tendency represents the average value. We refer to large dispersion as the distance between the data points and the distribution's center and low dispersion as the distance between the data points and the distribution's center.

The three most popular ways to measure variability are range, variance, and standard deviation. The most straightforward and often employed measure of variability is range. The difference or subtraction between the largest and smallest values is known as the range of a dataset. Statistics define variance as the average squared deviation of values from the mean. This measure of variability incorporates all values in the computation, as opposed to the range and interquartile range, which compare each value with the mean. The standard deviation, which represents the usual distance between each data point and the mean, is the final and least popular measure of variability. The standard deviation is reduced when values in a dataset are clustered more closely together. However, the standard deviation is higher in situations where the values are widely apart. As a result, a rise in distance immediately correlates with an increase in the size of the standard deviation. Since it uses the original data units, the standard deviation is the most recommended measure of variability since it makes interpretation simpler.

The Independent variable which measures the auditors' job burnout has two variables such as,

- Quality of working life (QW)
- Psychological well-being (PW)

The descriptive Statistic for the above-mentioned independent variables with the dependent variable which is Job Burnout (JB) is interpreted in Table 10.

Table 10 - Descriptive Statistics of Quality of working life (QW)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
QW1	250	1	5	2.46	0.602	0.362
QW2	250	1	4	2.80	0.785	0.616
QW3	250	1	5	3.33	0.534	0.286
QW4	250	1	5	2.44	1.041	1.083
QW5	250	1	5	2.84	0,820	0.673
Valid N (Listwise)	250					

Source: Author Compiled

The Table 10 displays that the five measures of minimum, maximum, mean, standard deviation as well as variance are used to conceive of the quality of working life variable. As the descriptive statistics given, the highest mean value from the measures is 3.33. It indicates from QW3 that means “How satisfied are you with the healthiness (e.g.: cleaning, lighting, noise, etc.) of your workplace?”. The lowest mean value from the measures is 2.44. It indicates from QW4 that means “Regarding the tiredness that your work causes you, how do you feel?”.

Table 11 - Descriptive Statistics of Psychological well-being (PW)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
PW1	250	1	5	3.86	0.452	0.204
PW2	250	1	4	3.94	0.692	0.479
PW3	250	1	5	3.03	0.744	0.553
PW4	250	1	5	2.12	0.827	0.684
PW5	250	2	5	3.94	0.755	0.571
Valid N (Listwise)	250					

Source: Author Compiled

The Table 11 displays the five measures of minimum, maximum, mean, standard deviation as well as variance used to conceive of psychological well-being variable. As the descriptive statistics given, the highest mean value from the measures is 3.94. It indicates from PW2 and PW5 that means “I have confidence in my opinions even if they are contrary to the consensus” and “I am an active person in carrying out the plans I set for myself”. The lowest mean value from the measures is 2.12. It indicates from PW4 that means “I have been able to create a lifestyle for myself that is much to my liking”.

Table 12 - Descriptive Statistics of Job Burnout (JB)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
JB1	250	2	5	3.78	0.729	0.531
JB2	250	1	5	3.79	0.504	0.254
JB3	250	1	5	3.74	0.507	0.257
JB4	250	1	5	2.26	0.546	0.298
JB5	250	1	5	4.22	0.649	0.421
Valid N (Listwise)	250					

Source: Author Compiled

The Table 12 displays the five measures of minimum, maximum, mean, standard deviation as well as variance used to conceive of the job burnout variable which is the dependent variable. As the descriptive statistics are given, the highest mean value from the measures is 4.22. It indicates from JB5 that means

“I often think about quitting”. The lowest mean value from the measures is 2.26. It indicates from JB4 that means “I feel very energetic”.

4.3. Validity and Reliability Test

We evaluate the critical elements of validity and reliability assessment to ensure that our conclusions are reliable and trustworthy. It is appropriate to use the notions of reliability and validity when presenting a noteworthy setting in research. The stability of findings is referred regarded as reliability, whilst the veracity of findings is referred to as validity.

4.3.1. *Validity*

Each research study's validity and reliability should be evaluated before producing the presumptive analysis. Reliability guarantees fairness in the data and proves the "goodness" of a metric. The researcher has used Cronbach's coefficient alpha to assess the interitem consistency dependability. The measurement instrument improves as the coefficients increase. It should be mentioned that reliability is a necessary but insufficient requirement for the analysis of a measure's validity. It's also essential to evaluate the validity of the scale to make sure it can measure the desired concept effectively. The study's supervisor compared the administered questionnaire items to the corpus of published literature to ensure face validity. To lessen the possibility of any issues, a pilot study was conducted to see whether the respondents could easily understand and respond to the questionnaire's questions.

A validity test was performed to determine the data collection method's accuracy and its capacity to measure the things it was intended to capture. High validity makes it easier to extrapolate sampling results to the entire population. The researcher selects the key variables and develops a questionnaire based on previously conducted, related studies to ensure the validity of the current study.

4.3.2. *Reliability*

A reliability test was conducted to verify the questionnaire's conformity with the data collection process. If the metrics were reliable, the same outcomes would be obtained again and over again under many different conditions. With Cronbach's alpha, the researcher assessed the questionnaire's internal consistency.

A questionnaire was created and sent to 250 responders in order to evaluate the objectivity and clarity of the item. Table 13 below shows the Cronbach's alpha values for each of the 15 metrics. Values of Cronbach's Alpha greater than 0.7 signify the study's validity.

Table 13 - Results of the Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.774	15

Source: Author Compiled

4.4. Correlation Analysis

The correlation analysis between the Quality of working life and Job burnout was statistically significance at the 0.01 level with a Person correlation coefficient of -0.376 (Refer Figure 11). It shows that there is a negative relationship between the Quality of working life and Job burnout.

The correlation analysis between Phycological well-being and Job burnout was statistically significance at the 0.01 level with a Pearson correlation coefficient of -0.469. It shows that there is a negative relationship between the Quality of working life and Job burnout.

From the above results, it was evident that Job burnout was more moderately negatively related to psychological well-being than Quality of working life.

Table 14 - Correlation analysis for Independent and Dependent Variables

		JB burnout	Job OWL Quality of working life	PWB Psychological well-being
JB Job burnout	Pearson	1	-.376	-.469
Sig. (2-tallech			.000	.000
N		250	250	250
OWL Quality of working life	Pearson	-.376	1	-.171
Sig. (2-tailed)		.000		.007
N		250	250	250
PWB Phycological well- being	Pearson	-.469	-.171	1
Sig. (2-tailed)		.000	.007	
N		250	250	250

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

Source: Author Compiled

4.5. Regression Analysis

When independent factors are assumed to have an impact on a single dependent variable, regression analysis is used. This predicts the dependent variable while evaluating the strength and nature of the link between the independent variables. It can be helpful to determine the variation in the dependent variable based on the individual regression coefficients when the variables are jointly regressed. When

independent factors are assumed to have an impact on a single dependent variable, regression analysis is used.

The regression analysis of the SPSS output resulted in the creation of the two tables, the model summary and the ANOVA tables. The model summary table has three columns: R, R square, and corrected R-square. The ANOVA table includes the model significance.

Table 15 - Regression Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	0.504 ^a	0.254	0.248	0.640

Source: Author Compiled

Moving on to statistical elements, R-squared accounts for 25%, which means that the study's independent variables account for 25% of the change in the dependent variable which is auditors' job burnout.

R-squared adjusted, which is roughly 0.248. Adjusted R-squared is a modified version of R-squared that takes the number of predictors in the model into consideration. The adjusted R-squared increases when the extra term improves the model more than would be expected by chance. A predictor falls if its improvement on the model is less than expected.

Table 16 - ANOVA Table Summary

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	34.423	2	17.211	41.955	.000 ^b
Residual	101.328	247	.410		
Total	135.751	249			

Dependent Variable: JB Job burnout

b.Predictors: (Constant), PWB Psychological well-being, OWL Quality of working life

Source: Author Compiled

The P value (sig.) is displayed as 0.000 in the ANOVA Table above (Table 16), which is less than 0.05 and indicates that it is significant at a 95% confidence level. The entire model is significant.

Table 17 - Coefficients of the Variables of the Regression Analysis

Variable	Coefficient	Error deviation	t-value	Sig.
Intercept	-1.503	0.031	1.321	0.056
Gender	1.498	0.055	0.759	0.114
Position	-1.121	0.021	1.010	0.021
Field of study	-0.889	0.048	0.906	0.451
Level of education	-1.100	0.986	1.213	0.301
Work experience	-2.119	0.190	1.908	0.041
Quality of working life	-1.190	0.207	1.214	<0.001
Psychological well-	-1.398	0.502	2.108	<0.001

Source: Author Compiled

4.5.1. *Testing Hypothesis*

Hypothesis testing allows the researcher to determine whether the sample data are statistically significant. Hypothesis testing is one of the most important methods for assessing the reliability and validity of findings in any kind of systematic investigation. The results have been reviewed in light of the Coefficients summary table stated above.

We estimate one regression model to test research hypotheses. The model's estimation results are shown in the Table 17 (Coefficients of the Variables of the Regression Analysis) above. At the 5% significance level, it is clear that the position ($C=-1.121$; $p=0.021$) and work experience ($C=-2.119$; $p=0.041$) of auditors are strongly and negatively correlated with their job burnout. Consequently, this result offers proof in favor of H_1 . The associated coefficient for quality of working life quality ($C=-1.190$) indicates a significant inverse link ($p < 0.001$) between quality of working life quality and job burnout among auditors. As such, H_2 is supported, in line with our main expectation. According to H_3 , there is a significant negative correlation between the psychological well-being of auditors and their job burnout, as indicated by the coefficient and probability value of psychological well-being ($C=-1.398$; $P < 0.001$).

In other words, this finding provides supporting evidence for H_3 as well.

4.6. Discussion

When considering about the personal traits this study mainly looking about the job position, gender, field of study, level of education, and work experience. As of the analysis first, the position and work experience have a negative influence on job burnout. This describes that when employees who are working at the senior level and who have more years of experience, it will help to reduce their job burnout. This this mainly because of experienced auditors may have substantial knowledge about accounting and auditing standards and also, they can manage workplace stresses. Further they may earn

high salaries than unexperienced auditors and positions like project managers/assistant managers and managers are categorized under permanent carder employees. This will help to earn high salaries for experienced and higher positioned auditors, and this will result to reduce their job burnout. In prior studies also this has proved in another context as well. According to this study more responses are received from external auditors who are working in KPMG audit firm. According to the prior studies KPMG Sri Lanka has the highest no of employees compared with other audit firms in Sri Lanka and reason for the high responses received from KPMG will be proved by this research as well.

When looking at the quality of working life as per this research found that there is a negative relationship between quality of working life and job burnout. Which mean when the auditors' quality of working life increase then it will result to reduce job burnout. According to the prior studies (Salehi, M., Seyyed, F. and Farhangdoust, S., 2020) there is negative relationship between quality of working life and job burnout. In this research also found that same finding in Sri Lankan context as well. It may be because of in Sri Lanka there are around 300 Public listed companies are operated and all of them are auditing by the Big 4 audit firms. Due to this reason, they may have to work till mid night all the 7 days per week in deadline periods. This may reduce their quality of working life and it will be affected to job burnout as well. As per results of this study it can be concluded that auditors may not consider about the healthiness of the workplace (Responses received for QW3). With the workload that Big 4 auditors have in their working life it will results to increase job burnout.

According to previous research done in Sri Lanka (Panchali, J., & Seneviratne, S. M. 2019), external auditing is considered one of the most stressful jobs that need both the best knowledge and the suspicious mind. But if the auditors without having a psychological well-being it will impact to the quality of the external auditing and finally it will negatively impact on larger public interest entities. Because as per the prior studies (Salehi, M., Seyyed, F. and Farhangdoust, S., 2020) this research study also found that there is a negative relationship between the psychological well-being and job burnout. It means if the auditors' psychological well-being increase it will reduce their job burnout. According to this study majority of external auditors are suffering from job burnout because they may haven't good psychological health.

5. Conclusion, Limitations and Recommendations

5.1. Conclusion

This study is designed to investigate the impact of personal traits, quality of working life, and psychological well-being on job burnout among Sri Lankan external auditors. This study is a popular research area in the global context and many studies have carried out on this. However, in Sri Lankan context such study has not performed yet. Prior studies performed in Sri Lanka regarding the external

auditors it can be identified that many of the external audit trainees and senior employees are suffering from the high-stress level and nowadays audit firms are searching to reduce such pressures. Because employees are the most valuable asset of organizations like audit firms. Because this profession involves a lot of professional judgments.

Audit training is popular among ICASL students because 4 years of audit training is a mandatory requirement to become a practicing Chartered Accountant. However, the number of ICASL students decreased after CIMA, ACCA, and other professional qualifications became popular in Sri Lanka. With the economic crisis in Sri Lanka, most of the accounting undergraduates and accounting students who are following ICASL's exams tend to join the mercantile sector due to the lower payments in audit firms. Also, several factors have affected to decrease in the number of people to audit training. Due to those reasons, audit firms are following certain strategies to attract and retain employees.

Audit firms and trainees agree for a period of 1 to 3 years. Most audit trainees leave the firm after completing the training period and this has become a critical issue for audit firms. The lack of experienced staff in the audit team affects the quality of the audit engagement (Nouri & Parker 2020). Because of that audit firms implement certain strategies to retain trainees. For all of these reasons, Sri Lankan audit firms are looking to reduce job burnout among their employees, and they tend to increase the audit quality. This research will benefit them to identify the factors which are related to decreasing job burnout and then they can implement new strategies to reduce those negative consequences.

This study has found that there is a negative relationship between personal traits, quality of working life, and psychological well-being with job burnout among Sri Lankan external auditors. In conclusion, this study will benefit for Sri Lankan Big 4 audit firms, external auditors, government policy makers as well as for universities who are providing accounting studies. Also future studies can focus more about the mid-tier and small audit firms in Sri Lanka with more independent factors.

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Impact of Corporate Social Responsibility (CSR) on Customer Loyalty among Generation Z Consumers in Mobile Telecommunication Service Provider Industry in Sri Lanka: Mediating Effect of Corporate Image

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Abstract

This study investigates the relationship between corporate social responsibility (CSR) and customer loyalty among Generation "Z" consumers in mobile telecommunications service provider industry in Sri Lanka. Researchers have developed the research model, with the use of quantitative strategy to comprehensively understand the subject and a structured questionnaire to obtain primary data from the sample. Finally, the researchers were able to collect 301 responses. The main findings highlight a significant positive correlation between CSR and customer loyalty (CL), and corporate image (CI) identified as a mediating factor in this relationship. Thus, the contribution of this study includes offering practical implications for mobile telecommunications service providers to strategically improve CSR initiatives and corporate image to develop customer loyalty among the dynamic generation "Z" demographic. Additionally, the study sheds light on the need for businesses to align CSR practices with the values and expectations of Generation "Z" consumers for maximum impact. Further research is recommended to explore the long-term effects of CSR initiatives on customer loyalty and corporate image in the rapidly evolving telecommunications industry.

Keywords: *Corporate Image, Corporate Social Responsibility, Customer Loyalty, Generation Z Consumer, Mobile Telecommunication Service Provider Industry*

1. Introduction

In the dynamic landscape of mobile telecommunication service provider industry, Corporate Social Responsibility (CSR) has emerged a critical factor influencing various aspects of business, including customer loyalty. As global concerns about sustainability and ethical business practices rise, organizations increasingly recognise the importance of CSR in building positive customer relationships.

Customer loyalty is understood as the customer's predisposition and intention to buy from the same company and this results from the view that the value received from the same firm is superior to the value offered from alternatives (Berg, 2008). Similarly, customer loyalty is determined by feelings that motivate a general attachment to the people, services or products of a company (Paulssen, Roulet, & Wilke, 2014).

Also, customer loyalty comprises a psychological relationship centered on behavioral element, based on aspects such as the frequency of visits to a company. Customer loyalty is also understood to be a combination of consumers' behavior and attitude (Basu, 1994). Moreover, customer loyalty benefits organizations as loyal and satisfied customers recommend products and services to others and continue to purchase from the same firm. If an organization fails to pay attention to the loyalty concept, customers are likely to defect to competitors that offer better products and services (Chikazhe, Chigunha, Dandira, Mandere, & Muchenje, 2020).

Brand switching happens when a customer who is utilizing a product or service from one brand switches to one from another. The degree of brand switching would be more intense the more competitive the brands that consumers have to choose from. The fierce rivalry between mobile phone service providers makes it likely that brand switching will occur frequently and frequently (Charlas, Rajkumar, Kogila, John, & Noorunnisha, 2012). In order to face this competition, telecommunications service provider organizations must work to establish customer loyalty. A good strategy that can be used to create customer loyalty is to do CSR (Tran, 2022).

According to Mandhachitara and Poolthong (2011) found that CSR is the best strategy to build customer loyalty. In the telecom sector, products offered by the competitors are very similar, so building customer loyalty is a difficult task. Thus, scholars have reported a significant positive relationship between firms' CSR behaviors and their consumers' attitudes toward the firms' offerings. Extant literature found a positive relation between CSR and customer loyalty. CSR initiatives are among the best strategies to highlight company policies that comply with societal values. In contrast, it's found that CSR is directly associated with customer loyalty (Mandhachitara & Poolthong, 2011; Arrive, Feng, Yan, & Chege, 2018) . Corporate image is an abstract concept, which reflects the public's overall evaluation of the enterprise. As the concept of corporate image is very broad, there are some differences for different scholars.

From the perspective of stakeholders, the corporate image is the stakeholders' perception of corporate social concerns. As an intangible resource, corporate image can strengthen consumers' attitudes and behavior (Pérez & Bosque, 2015). From the perspective of corporate marketing, marketing strategy is a potential resource method that includes opportunities and threats in the decision-making process, which is mainly used to achieve effective marketing goals (Priyadi, Rivai, & Suharto, 2020). Therefore, to achieve consumer satisfaction and improve corporate image, the corporate marketing strategy will focus on all kinds of CSR-related public relations activities or emotional marketing activities. Past Studied on the impact of marketing strategy on corporate performance and corporate image found that cooperate performance can effectively improve the image of the company and promote more consumers to buy products/ Service. Therefore, the company image is the index that the enterprise pays close attention to in the marketing process. It is used to describe, remember and contact the company, and it is the final result of customer experience, impression, belief, feeling and knowledge (Zhang, 2022).

Telecommunications, one of Sri Lanka's most active sectors, is directly and indirectly responsible for investment, employment, productivity, innovation, and overall economic growth. The 22 million people that make up Sri Lanka's telecom market are served by five mobile providers (TRCS, 2023). The telecommunications sector is a major driver of foreign direct investment (FDI) into Sri Lanka. Even though the use of telecommunications has increased, the overall fixed line and mobile telephone density has climbed to 142 per 100 inhabitants due to an increase in mobile users. There are five mobile phone providers in Sri Lanka for users. (Telecommunications and Information Technology, 2022).

Since telecommunications services provider organizations provide various benefits to customers and since telecommunications services provider organizations are seen to be more competitive, customers staying in that industry have a higher tendency to switch to another brand. Therefore, it is important to create brand loyalty among customers towards telecommunications service providers. It can be done by CSR. Nowadays there are more Generation Z consumers and they are not directly involved in CSR. Therefore, Generation Z consumers should be communicated through social media about CSR carried out by telecommunications service providers (Dassanayake & Herath, 2017)

In this research, the following research objectives are addressed,

- To examine the impact of corporate social responsibility (CSR) on customer loyalty in the mobile telecommunication service provider industry in Sri Lanka.
- To evaluate the impact of CSR on Corporate image in the Mobile Telecommunication Service Provider Industry in Sri Lanka.
- To investigate the impact of corporate image on brand loyalty in the Mobile Telecommunication Service Provider Industry in Sri Lanka.

- To determine whether mediate the impact of CSR and brand loyalty in the Mobile Telecommunication Service Provider Industry in Sri Lanka.

These research objectives will guide the study in investigating the impact of CSR on consumer loyalty, considering the mediating role of corporate image, in the mobile telecommunication service provider industry in Sri Lanka. By achieving these objectives, the study aims to provide empirical evidence and insights that contribute to understanding the relationships and mechanisms involved, offering practical implications for mobile telecommunication service providers in enhancing consumer loyalty through CSR initiatives.

2. Literature review

2.1. Background

2.1.1. Corporate Social Responsibility

Adolf Berle and Gardiner Means, two Harvard University professors, coined the phrase "corporate social responsibility" in their book "The Modern Corporation and Private Property" published in 1932. Even though the ideas of corporate social responsibility first surfaced in the 1930s, Howard Bowen used the word for the first time in his book "Social Responsibilities of the Businessman" in 1953. Since then, the concept of corporate social responsibility has taken over the business world, promoting advantages for all parties involved as well as improvements in the financial, social, and environmental spheres. Human rights, corporate management, health, security, the impact on the environment, working conditions, and the role that each of these factors plays in economic development are some of the most crucial CSR facts (Moktadir, Rahman, & Kabir, 2018).

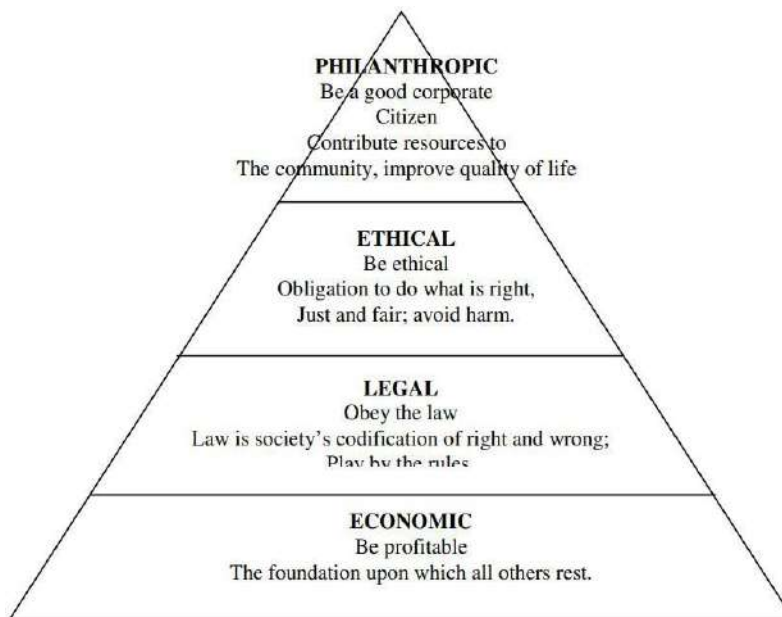
The acceptance of corporate social responsibility is also linked to the long-term profitability, worth, and viability of the businesses (Whait, 2018). Businesses are supposed to uphold the economic, ethical, legal, and charitable standards of the society in which they operate. Additionally, they are expected to implement a broad range of CSR practices, including environmental protection, human resource management, supply chain responsibility, charitable giving, customer liability, societal development, climate of professional security, and risk management (Cheng, Lee, & Lau, 2018).

Corporate social responsibility is described as how firms manage their business to come up with an overall positive impact on the community. Similarly, Adamson, Kok-Mun Chan & Donna Handford (2003) explains corporate social responsibility as the obligations of the business to people within society or more specifically to those affected by the business policies and practices. Corporate social responsibility depends on how businesses are sanctioned and promoted by their community. The society

expects firms operating within their environment to be good corporate citizens. Moreover, businesses must act for the social good of the community (Chigunha, Chikazhe, & Dand, 2020).

The following are the four pillars of corporate social responsibility, according to Kadlubek (2015) the four dimensions of economic, legal, ethical, and philanthropic activity Customer loyalty is regarded as an essential goal for the survival and success of a corporation, and corporate social responsibility is a fundamental component of corporate marketing strategy. A durable competitive advantage can be achieved by building a foundation of devoted customers (Kotler & Armstrong, 2008).

Figure 1: Pyramid of Social Responsibility - Carroll



2.1.2. Economy Responsibility

The cornerstone of everything is economic responsibility. Profitability is the goal of each organization to win over investors. The straightforward reasoning is that a company might not be able to continue operating as a corporate entity if it is not turning a profit. Taking care of other social issues or acting in a socially responsible way might not be feasible in such a situation. However, the truth remains that achieving profitability ought to be done so in an ethical manner (Medis, 2016).

In the past, businesses were established as commercial entities to offer goods and services to society's members. The main driver of entrepreneurship was identified as the profit motive. The business organization served as our society's fundamental economic unit before anything else. Therefore, its main responsibility was to create products and services that consumers desired and required while also turning a reasonable profit. The concept of maximum profits replaced the idea of the profit motive at some point, and it has been a core principle ever since. The firm's economic duty serves as the foundation for all other business obligations, as without it, the others become irrelevant (Carroll, 1991).

2.1.3. Legal Responsibility

Legal requirements are a vital component of CSR, which is a broad concept. Although CSR has historically gone beyond legal obligations, knowing the legal underpinnings of CSR gives organizations a framework to manage the intricate interplay between ethical, social, and legal factors (Carroll, 1991)

The regulatory frameworks that corporations operate under frequently determine their legal responsibilities. Different jurisdictions have different laws and regulations that influence the limits of corporate behavior. This legal base may include labor laws, product safety requirements, and environmental rules. Understanding how firms interpret and adhere to these requirements is necessary in order to examine CSR within this legal framework. It is required of businesses to follow and observe the laws of a nation or the global market. Businesses should maximize their financial goals while adhering to the law. Carroll claims that a nation's legislators' definition of "codified ethics" is reflected in legal obligations (Medis, 2016).

2.1.4. Ethical Responsibility

On the other hand, obligations pertaining to ethics transcend national laws and legal codes. It takes into account the values and beliefs of society that demand adherence to particular norms. The norms, standards, and expectations that are fundamental needs of customers, workers, shareholders, and the community as well as those that are seen as fair, just, and safeguarding stakeholders' rights to morale should all be ethically complied with by these standards. This interacts with a nation's legal obligations as well. In other words, as a best practice for managing a firm, it ethically requires that all operations be above the law (Medis, 2016).

Companies have an obligation to behave morally toward all parties with whom they come into contact. Customers, suppliers, workers, investors, and the community are all included in this. CSR ethical responsibility is an essential component of modern business practices. By integrating CSR principles into their operations, businesses can minimize their negative impact on society and the environment, while also reaping numerous benefits, including enhanced reputation, improved risk management, increased customer loyalty, and strengthened license to operate. As businesses navigate the increasingly complex and interconnected global landscape, CSR ethical responsibility will continue to play a critical role in their long-term success and sustainability (Carroll, 1991).

2.1.5. Philanthropic responsibility

The public expects a firm to perform as a good corporate citizen, which involves actively advancing the welfare or goodwill of people. While philanthropy is largely optional, adhering to ethical standards is required. While many organizations fulfill their ethical, legal, and economic obligations, very few fulfill their charitable obligations. Visser, Matten, Pohl, and Tolhurst (Visser, Matten, Pohl, & Tolhurst, 2010) state that philanthropy is a social obligation that is distinct from a company's primary business operations, in contrast to obligations related to the economy, law, and ethics (Medis, 2016).

Corporate acts taken in response to society's expectation that companies behave responsibly as corporate citizens are categorized as philanthropy. This involves actively participating in deeds or initiatives that advance the welfare of people or goodwill. Business donations of cash or executive time, such as support for the community, the arts, or education, are examples of philanthropy. One example of generosity is a loaned-executive program that provides leadership for a community's United Way campaign. This contrast emphasizes how important it is to remember that CSR is not just about charitable giving, but also involves it. It may be contended that, while generosity is greatly admired and sought, it is not as significant as the other three social responsibility categories (Carroll, 1999).

2.1.6. Customer Loyalty

According to several sources (Berg, 2008), customer loyalty is defined as a customer's propensity and intention to purchase from the same business. This is due to the belief that the value gained from the same company is greater than the value provided by alternatives. According to, Paulssen, Roulet, and Wilke (2014) stated that a company's ability to retain customers depends on the emotions that drive a broad attachment to its employees, clients, and goods. Additionally, according to Arli & Lasmono (2010) and Kocoglu and Kirmaci (2012), customer loyalty is based on psychological relationships centered on behavioral elements, such as the frequency of visits to a business.

Consumer loyalty, according to Chaffey (2008), is the intention on the side of the client to carry on doing business with a specific company throughout time. Kotler and Armstrong (2008) employ the notion of recurrent purchasing habits of a specific brand as a sign of patron loyalty. This also involves

vocal recommendations of the present consumer's chosen goods or services to those who have not yet tried them (Kotler & Armstrong, 2008).

Customer retention or loyalty is one of the main objectives in business (Srinivasan, 2003). Gaining customer loyalty has proven to be a double-edged sword for businesses in cutthroat industries because it is considerably more expensive to acquire new clients than it is to keep an existing one. To obtain a competitive edge in the retail banking industry, Sidiqqi (2011) discovered that the relationships between service quality, customer satisfaction, and customer loyalty inspire innovative ideas for service improvement.

Long-term business success is largely dependent on a company's ability to retain its customers. Businesses can gain a competitive edge, more revenue, lower marketing expenses, and positive word-of-mouth by having a thorough understanding of the elements that affect customer loyalty and putting these methods into practice. CSR is a smart business move that can greatly increase consumer loyalty in addition to being a charitable endeavour. Companies can cultivate stronger consumer relationships, increase brand loyalty, and achieve long-term financial success by implementing ethical practices and showcasing a commitment to social and environmental responsibility.

The concept of client loyalty has gained significant attention from scholars and professionals in recent times. Researchers have pinpointed the essential factors that determine a customer's loyalty. Furthermore, Chitra Bhanu Bhattacharya and Sen's (2004) research verified that businesses that combine strong corporate skills with proactive CSR participation receive positive feedback from customers. Corporate talents are the specific skills a company possesses in generating things. In addition, Matten and Moon (2018) state that CSR validates the organization's commitment to the social contract, institutional loyalty, morality, legitimacy, and customer focus—all of which contribute to its improved reputation. Corporate talents were discovered by Luo and Bhattacharya (2006) to regulate the association between market value and CSR.

Researchers discovered that the ability of corporations to carry out CSR projects will have a favorable impact on customer reactions. Furthermore, Luo and Bhattacharya (2006) revealed that there is a correlation between consumer responses and corporate social responsibility measures. Corporate managers view CSR as a crucial tactic that influences consumers' decisions throughout the buying process. Consequently, CSR has been employed in the newest and most creative ways by telecom companies to boost customer loyalty (Islam T., Islam, Pitafi, & Xiaobei, 2020).

2.1.7. Corporate image

Organizations must work hard to maintain control of their company image. Gray found, asserts that upholding public trust and ensuring security depends on managing a company's image. Given the public's dissatisfaction with business in America, this is especially pertinent today. Russell found, asserts that in order for a corporation to achieve its goals, it must be more aware of how it uses

communications and must make its stance more apparent to key constituencies such as legislators, government agencies, employees, customers, and financial institutions (Abratt, 1989).

The entirety of stakeholders' opinions on an organization's intentional or inadvertent self-presentation is its corporate image. It is the culmination of all the interactions between each stakeholder's experiences, perceptions, sentiments, and knowledge about an organization. These definitions lead to the conclusion that whereas corporate image is held by stakeholders, corporate identity is held by the organization (Melewar, 2010).

Similar to a mirror, a corporate image reflects the identity of the company. An organization's messages about itself play a role in determining whether it has a positive or negative image. Based on the company's activities and self-expressions, stakeholders interpret these signals. However, there is no assurance that the content of these signals no matter how candid, transparent, and alluring will foster a favorable perception in the minds of every member of the target group. For example, getting top marks for diligence does not guarantee a good reputation. An organization's image is also shaped by a number of other elements, such as the behavior of management and staff, the spread of rumors, and above all the reasonable and seemingly irrational ways that members of targeted groups interpret the signals they receive. As noted by Bauer, managers frequently find that the public is significantly more set in their opinions than they had anticipated (Fombrun, 2007). According to Hatch and Schultz (1997), corporate image is the outcome of interactions between organizational members and external audiences as well as the impression management efforts of corporate spokespersons. The public, media, government, and consumers are just a few of the groups that usually do not all share the same opinions about a company's image. Furthermore, the corporate image impact not only stakeholders and customers but also members of the organization, as evidenced by the decrease in organizational commitment and identification (David, Kline, & Dai, 2009).

An organization's messages about itself play a role in determining whether it has a positive or negative image. These signals are interpretations by stakeholders based on the company's actions and self-expression. However, there is no assurance that the content of these signals no matter how candid, transparent, and alluring will foster a favorable perception in the minds of every member of the target group. For example, getting top marks for diligence does not guarantee a good reputation. An organization's image is also shaped by a number of other elements, such as the behavior of management and staff, the spread of rumours, and above all the reasonable and seemingly irrational ways that members of targeted groups interpret the signals they receive. As noted by Bauer (1964), managers frequently find that the public is significantly more set in their opinions than they had anticipated.

Companies can manage their corporate image through a variety of strategies, such as public relations, marketing, and corporate social responsibility initiatives. These strategies can help to shape stakeholder perceptions of the company and its actions.

An essential intangible asset that businesses work hard to develop and preserve is their corporate image. Customers' positive reactions can result from a positive corporate image, which can have several positive effects on the business. Businesses can use a range of tactics to control their corporate image, but it can be difficult to do so. CSR is one strategy to create a corporate image.

2.1.8. Generation "Z"

The generation that follows millennials is called Generation Z, sometimes referred to as the Centennials. Having grown up with continual access to technology and the internet, those born between 1990 and 2012 represent the first generation that can be considered genuinely digital natives. Their distinct upbringing has left a lasting impact on their values, attitudes, and habits, setting them apart from earlier generations. The influential and quickly expanding Generation Z is a demographic group with unique traits and goals. To effectively engage them and prepare for their impact on society, businesses, schools, and governments must have a thorough understanding of their attitudes, preferences, and habits. The future of labor, technology, and social advancement will surely be shaped by the distinct viewpoints and abilities of Generation Z, as they continue to mature and enter the workforce (David, Kline, & Dai, 2009).

Because of the constant exposure to various technological and sociological challenges in their immediate surroundings brought about by modern technologies, younger generations have developed the new skills and knowledge required to access the majority of information systems. Complete automation, the application of AI systems, and digitalization are already commonplace in all areas of service and production processes, as well as in the daily lives of customers. Generation Z is characterized as a type of digital nomads since they are the first to have never known life without the Internet. According to Carbonell (Xavier carbonell, 2018), this generation is the first in a line of generations to have access to information technology from a young age, which has had revolutionary effects on its members' behavior in both their personal and professional lives as well as various social interactions and mental health. Due to the fact that information technologies have always been a part of Generation Z's life, they cannot become technologically independent. This has another consequence. Other terms for Generation Z include "postmillennial," "the digital generation," "dotcom generation," "e-generation," "switchers," and so on. It is named by generation Z (Popovicsevic, Slijepcevic, & Milena, 2020).

The members of this generation are also better versed in the use of various information gadgets. As children, they choose to use electronic devices, cosmetics, and branded clothing over conventional toys (Peszko, 2018). They are a type of digital immigrant who use digital languages to communicate in practically every aspect of their lives. They use chat rooms and other social media platforms to communicate most of the time when they are in front of a computer, laptop, or mobile device. They

spend a lot of time viewing YouTube videos and browsing the Internet because they prefer the content there.

Generation “z” supports digital learning and favors the usage of quick online seminars and instructional films. Even when they are at home, they are using computers daily. For them, television has fully been superseded by the Internet. According to estimates, Generation Z has consumer spending power between \$29 and \$143 billion. Members of this generation also influence roughly 93% of their families' purchases. They are also seen as the most diverse generation in terms of sexual preferences and ethnic backgrounds, which makes them fairly free-spirited (Sevic, Slijepcevic, & Milena, 2021).

There are several ways that CSR might benefit Generation Z. CSR can support the development of loyalty and brand image within this generation. Gen Z customers are more inclined to trust a business and stick with its products when they perceive that it is dedicated to social and environmental responsibility. CSR can aid in luring and keeping talent from Generation Z. Employers that align with the values of this generation are sought after, and those that are dedicated to changing the world will probably attract more of this generation's workforce. And CSR can aid in enhancing a business's standing. When Gen Z consumers see that a company is doing good things, they are more likely to have a positive opinion of the company and share that opinion with others (Uche & Sharon, 2019).

Generation Z demands a prompt resolution of any questions or concerns they may have about a company's operations, and they anticipate open and honest communication from them. They demand pragmatism at all costs and assume a discourse free of any stereotypes with companies. Also implies that a business should identify the concepts and ideals of Generation Z and modify its messaging to align with its values when promoting its CSR values. There is a misconception that huge businesses are somehow less ethical than smaller ones, which makes this particularly difficult for large organizations that deal with a lot of ethical issues in their daily operations. In light of this, it is crucial to inform Generation Z about all actions, without exception. Communicating with members of Generation Z, along with everyday technological and other challenges, brings with it numerous new advantages of transforming communication that should be wisely marketed (Milena, 2020). Despite the existing body of research on CSR, customer loyalty, and corporate image, there is a noticeable gap in understanding how these factors interact in the Sri Lankan mobile telecommunication service provider industry, especially concerning Generation Z consumers. This study aims to address this gap by examining the mediating role of Corporate Image in the relationship between CSR initiatives and customer loyalty.

3. Methodology

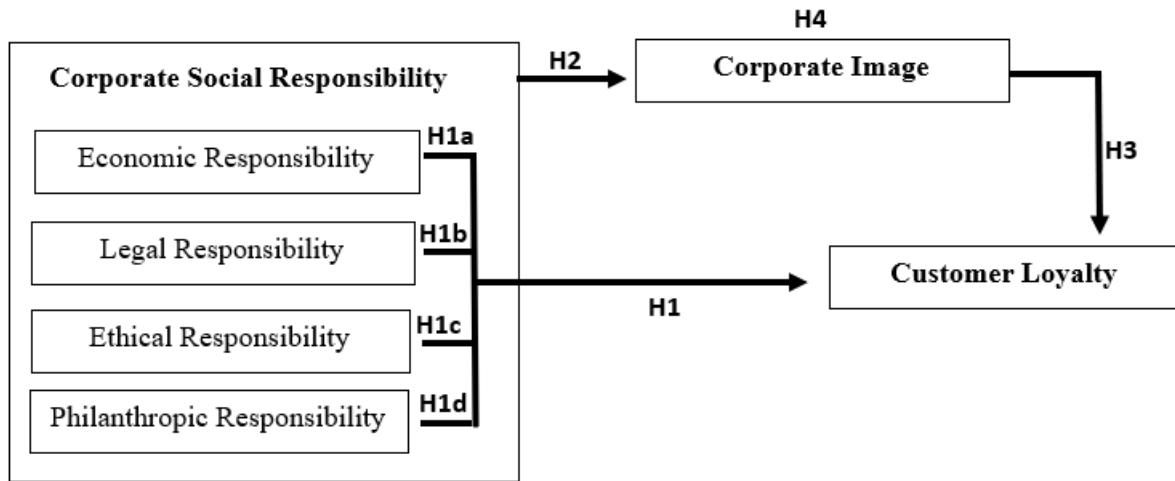
3.1. Research Design

Research design is a structured plan on how the researcher is going to execute particular research. In other words, research design is a blueprint that the researcher uses to conduct a study. The basis for carrying out a research study is provided by research design. Research design is a framework or blueprint for collecting, measuring, and analyzing data to address the research questions designed (Sekaran & Bougie, 2016). Each element of the research design provides several critical points of choice. Therefore, the researcher has to make several choices to build a design that is suited for carrying out the intended research study. The arrangement of various components of the research design properly will specifically enhance the possibility of moving towards a quality output of the study. The study will use a cross-sectional design and a quantitative approach. With the use of this design, the researcher will be able to collect information on the relationship between corporate image, customer loyalty, and CSR among Sri Lankan telecommunication services for Generation Z consumers.

3.2. Data Collection and Analysis Method

The data for this research was collected through an online survey using a structured questionnaire designed to gather accurate information from the targeted sample. The questionnaire utilized a 5-point Likert scale to facilitate responses. Utilizing an explanatory cross-sectional design, the study collected primary data gathered through an online questionnaire distributed to 301 respondents via purposive sampling. This study employed a quantitative approach to assess the impact of CSR on customer loyalty among Gen Z. The IBM SPSS statistical software package was utilized to check data validity and reliability and examine relationships. Correlation analysis and regression analysis were used to identify relationships.

3.3. Conceptual Framework



4. Data Analysis and Findings

4.1. Reliability Analysis

The Cronbach's alpha value is calculated to measure the internal consistency reliability of the instrument. According to Segal (2006) simply defines the reliability as the fact that a scale should consistently reflect the construct it is measuring. He further explains that the usual way to look at reliability is based on the consistency of the results generated by individual items with the overall questionnaire.

According to Elias, Cavana , & Jaskso (2001) as cited in (Ling, 2013) reliability test can be used as a measure that signals the consistency and stability of the instruments used in the survey when repeated measurements are made. It means, whether an instrument can be interpreted consistently across different situations. According to Sekaran (2003) reliabilities less than 0.60 are considered to be poor, those in the 0.70 range acceptable, and those over 0.80 good. Accordingly, in this research, the researcher tested reliability of the measures using Cronbach's Alpha.

According to Table 1, the Cronbach's alpha values of Economic Responsibility (0.863), Legal Responsibility (0.960), Ethical Responsibilities (0.948), Philanthropic Responsibilities (0.962), Customer Loyalty (0.968) and corporate image (0.962) are greater than 0.70. Therefore, the measurement of that dimensions has reliability.

Table 1: Cronbach alpha values

Variable	Cronbach's Alpha	Number of items
Economic Responsibility	.863	3
Legal Responsibility	.960	4
Ethical Responsibilities	.948	4
Philanthropic Responsibilities	.962	4
Customer Loyalty	.968	4
Corporate image	.962	4

4.2. Correlation Analysis

The Pearson correlation matrix shows the direction, intensity, and significance of bivariate connections among all examined variables. The correlation coefficient would indicate the relationship's strength and direction. The Correlation between variables can be either negative or positive, ranging between +1 to -1. Depending on the values, the strength of the correlation will be decided, while the minus or plus sign will determine the direction of the relationship between the considered two variables (Hinkle, 2022).

According to (Sekaran, 2016) the established significance threshold in social science research is $p < 0.05$, which means that 95 times out of 100, there is a probability of a real or significant correlation between the variables, and there is a 5% possibility that the link does not exist. According to those results of the correlation analysis for the present research are as follows.

The Pearson correlation coefficients between the three variables CSR (independent Variable), Customer Loyalty (dependent Variable), and corporate image (mediating variable) are shown in the correlation table. The correlation between the respective row and column variables is shown in each cell of the table.

With a strong positive correlation value of 0.916 ($p < 0.05$), the association between customer loyalty (dependent variable) and corporate image (mediating variable) is statistically significant and robust, making it a particularly noteworthy correlation. CSR (Independent variable) there is a considerable link between and corporate image (mediating variable), as seen by the high positive correlation of 0.909 ($p < 0.05$) between the two variables. Additionally, customer loyalty and CSR are also positively correlated and strongly, with a coefficient of 0.880 ($p < 0.05$).

The consistently low p-values (all < 0.05) emphasize the statistical significance of these correlations. The substantial sample size of 291 further reinforces the reliability of these findings. These results collectively suggest that CSR, customer loyalty, and corporate image are interrelated, and changes in one variable are associated with predictable changes in the others. The observed correlations provide

valuable insights for understanding the relationships within this dataset and may inform further investigations into the factors influencing customer loyalty and related variables.

Table 2: Correlation values

Correlations				
		CSR	Customer loyalty	Corporate image
CSR	Pearson Correlation	1	.880**	.909**
	Sig. (2-tailed)		.000	.000
	N	291	291	291
Customer loyalty	Pearson Correlation	.880**	1	.916**
	Sig. (2-tailed)	.000		.000
	N	291	291	291
Corporate image	Pearson Correlation	.909**	.916**	1
	Sig. (2-tailed)	.000	.000	
	N	291	291	291
** . Correlation is significant at the 0.01 level (2-tailed).				

4.3. Regression Analysis

Hypotheses can be tested by using the p-value (sig level) of each B coefficient of independent variables under a simple regression model. The confidence interval for accepting hypotheses in social sciences is 95%. To achieve this confidence interval, the p-value should be equal to or less than 0.05. If it is not equal to or less than 0.05, null hypotheses cannot be rejected. In another way, the alternate hypothesis is not supported.

H 1: CSR has a significant impact on Customer loyalty in the mobile telecommunication service provider industry in Sri Lanka

The "Standardized Coefficients" column shows the change in the predicted value of customer loyalty for a one-standard-deviation increase in the independent variable, holding all other independent variables constant. For example, a one-standard-deviation increase in CSR is associated with a 0.880 standard-deviation increase in customer loyalty.

In this case, independent variables have p-values less than 0.05, so we reject the null hypothesis for independent variables. This means that independent variables (Corporate social responsibility/CSR) have a statistically significant effect on customer loyalty.

Overall, the table suggests that both (Constant) and CSR are significant and positively related to customer loyalty. This means that as (Constant) and CSR increase, customer loyalty also increases.

Table 3: Coefficient table – CSR and Customer Loyalty

Model		Unstandardized Coefficients		Standardized Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	-.123	.072		-1.717	.087		
	CSR	1.071	.034	.880	31.507	.000	1.000	1.000

H 2: CSR has a significant impact on corporate image

Using CSR as the only independent variable, this table highlights the major factors influencing corporate image. The standardized coefficient (beta) of 0.909 (90.9%) emphasizes this strong positive link even more.

Table 4: Coefficient tables - CSR and Corporate image

Model		Unstandardized Coefficients		Standardized Beta	t	Sig.
		B	Std. Error			
1	(Constant)	-.175	.063		-2.784	.006
	IV	1.102	.030	.909	37.009	.000

H 3: corporate image has a positive and significant impact on customer loyalty.

This table reveals the key driver of customer loyalty: corporate image. It shows that for every one unit increase in corporate image, there's a corresponding 0.920 unit increase in customer loyalty, holding other factors constant. This positive relationship is further emphasized by the standardized coefficient (beta) of 0.916, indicating that corporate image explains over 91.6 % of the variance in customer loyalty.

Table 5: Coefficient table - CSR and Consumer Loyalty

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.154	.052		2.978	.003
1	corporate image	.920	.024	.916	38.798	.000

H 4: corporate image mediates the relationship between CSR and customer loyalty.

The mediation effect of the corporate image towards Corporate Social Responsibility and Customer loyalty is indicated by the above-mentioned indirect effect table. The lower confidence interval and upper confidence interval should be either positive or negative to accept the mediating effect as significant.

The Upper-Level Confidence Interval (BootULCI .9415) and Lower-Level Confidence Interval (BootLLCI .4675) are both positive in this indirect table. It is the mean indirect effect of the dependent variable (customer loyalty) and the indirect variable (corporate image) on each other.

Table 6: Direct and indirect effects of the mediating relationship

Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.3336	.0661	5.0461	.0000	.2035	.4637
Indirect effect(s) of X on Y:					
Effect	BootSE	BootLLCI	Boot	ULCI	
CIMV	.7377	.1233	.4630	.9424	

Table 7: Summary of the Hypothesis Testing Table

Hypothesis No.	Hypothesis	Regression beta value	R-squared value	Sig.	Status
H1	CSR has a significant impact on Customer loyalty in the mobile telecommunication service provider industry in Sri Lanka	0.826	0.775	.000	Accepted
H2	CSR has a significant impact on corporate image	0.909	0.880	.000	Accepted
H3	corporate image has a positive and significant impact on customer loyalty.	0.916	0.839	.000	Accepted
H4	corporate image mediates the relationship between CSR and customer loyalty.	BootLLCI = 0.4630 BootULCI = 0.9424		.000	Accepted

5. Findings and discussion

The impact of Corporate Social Responsibility (CSR) on customer loyalty has become increasingly significant in today's environment. The goal of this study is to understand the complicated relationships that exist between important CSR characteristics and customer loyalty among Gen Z. Discovering the complex relationships of Gen Z customer loyalty is the goal of the study, which focuses on CSR Economic, Legal, Ethical and Philanthropic Responsibility. The study underscores the noteworthy impact of Corporate Social Responsibility (CSR) on customer loyalty, as evidenced by a substantial correlation coefficient of 0.775. Additionally, the element of Ethical in shaping customer loyalty is highlighted by a robust correlation coefficient of 0.816. These findings emphasize the significance of CSR characteristics in shaping individual customer loyalty preferences among Gen Z. Furthermore, a robust positive correlation ($R = 0.909$) is revealed through Linear Regression Analysis between the dependent variable (customer loyalty among Gen Z) and a combination of independent variables (CSR Economic, Legal, Ethical and Philanthropic Responsibility). This implies a unified effect on these characteristics in the decision-making process. Notably, the correlation ($R = 0.916$) between the dependent variable (customer loyalty) and the mediating variable (corporate image) is even more pronounced, underscoring the pivotal role of corporate image in mediating the association between customer loyalty and the independent variables. Corporate image emerges as a crucial mediator in the relationship between the independent variables and the dependent variable, as evidenced by the observed enhancement in the R-value.

6. Recommendation

This study highlights the importance of strategically integrating Corporate Social Responsibility (CSR) initiatives into the core operations of mobile phone service providers in Sri Lanka to foster stronger customer loyalty. The findings emphasize that corporate image plays a crucial mediating role in the relationship between CSR and customer loyalty. A corporate image, which reflects customers' perceptions of a company's character, values, and reputation, is significantly shaped by the firm's socially responsible actions and the way they are communicated. When customers perceive a company as genuinely committed to social and environmental causes, they are more likely to develop a positive image of the company, which in turn strengthens their loyalty. Therefore, Sri Lankan mobile service providers should align their CSR efforts with community needs and cultural expectations, ensuring these programs are relevant and impactful. Transparent and honest communication about CSR activities is essential to build trust and reinforce the company's social responsibility credentials. Furthermore, providers should continuously monitor and assess the outcomes of their CSR initiatives, sharing results with stakeholders to demonstrate long-term commitment and accountability. Collaborating with local

communities, government bodies, NGOs, and civic leaders can enhance the credibility and reach of CSR programs. Altogether, these efforts contribute to a stronger corporate image and, consequently, more loyal and engaged customers.

7. Suggestions for Future research

In determining the direction of future research, it is advised that academics deepen their exploration of the complex interactions among corporate social responsibility (CSR), customer loyalty, and corporate image in Sri Lanka's mobile telecommunication provider sector, with a particular emphasis on Gen Z customers. Subsequent research endeavors may include a longitudinal approach to monitor the enduring effects of corporate social responsibility endeavors and evaluate the ways in which the dynamic customer segment's loyalty patterns are impacted by the dynamic character of business practices.

Furthermore, in the context of Sri Lanka, future studies may explore the cross-cultural aspects of CSR perception and how it affects Generation Z's consumer loyalty. A more thorough grasp of the complexity involved can be obtained by looking at how cultural quirks influence the efficacy of CSR activities and the effects these have on corporate image and loyalty. With Sri Lanka's distinct sociocultural environment, this cross-cultural lens would be especially relevant.

Furthermore, it is recommended that scholars investigate how innovation and technology improvements in the mobile telecommunications sector influence the connection between CSR, corporate image, and customer loyalty among Generation Z. Understanding how developing technology, environmental practices, and CSR programs intersect to influence consumer perceptions and loyalty can provide insightful information to stakeholders in academics and industry as the industry continues to evolve quickly. Subsequent studies in this field might look into how cutting-edge technologies are incorporated into CSR frameworks and evaluate how differently they affect Generation Z's loyalty in the context of Sri Lankan mobile telecoms.

8. Conclusion

The study concludes that corporate social responsibility (CSR) significantly influences customer loyalty in Sri Lanka's mobile phone service sector, with corporate image serving as a vital mediating factor. As consumers increasingly favor companies that demonstrate ethical and socially responsible behavior, CSR initiatives not only contribute to societal well-being but also enhance a company's reputation. A strong corporate image shaped by transparent communication and alignment with social values translates CSR efforts into increased customer trust, differentiation, and long-term loyalty. The study emphasizes that a positive brand image, built through well-integrated and clearly communicated CSR

strategies, offers a competitive advantage in a saturated market. Ultimately, the findings provide valuable insights and practical recommendations for service providers to strategically embed CSR into their business models, leveraging corporate image to cultivate sustained consumer loyalty in a socially conscious marketplace.

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Effect of Job Stress on Employee Job Performance: A Case Study of a Selected Apparel Company in Sri Lanka

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Abstract

In recent years, there has been an increase in stress in many aspects of life, particularly in people's workplaces. Individuals face high levels of stress on a daily basis, which can have a negative impact on their performance and productivity. This study attempts to examine the impact of job stress on the job performance of machine operators in a selected apparel company in Sri Lanka which is a BOI-registered garment manufacturer. The study was a cross-sectional study conducted in a non-contrive setting and the sample size was 226. The primary data were collected using a self-administered questionnaire consisting of two sections. The questionnaire was composed of 32 questions with a five-point Likert scale. The data were analyzed using descriptive analysis, simple regression and multiple regression methods. According to the results, it was found that all the dimensions which were used to measure the job stress; stress due to work overload, stress due to the working environment, stress due to role ambiguity and stress due to salary have a significant negative impact on the job performance of the machine operators in the selected apparel company. Further, it was discovered that the job stress of machine operators at the company was at a higher level while their job performance was low. Based on the results, the researchers recommend redesigning some jobs to reduce the work overload, providing sufficient support, guidance and encouragement, building social support and maintaining a proper reward system as measures of managing employee job stress in order to improve their job performance.

Keywords: *Job Performance, Job Stress, Role Ambiguity, Work Environment, Work Overload*

1. Introduction

Over the past few years, there has been a rise in the level of stress that is caused by one's employment in all aspects of life, but especially in the workplace. The world of work and business has become increasingly subject to fast-changing forces like increased competition, the pressure of quality, innovation, and the pace of doing business (Bamba, 2016). With more and more emphasis on the quality of work and delivery speeds, many employees are working under immense amounts of stress due to the resultant dramatic increase in demands of an employee (Yunita and Saputra, 2019). Consequently, job stress has become a frequent problem across all occupations and especially it is very common in the garment industry (Islam and Stringer, 2018).

Job stress can produce adverse consequences for both the individual and the firm since it has the effect of lowering motivation levels and job performance and increasing turnover intentions (Kuvaas et al., 2016). Due to the highly volatile nature of the current business environment, having a contented workforce has increasingly become a requisite for every organization to be sustainable in the market (Yeniaras & Kaya, 2021). Thus, it is very important for the management to pay special attention to manage the job-related stress levels of employees in order to have a satisfied workforce that provides their maximum contribution for the success of the organization.

Due to the turbulent business environment in today's world, the majority of organizations are struggling to discover means and methods to guarantee that their businesses are able to accomplish their organizational goals and continue to be profitable. However, they frequently believe in the assumption that when the company and its employees are under stressful situations, it is likely that the performance of the organization would be affected (Jalagat, 2017). Therefore, the businesses are becoming increasingly concerned about the fact that job stress has evolved into a significant risk not just for the employees on an individual level but also for the organization as a whole (Khuong and Yen, 2016). Upon these facts it is evident that there is an increasing need to understand the level of the influence of job stress to achieve higher performance of employees.

The selected organization for the study is a garment manufacturer in Sri Lanka which produces men's and women's undergarments. The main customers of the company include Marks and Spencer Group PLC (M&S), Primark and Phillips-Van Heusen Corporation (PVH). There are about 550 employees in the factory and the employee categories consist of machine operators, jumpers, supervisors, helpers, executives, assistant managers and top management. The monthly production average of the factory is about 1,000,000 and the average annual turnover rate is 4.23%.

1.1. Research problem

One of the most prevalent difficulties that workers are encountering in the workplace, regardless of where they are located in the world, is the phenomenon known as stress. It has been speculated that stress has an effect on the performance and efficiency of workers (Islam and Stringer, 2018). As a result, stress has emerged as a pressing concern that businesses need to take into consideration in order to ensure that their personnel are able to carry out their duties in an efficient and effective manner. The fact of the matter is that stress can be a contributing factor to an individual's life's imbalance, which can also result in depression and conflicts such as those that occur in the job, role conflict, role ambiguity, and workload (Jalagat, 2017).

Employee stress level assessments in the garment industry are becoming increasingly important in order to improve employee efficacy (Suresh et al., 2020). The garment industry today is highly competitive and largely operates on set targets for months, days and even hours (Islam and Stringer, 2018). Similarly, the machine operators in the selected apparel company are highly target-oriented and work under great pressure due to the higher demands of their jobs.

The following two tables (Table 1.1 and Table 1.2) provide a summary of the employee turnover and production of the selected apparel company over the period from December 2021 to May 2022.

Table 1.1 - No. of New Recruitments and Resignations for the period November 2021 – May 2022

Month	Number of Recruited Employees	Number of Resigned Employees
December	50	87
January	40	49
February	22	46
March	10	36
April	76	48
May	47	46

Source: Survey Data, 2021/2022

Table 1.2 - Production of Machine Operators by working time and pieces for the period November 2021 – May 2022

Month	Dec	Jan	Feb	Mar	Apr	May
Actual SAH*	275,732	225,760	383,737	128,554	241,825	255,198
Plan Pcs*	5,956,360	5,901,560	7,266,620	3,825,482	7,899,635	7,968,422
Act Pcs	4,978,626	4,563,381	6,482,610	3,223,211	7,653,412	7,482,633
Variance	-977,734	-1,338,179	-784,010	-602,271	-246,223	-485,789

* Standard Allocated Hours * Pieces

Source: Survey Data, 2021/2022

According to the above data, it is evident that the selected company has undergone a significant drop in production over the period from November 2021 to May 2022 and the labour turnover for the particular period has increased drastically. By considering these facts, this research attempts to address the problem: Is there an impact of job stress on the job performance of machine operators in the selected apparel company .

1.2. Objectives of the study

The main objective of this study is to investigate if the job stress impacts the job performance of machine operators in the selected apparel company . Further, the researchers also aim to achieve the following objectives.

1. To ascertain the impact of stress due to work overload on the Job performance of machine operators in the selected apparel company .
2. To investigate the impact of stress due to the working environment on the Job performance of machine operators in the selected apparel company .
3. To identify the impact of stress due to role ambiguity on the Job performance of machine operators in the selected apparel company .
4. To find out the impact of stress due to salary on the Job performance of machine operators in the selected apparel company .

The findings of this research would be important for making strategic decisions on improving employee performance and conducting further research in the field of the same. However, since the study considers one category of employees in a single company, the generalizability of the findings is limited.

2. Literature Review

The definitions of stress have changed over many years. Stress is a psychological and physical state, the individual is not sufficient with resources to subsist with the demands he has to face within a situation (Caral & Dhara 2016). Job stress is one of the major types of stress that affects the lifestyle of people. According to Goswami (2015), job stress is the harmful physical and emotional responses that occur when the job requirements do not match the capabilities, resources, or needs of a worker. It is a subject matter that affects employees' mental health so that they cannot serve the organization (Tan and Yip, 2018).

Job performance is viewed as an activity in which an individual can accomplish the task assigned to him/her successfully, subject to the normal constraints of reasonable utilization of the available resources (Dar et al., 2011). It is about achieving organizational objectives with the employee's skills, competency requirements, development plans, and results delivery.

Different aspects of job performance; productivity, decision-making abilities, job satisfaction, absenteeism, organizational skills, creativity, accuracy, initiative, and attention to personal appearance are affected by stress. According to the findings of Khuong and Yen, (2016) workload, role ambiguity and role conflict, working relationships, career development and working environment have been identified as the important factors that affect the job performance of employees through job stress. Similarly, the findings of Murali et al., (2017) have revealed that employee job performance is affected by time pressure, lack of motivation, role ambiguity, work overload, lack of motivation, harassment, role conflict, and reduction of resources. Accordingly, job stress can occur at the workplace due to several factors. Some of them are discussed below.

Work overload: Work overload is one of the major causes for job stress. Work overload is the condition when an employee has to accomplish tasks beyond one's capacity. In other words, it is when employees feel there is a stress on their work because the demand on their job is more than they can handle. This causes different deceases on human body when they continuously work without break, rest or meals (Khuong and Yen, 2016). The studies conducted by Koirala and Nepal (2022) found that chronic work overload contributes to employee exhaustion and negatively influences job satisfaction and overall performance.

Role ambiguity: This arises as a result of the complexity of the meaning of the job regarding his or her job. This role ambiguity results in low job performance. When the employee does not have a clear idea about how to meet the requirements of the job or task this happens (Murali et al., 2017). They do not have enough information about the requirements of their role. According to the findings of Purnomo et al. (2021) when employees do not have clarity about their roles, it leads to poor decision-making, lower engagement, and diminished organizational commitment.

Working relationships: Typically, in an organization employees have to deal with many others, especially the coworkers and supervisors. Healthy relationships with colleagues result in making the workplace more enjoyable and comfortable the workplace to do the job. Both these relationships are very important for employees to reduce the level of stress to a healthy level (Khuong & Yen 2016). Conversely, toxic relationships or conflict between coworkers can lead to emotional exhaustion and negatively impact job satisfaction and performance. In their study, Asaloei et al. (2020) assert that strong interpersonal support within teams improves communication, teamwork, and overall job productivity.

Working environment: Working environment consists of physical location as well surrounding of the workplace such as factory buildings and other societies. Noise, business, ventilation affects directly to employees. When the working environment of the organization is uncomfortable, the employee feels a pressure and their performance level goes down (Ekiabor, 2016). A comfortable and ergonomically sound workplace contributes to higher employee performance and reduces stress, as supported by the findings of Hamidi et al. (2020).

Time pressure: Time pressure is a very dominant problem in many organizations. In previous studies researchers have shown that time pressure causes costs on organizations. Because due to time pressure their rejection rate is high because of low quality. When there is a time pressure, employees are afraid of taking risks. Most of the time, they do not have enough time to think. So, their strategic thinking is gone down (Caral & Dhara 2016). According to Phillips-Wren and Adya (2020), high levels of time pressure cause employees to rush their tasks, leading to mistakes and a higher rejection rate. This pressure can also impair cognitive function, reducing employees' strategic thinking and problem-solving abilities.

Demand on the job: Matching the job requirements with the requirements of a jobholder is an essential factor. Thus, the training and essential support should be given to the employees (Vischer, 2015). The targets and time pressure are very important factors regarding the job demand. The recent researchers have revealed that employee job performance is affected by time pressure, lack of motivation, role ambiguity, work overload, lack of motivation, harassment, role conflict, reduction of resources (Murali et al. 2017). Further studies conducted by Jackson and Frame (2018) demonstrates that when job requirements exceed the skills and resources available to employees, stress increases, leading to poor performance.

There are many different sources of stress that may be attributed to one's job, and it can impact people in a variety of different ways. There is no doubt that the relationship between the welfare and health of an employee and the physio social aspect of the workplace has been well-documented (Dollar and Metzger, 1999). However, regrettably, only a limited amount of research has been undertaken on the effects of different stressors on the performance of an employee. Using the demand-control model

(Karasek, 1979), Jungwee (2007) identifies job pressure as one of the most significant sources of stress that employees experience on the job.

According to McCubbin and Figley (1983), the factor that is responsible for the disparity between the demands placed on a family and the capacity to offer mental security for the family is stress brought on by the job. Even though there is a considerable body of research that focuses on the relationship between work and family, there hasn't been a lot of emphasis paid (for example, Jacobson, 1987) that truly deals with the impact of job insecurity on both marriage and family lives (for example, Buss and Redburn, 1983; Ahmed & Ramzan, 2013). The way in which an individual perceives the relationship between these two forces is what determines whether or not they are experiencing a positive or negative stress as a result of their job. Working under stress is a relatively recent occurrence in the way that we live our lives in the modern era. This is not something that happens very often.

Yunita and Saputra (2019) stated that when employees are highly stressed their performance goes down and consequently, the organizational performance is declined due to increased labour turnover, absenteeism, work ineffectiveness and legal and financial damages. A 2016 study by Ekienabor discovered that there was an impact of job stress on employee commitment, thereby causing a decrease in the employee's performance. Further, Shagvaliyeva and Yazdanifard (2014) have found that when there is too much stress on employees it directly affects the quality of output and performance of employees.

Dar et al. (2011) suggested that to reduce the level of stress an organization can follow steps such as redesigning jobs, changing the organizational policies, develop support systems, shared goal and direction, teamwork, personal needs heard. Further, Dodanwala et al, (2022) proposed that proper strategies should be made and implemented regarding working hours, inter-personal relationship and supervision in order to mitigate the stress levels of employees at the workplace. And also, organizations should create a supportive environment to reduce the level of stress among employees. Participative decision making also increase the morale and motivation of employees. Health maintenance programs, supervisors training programs also helps to reduce/remove the high stress in the organization (Vijayan, 2017).

When leaders of the organization provide the proper support for the employees in return employees try to give their maximum support in productivity and quality of the work (Nawaz & Ansari 2017). Therefore, Awadh et al. (2015) suggested that flexibility of work, coaching, providing necessary training for employees, supervisor's support, and participation in decision making help to minimize employee stress.

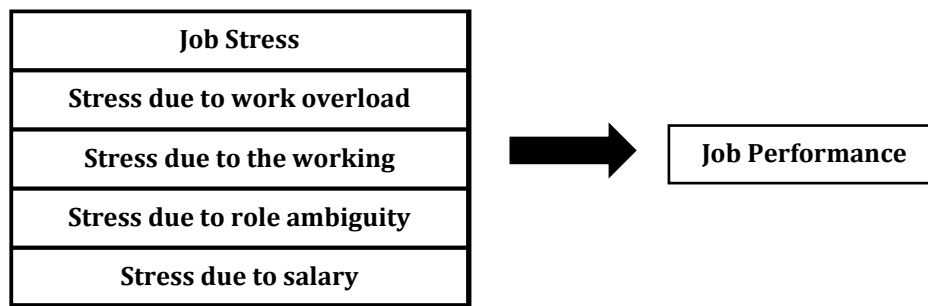
However, even though many researchers have found that job stress impacts on employee job performance (Dar et al., 2011; Khuong and Yen, 2016; Islam and Stringer, 2018) in different ways, only a few studies have been conducted in this area when it comes to the Sri Lankan garment industry.

Therefore, this research attempts to fill that empirical gap through a study conducted in a selected apparel company of Sri Lanka.

3. Methodology

The study used job stress as the independent variable and job performance as the dependent variable. Here, the job stress of machine operators in the selected apparel company was measured using four sub-dimensions namely: work overload, working environment, role ambiguity (Khuong and Yen, 2016) and salary (Awadh et al., 2015). Job performance was measured in terms of task performance and contextual performance (Kappagoda, 2018). The conceptual model used in the study is presented in Figure 3.1.

Figure 3.1: Conceptual Model of the study



Source: Constructed by author based on literature

The following hypotheses have been developed by the researchers based on the above conceptual model.

H₁: Stress due to work overload has a significant impact on the job performance of machine operators

H₂: Stress due to the working environment has a significant impact on the job performance of machine operators

H₃: Stress due to role ambiguity has a significant impact on the job performance of machine operators

H₄: Stress due to salary has a significant impact on the job performance of machine operators

H₅: Job stress has a significant impact on the job performance of machine operators.

The study was conducted using the quantitative approach. It was a cross-sectional study, and the data were collected in a non-contrived setting. The population of the study was all the machine operators working at the selected apparel company and the sampling was done using simple random sampling.

The sample size of the study was determined using the Krejcie and Morgan Table (1970). Accordingly, as the population of the study was 550, the sample size was taken as 226.

The primary data for the study were collected using a self-administered questionnaire consisting of two sections Part A and B. Part A consisted of demographic data and Part B included 20 statements (Ekienabor, 2016; Khuong and Yen, 2016; Lopes and Kachalia, 2016) for Job Stress and 12 statements for Job Performance (Beffort and Hatrup, 2003; Koopmans et al., 2014) with a five-point Likert scale (1 for Strongly Disagree- 5 for Strongly Agree). The data was analyzed using both univariate and bivariate methods and the analysis was carried out by SPSS Version 25.

4. Data Analysis and Results

4.1. Validity and reliability

The inter-item consistency and reliability of the questionnaire were examined with the Cronbach Alpha test and according to the findings, job stress and job performance have been reported 0.877 and 0.889 respectively. The results of the Cronbach's Alpha test suggested that the internal reliability of each instrument was satisfactory. The content validity of the instruments was ensured by the conceptualization and operationalization of the variables based on literature, and indirectly by the higher internal consistency denoted by Alpha coefficients. The questionnaires were distributed among 226 machine operators and all the responses were received.

4.2. Multivariate assumptions

In this research study, all key multivariate assumptions were rigorously tested and met. The assumption of multivariate normality was assessed using both the Shapiro-Wilk and Kolmogorov-Smirnov tests, with p-values greater than 0.05, indicating that the data were normally distributed. Linearity was verified through scatterplots, which demonstrated clear linear relationships between the dependent and independent variables. Homoscedasticity was confirmed using residual plots, which displayed constant variance across different levels of the independent variables. Additionally, the assumption of multicollinearity was evaluated, with Variance Inflation Factor (VIF) values for all independent variables falling below the acceptable threshold of 10, ensuring that no significant multicollinearity was present. Hence, all relevant multivariate assumptions were satisfactorily addressed in this study.

4.3. Descriptive data analysis

The questionnaires were distributed among 226 machine operators and all the responses were received. According to the results of the demographic factors, it has been reported that out of the total, 76% of the respondents were female and 24% were male employees. The majority of the respondents were in the age category of 18-25 while only 9% were above 45 years. 54% of the respondents were married,

43% were single and 3% of the respondents were recorded as widows. Out of the total, 69% of employees were in the permanent employee cadre and only 31% were on the temporary basis. When considering the educational levels of employees, except 5%, all the others had qualifications above GCE O/L.

The study used five monthly income categories as 10000 - 14000, 15000 - 19000, 20000 - 24000, 25000 - 29000 and above 30000 (amounts are in LKR). From the total respondents, 13% were in between 10 000 and 14 000; 53% were in between 15000 and 19 000, 19% were in between 20 000 and 24000; 7% in between 25 000 and 29 000 and 8% of respondents were above income of 30 000. Among the respondents, 62% of the workers had work experience between 1-2 years and only 9% had experience below 5 years.

The univariate analysis for job stress and job performance was carried out considering the mean and standard deviation values, skewness and kurtosis of the variables. The results of the univariate analysis are given in Table 4.1.

Table 4.1: Results of Descriptive Data Analysis

Variable	Mean	Std. Deviation	Skewness	Kurtosis
Stress due to work overload	4.4317	0.2127	-0.630	-0.606
Stress due to the working environment	4.2952	0.4317	0.077	0.594
Stress due to role ambiguity	4.3371	0.109	-0.270	1.173
Stress due to salary	4.4181	0.4073	-0.833	0.073
Job stress	4.3456	0.3386	-0.763	0.575
Job Performance	1.8135	0.5664	0.641	-0.298

Source: Survey data, 2021/2022

According to Table 4.1, the mean value of stress due to work overload is between 4.2190-4.6444, stress due to the working environment is between 3.8635-4.7269, stress due to role ambiguity lies between 4.2281-4.4461 and stress due to salary is between 4.0108-4.8254. The overall job stress is reported as 4.3456 and it ranges between 4.007-4.6842 indicating higher mean values.

In contrast to that, the mean value of the job performance of the machine operators is found as 1.8135 and it lies between 1.2471 and 2.3799 indicating low values for the job performance level. The Skewness and Kurtosis coefficients depict that the recorded data are approximately normally distributed.

4.4. Bivariate analysis

The Simple Regression Analysis was carried out with a two-tailed test at 0.01 significance level to identify the impact of job stress on job performance of the employees in the selected apparel company. The results of the findings are summarized in Table 4.2.

Table 4.2. Summary of Regression Analysis Results

Predictor	R	R Square	Adjusted R Square	Beta	Sig. (2 tailed)
Stress due to work overload	.970 ^a	.941	.931	-.970	.000
Stress due to the working environment	.896 ^a	.803	.801	-.896	.000
Stress due to role ambiguity	.918 ^a	.843	.841	-.918	.000
Stress due to salary	.864 ^a	.746	.743	-.864	.000
Job Stress	.934 ^a	.873	.872	-.934	.000

Source: Survey data, 2021

As indicated in Table 4.2, the beta values reported by stress due to work overload, working environment, role ambiguity, salary and overall job stress are -0.970, -0.896, -0.918, -0.864 and -0.934 respectively. These values depict that there is a strong negative impact on the job performance of machine operators. According to the R Squared values of the overall job stress, 87.21% of the variance in job performance is explained by the job stress level of the machine operators in the selected apparel company.

4.5. Multivariate analysis

The multivariate regression analysis was carried out in order to investigate the simultaneous impacts of all the independent variables on the dependent variables. The results of regression the four independent variables (stress due to work overload, stress due to working environment, stress due to role ambiguity and stress due to salary) against the dependent variable (Job performance) are shown in the Table 4.3 and 4.4.

Table 4.3: Results of Multiple Regression Analysis: Model Summary Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.986 ^a	.971	.970	.09763

a. Predictors: (Constant), Stress due to work overload, Stress due to the working environment, Stress due to role ambiguity, Stress due to the salary

Source: Survey data, 2021/2022

Table 4.4: Results of Multiple Regression Analysis: ANOVA

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.415	4	8.104	850.261	.000 ^b
	Residual	.953	100	.010		
	Total	33.368	104			

a. Dependent Variable: Job performance

b. Predictors: (Constant), Stress due to salary, Stress due to work overload, Stress due to role ambiguity, Stress due to working environment

Source: Survey data, 2021/2022

According to Table 4.3, the multiple R is 0.986, and the R squared value indicates that 97.0% of the variation in job performance is explained by the four dimensions jointly. The F value is 850.261, which is significantly at 1% ($p=0.0000$). It suggests that the four sub variables have significantly explained 97% of the variation in the job performance of machine operators in the selected apparel company of Sri Lanka.

5. Discussion of the Findings

According to the data of descriptive analysis it is evident that all the mean values relating to the dimensions of job stress; stress due to work overload, stress due to the work environment, stress due to role ambiguity and stress due to salary are greater than 4.0 indicating that the machine operators in the selected apparel company are experiencing high levels of stress due to work overload, work environment, role ambiguity and salary. This denotes that the machine operators of the factory are under a high stress level at their jobs. On the other hand, since the mean value of job performance is reported between 1.2471 and 2.3799 depicting that the performance level of employees working in the selected apparel company is at a lower level.

According to Table 4.2, stress due to work overload was found to have a negative impact on job performance with the strength of b value of -.970. As indicated by the R Squared, 94.1% of the variance of stress due to work overload is explained by employee job performance. Hence it was found that machine operators in the selected apparel company were suffering from stress due to work overload

and stress due to work overload was identified as a predictor of job performance. These results support the findings of Murali et al. (2017) showing a negative impact of work overload on job performance of employees.

The second dimension of the study; stress due to the work environment indicated a b value of -0.896 showing a strong negative impact and according to the R squared value it was discovered that 80.3% of the variance of stress due to work overload is explained by employee job performance. Consequently, work environment was also found as a predictor of job stress. These findings were in line with the results of the studies conducted by Murali et al. (2017) and Khuong and Yen (2016) indicating a strong negative impact on stress due to work environment and employee job performance.

According to the results of simple regression analysis, stress due to role ambiguity was found to have a negative impact on job performance with the strength of b value of -0.918. As indicated by the R Squared, 84.3% of the variance of stress due to role ambiguity is explained by employee job performance. Therefore, stress due to role ambiguity can be considered as a predictor of job performance. A similar finding was discovered by Goswami (2015) in his study to identify the impact of job stress job performance in the banking sector.

Discussing the level of stress due to salary of the respondents in the sample, it was found that the employees in the selected apparel company were experiencing a greater level of stress due to the insufficiency in salaries and the b value of Stress due to salary was reported as -0.864. According to the R Squared, 74.6% of the variance of stress due to salary is explained by employee job performance. Thus, it was found that salary is also a major determinant of job performance of employees in the selected company of the study. These findings were supported by the previous studies conducted by Ekienabor (2016) and Awadh et al. (2015) indicating a strong negative impact of stress due to lack of salary and the job performance of employees.

Where the overall job stress is concerned, it was found to have a negative impact on job performance with the strength of b value of -.934 and the R squared value of 87.3%. Thus, it is evident that job stress is a predictor of job performance with a high impact. Similar results were discovered by the studies conducted by Khuong and Yen (2016); Ekienabor (2016); Goswami (2015); Awadh et al. (2015); Lopes and Kachalia (2016) and Dar et al. (2011) regarding job stress and job performance in different business sectors.

Further according to the multivariate analysis, it is evident that sub-variables of the study (stress due to work overload, stress due to the work environment, stress due to role ambiguity and stress due to salary) jointly impacts the job performance of employees at in the selected apparel company to a greater deal since 97% of the variation in job performance is explained by the four dimensions jointly.

Therefore, based on the above results, the following conclusions can be made regarding the hypothesis of the study. The summary of the results is given in Table 5.1.

Table 5.1: Results of Hypothesis Testing

Hypothesis	Result
H1: Stress due to work overload has a significant impact on the job performance of machine operators	Accepted
H2: Stress due to the working environment has a significant impact on the job performance of machine operators	Accepted
H3: Stress due to role ambiguity has a significant impact on the job performance of machine operators	Accepted
H4: Stress due to salary has a significant impact on the job performance of machine operators	Accepted
H5: Job stress has a significant impact on the job performance of machine operators.	Accepted

The findings of this study can be further strengthened by connecting them to established theoretical frameworks discussed in the literature. The Demand-Control Model (Karasek, 1979) offers a robust explanation for the negative impact of stressors such as work overload, role ambiguity, and work environment on job performance, as observed in this study. According to the model, when employees face high job demands with limited control or resources, it leads to elevated stress levels, negatively affecting their performance. Similarly, the Person-Environment Fit Theory (Vischer, 2015) highlights that when the job demands do not align with the individual's resources or capabilities, such as insufficient salary, employees experience greater job stress, further lowering performance. These theoretical frameworks reinforce the study's findings that stress due to work overload, role ambiguity, and the work environment significantly contribute to diminished job performance, consistent with prior studies like those by Khuong and Yen (2016) and Murali et al. (2017). Moreover, the results echo the need for organizations to implement strategies to address these stressors, as suggested by Dar et al. (2011) in order to enhance job performance.

6. Conclusion and Implications of the Study

This study mainly focused on measuring if there is an impact of job stress on the job performance of machine operators in a selected apparel company in Sri Lanka. As indicated by the empirical data it has been identified that work overload, working environment, role ambiguity and salary significantly influence the job performance of the machine operators of the selected company. Thus, it can be

concluded that there is a significant negative impact of job stress on the job performance of machine operators in the selected apparel company of the study and job stress plays a vital role in determining the job performance of employees.

Based on the study's findings, several recommendations are proposed to effectively manage job stress and improve employee performance. Among them, redesigning jobs to reduce work overload is crucial in minimizing the negative impact of stress on performance. Awadh et al. (2015) highlight that job redesign can involve redistributing tasks, setting realistic deadlines, and creating more balanced workloads. This can be achieved through job rotation, task simplification, or automation of repetitive tasks, allowing employees to manage their workload more effectively. Additionally, introducing flexible work arrangements, such as staggered shifts or telecommuting options, can reduce pressure by giving employees greater control over their work schedules, thus enhancing job performance.

Providing sufficient support, guidance, and encouragement is another key recommendation. Employees who receive adequate supervision and guidance are better equipped to handle workplace stress (Murali et al., 2017). Managers should establish regular check-ins and open communication channels to offer support when employees face challenges. Moreover, offering constructive feedback and celebrating employee successes can improve morale, as recognition of effort reduces stress and increases motivation. Supervisory support also plays a critical role in addressing employee concerns promptly, providing a clear direction on how to meet job demands, which in turn, mitigates stress.

Building social support within the workplace is also essential for reducing job stress. Goswami (2015) emphasizes that social support from colleagues and supervisors can buffer the impact of stress on employees. Fostering a collaborative working environment where employees can rely on one another for assistance can alleviate feelings of isolation and overwhelm. Promoting teamwork through peer mentoring, knowledge sharing, and team-building activities can help create a culture of mutual support, thus reducing stress levels and improving job satisfaction.

Further, maintaining a proper reward system is fundamental to stress management. A fair and transparent compensation structure can mitigate financial stress, one of the major stressors in the workplace (Khuong & Yen, 2016). Besides competitive salaries, organizations should implement non-monetary rewards such as employee recognition programs, professional development opportunities, and flexible work arrangements. These rewards provide intrinsic motivation, reducing job-related stress and fostering a positive work environment. When employees feel valued and fairly rewarded for their efforts, their stress levels decrease, and job performance improves (Ekiabor, 2016).

By addressing job overload, providing adequate support, enhancing social connections, and maintaining a fair reward system, organizations can effectively reduce job stress and improve employee performance.

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A Robust copyright protection for the Artificial Intelligence generated Audio Visual Content: special reference to Sri Lankan copyright law

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Abstract

This research discusses the ever-evolving issue of copyright protection of audiovisual content generated by Generative Artificial Intelligence with particular focus on the legal system of Sri Lanka. The existing copyright legislation, particularly the Intellectual Property Act No. 36 of 2003 of Sri Lanka, lacks clear provisions on AI-generated audiovisual content primarily because of the lack of an established judicial paradigm on authorship and ownership in the context of non-human creativity. The research problem here how Sri Lankan copyright law addresses authorship and ownership of AI-generated audiovisual contents. The objective of this study is to analyze and clarify the authorship and ownership rights of AI-generated audiovisual contents under Sri Lankan copyright law. Qualitative research method was used for this in-depth interviews and Sri Lankan Intellectual Property Act No. 36 of 2003 were used as primary data sources. In-depth interviews were conducted with scholars in several fields such as law, art, technology and books, research articles, and the internet were used for the compilation of secondary data related to these subjects. Data were thematically coded under five broad categories of protective works, authorship, ownership, exclusive rights, and moral rights. This study finds that AI-generated audiovisual contents introduce heightened authorship challenges. The fact that the author of the AI generated work has not yet been clearly defined under copyright law of Sri Lanka has become the main problem in providing protection. Although AI systems carry out the technical process, the involvement of the user in initiating and influencing output through prompts demonstrates creative intent. Therefore, authorship has to be attributed to the user. Assigning rights to the AI machine contravenes the purpose of public availability and stifles innovation. Despite the fact that creators hold patent rights, copyright has to be attributed to the user. Ethically, AI tools need to be acknowledged for its contribution to the creative process. In summary, a serious legal framework is imperative to face the special character of audiovisual content generated by AI. It must provide clear definitions of authorship, support hybrid creativity, and guarantee ethical use, keeping local law aligned with international standards in order to facilitate innovation and defend rights in the digital creative era.

Keywords: *Copyright , Audio-visual content , Generative Artificial Intelligence , Sri Lankan Intellectual Property Act, Authorship*

1. Introduction

Artificial intelligence has ushered in a booming new era of technological advancement. Although AI has been discussed in society as a popular topic in the twenty-first century, its history began to be discussed only in the middle of the twentieth century. With roots in ancient times, artificial intelligence (AI) has a long history. At the Dartmouth Conference in 1956, the phrase "Artificial Intelligence" was created, marking the beginning of the modern discipline of AI. Neural networks, symbolic logic, and machine learning algorithms were among the early AI techniques. The 1970s and 1980s saw the emergence of knowledge-based AI and expert systems. Due to reductions in funding and a lack of growth, the discipline had difficulties in the 1980s and 1990s, a time known as the "AI winter". But in the 2000s and beyond, developments in deep learning, big data, and machine learning brought AI research back to life (Haenlein & Kaplan, 2019).

This research studies artificial intelligence-generated art. Artificial intelligence that can produce novel, unique content is known as generative AI. It creates data that matches the training data it was trained on using machine learning models, which are frequently based on techniques like generative adversarial networks (GANs). Applications for this technology include generating text, generating images, music composition, and others. It makes it possible to provide novel, realistic material with a range of creative practical uses. It is also important to create different types of software to create artworks that are generated using artificial intelligence. Generative AI generates relevant artwork by training data sets and providing relevant prompts upon receiving certain input. But while these artworks have not yet surpassed human creativity, there are signs in the technological world that they will soon.

The intersection of generative artificial intelligence and creative production is reshaping the traditional boundaries of authorship and copyright. The World Intellectual Property Organization has defined copyright, 'Copyright (or author's right) is a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture, and films, to computer programs, databases, advertisements, maps, and technical drawings. To safeguard artists' intellectual property, provide them with exclusive rights to their creations, and encourage innovation, copyright legislation is essential. In addition to supporting lives and economic progress, copyright enhances the creative industries' economic worth. Copyright laws have been enacted to protect human creations and creators around the world, and there is no systematic legal system to protect artificial intelligence-based creators and artworks. AI-generated art is opposed to copyright protection for several reasons. Some argue for the automatic release of AI artwork into the public domain, highlighting authorship issues brought forth by the lack of direct human contribution. Further concerns include possible barriers to technical advancement, ethical issues such as biases in AI algorithms, and how appropriate current copyright laws are to the unique characteristics of artworks

generated by AI. Essentially, the discussion suggests that copyright concerns about AI art be approached with great care and adaptation.

In a background where artificial intelligence is expanding rapidly to many fields, a strong conversation has been created in the world about the authenticity of copyright law, especially for generative AI audiovisual contents. Although there is still no globally accepted copyright legal framework for generative AI artworks, some countries are working to provide copyright protection for generative AI creations under existing copyright laws. Several well-known court cases have arisen about generative AI artworks. Some of these have been refused copyright by the courts, and some cases are still pending. However, in the future, generative AI creations will be used in many industries such as entertainment and creative industries. Preventing or countering it will never be possible in a digital society and the entire society will have to adapt to it. Therefore, there should be legislation for artificial intelligence and through this research, it is specially emphasized the necessity of a special copyright law for generative AI artworks.

While there has been international controversy concerning AI generated works and copyright, Sri Lankan jurisprudence and scholarship on the subject remain nascent. The literature focusses largely on traditional copyright principle with minimal theoretical or practical discussion of how generative AI technology interconnects with or challenges such principles. There has not been adequate study of the consequences in audiovisual contents, a rapidly evolving and powerful industry within Sri Lankan copyright law.

This research attempts to bridge this divide by critically exploring the predictions of effective copyright protection of generative AI Audiovisual content in Sri Lanka. The research is framed by the need to evaluate the sufficiency of existing legislation with the nature of AI-generated audiovisual content, both considering international considerations and local legal context. The research also aims to help inform the wider debate around authorship, moral rights, and ownership in post-human creative environments, particularly in audiovisual contents.

2. Literature Review

2.1. Human Creativity and Generative Artificial Intelligence

The Britannica encyclopaedia defines art as "The arts, modes of expression that use skill or imagination in the creation of aesthetic objects, environments, or experiences that can be shared with others" (The Arts | Creative Expression, Visual Arts & Performing Arts | Britannica, 2023). According to Leo Tolstoy, interpreted art, "To evoke in oneself a feeling one has experienced, and having evoked it in oneself, then, using movements, lines, colours, sounds, or forms expressed in words, so to transmit that feeling that others may experience this same feeling- this is the activity of art. Art is a human activity

consisting in this, that one man consciously, using certain external signs, hands on to others feelings he has lived through, and that other people are infected by those feelings and also experience them”(Tolstoy,1897). An artist can refer to any individual who engages in the creation or expression of art. Artists can come from various backgrounds, cultures, and disciplines. They can be professional artists who make a living from their artistic efforts, or they can be amateurs or hobbyists who create art for self-enjoyment or self-expression. Artists can include painters, sculptors, dancers, musicians, actors, writers, poets, photographers, filmmakers, and individuals working in other creative fields. The term "artist" is broad and encompasses a diverse range of individuals who use their experiences, creativity, and imagination to produce art in all its manifestations (Introduction to Indian Arts, n.d.).

Generative Artificial Intelligence (AI) is a network of technical AI systems that can generate new content that is not explicitly programmed and can generate text, audio, imagery, and synthetic data. The technology, it should be noted, is not brand new. According to the TechTarget article, 'Generative AI was introduced in the 1960s in chatbots. But it was not until 2014, with the introduction of generative adversarial networks, or GANs a type of machine learning algorithm that generative AI could create convincingly authentic images, videos, and audio of real people" (What Is Generative AI? Everything You Need to Know, 2023). When the model is trained, the method can generate new relevant content according to the input prompts. According to literature reviews, generative AI technology is used to generate a wide range of audiovisual content. The capability of generative AI models to produce realistic images and videos has clear and noteworthy practical implications across a multitude of domains, such as art (Elgammal et al., 2017), entertainment , gaming (Liu et al., 2021), design , (Piumantha.O, 2024), medicine (Jing et al., 2023), and data augmentation (Yasin Shokrollahi et al., 2023) for machine learning tasks. Legal researchers throughout the world are currently debating whether using copyrighted images to train AI is against the law. According to the research conducted by Adam Buick , to fully grasp the significance of the debate around copyright and training data, it is necessary to first understand how such data is used to train a modern generation AI model. While AI models that could be described as ‘generative’ in some senses have existed for decades, the current wave of popular generative AI models such as OpenAI’s GPT series or Stability AI’s image generators are based on a subtype of machine learning known as ‘deep learning’. As generative AI reshapes creative expression, it also fuels legal discussions about the implications and enforcement of copyright law.

2.2. Intellectual Property Law and Copyright Protection

Legal protection is required for the original work that are guided by human intelligence, and for that reason, legal arrangements have been made to protect intellectual property at the global level. Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period (Kanturi, n.d.).

Intellectual property is discussed under two main sections, the first of which is 'Copyrights and Related Rights' and the second is 'Industrial Property Rights' (Tewari & Bhardwaj, 2021).

Copyright has been defined by the World Intellectual Property Organization 'Copyright (or author's right) is a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture, and films, to computer programs, databases, advertisements, maps, and technical drawings' (Copyright, n.d.). Protecting and compensating artists for their work is the aim of copyright. It encourages authors to produce fresh work continuously. Work must fulfill two primary requirements to be eligible for copyright protection:

- a) Originality: The work should be inspired by something, not just a copy of something that already existing. It must be an original work of art.
- b) Fixation: The work must be written down, saved on a computer, or otherwise documented in a concrete format. By doing this, the work's tangible presence is guaranteed (Reddy N M, 2016).

Although WIPO often defines copyright as the protection of original works, scholars such as Reddy (2016) argue that AI-generated works lack the human intent typically required for protection. A major problem is that there is no clear protection for generative AI creations by Sri Lanka's copyright law, and there are no clear research written about it. Although global discussions on AI and copyright have progressed, there has been minimal academic investigation into how these issues operate within Sri Lanka's legislative framework, an area addressed by this study.

3. Research Method

This research used a qualitative method to explore whether Generative AI artworks can be protected by the Sri Lanka Intellectual Property Act No. 36 of 2003. The qualitative approach was adopted to collect data using the interview method. Gill et al. (2008) state that interviews provide a deeper understanding of a social phenomenon. In other words, detailed insights into a particular subject or an area can be collected from individual participants using the interview method. The primary aim of this study was to examine important legal and conceptual issues such as ownership, authorship, moral rights, and exclusive rights over audiovisual contents generated by AI.

Data was collected by conducting in-depth, semi-structured interviews with 12 experts in various fields such as creative arts, law, and AI. The research participants included Artists, Television producers, AI experts and Legal Academics. Important areas such as whether AI artworks can be legally protected, who should be considered as the author, who owns the work, and the application of exclusive and moral rights were the focus of the in-depth interviews. These in-depth interviews and discussions were

conducted face-to-face, via telephone, and Zoom meetings to collect data. Participants were also given codes to uphold ethical reflections, and no names were revealed without consent, following the typical qualitative research ethics. Purposive sampling was used to select participants, who were chosen for their backgrounds in the arts, media, AI, and law. The Sri Lankan Intellectual Property Act No. 36 of 2003 was used as a primary source in the compilation of qualitative data related to this research. Chapter 2 of the IP Act, which deals with copyright protection, was given special consideration. In the compilation of qualitative data, books, research articles, Web articles compiled related to the subject were studied as secondary sources. The analysis was based on thematic analysis and included Authorship, ownership, exclusive rights, moral rights, and protected works were the main focuses of the analysis. The narrative analysis method was used to analyse interviews with field experts while studying AI-based creations and copyright law and it provided depth to this by discovering the insightful opinions of experts on AI's significances in the legal and creative arenas.

The analysis and discussion of their findings, which are in line with the recognised themes and compliant with ethical research guidelines, are provided below. To ensure confidentiality, interviewees have been anonymised using role-based codes.

Table 1: Interview Participants by Field and Role

Interviewee Code	Field	Role/Expertise
P1	Music Industry	Veteran Lyricist
P2	Music Industry	CEO, Local Music Company
P3	Art & Design	Professor
P4	Film Industry	Veteran Director, Screenwriter
P5	TV Media	Senior Program Producer
P6	TV Media	Senior Producer
P7	TV Media	Senior News Producer
P8	Legal Studies	Professor & Head, Legal Studies Dept.
P9	Legal Administration	Director, National Intellectual Property Office
P10	AI & Computing	Senior Lecturer, Computer Science
P11	AI & Design	Senior Lecturer, Industrial Design
P12	AI Arts	Independent AI Artist

4. Interview Analysis and Discussion

Regarding this research, in-depth interviews were conducted with several experts in the fields of legal, technical, art, and audio-visual media. In this section, the ideas contained in the in-depth interviews will be analysed and discussed according to the Natural Right Theory. The analysis and discussion will be conducted under the following themes. In-depth interviews will be analysed and discussed under the Protective works, Authorship, Ownership, exclusive right relevant themes and the copyright law of Sri Lanka will also be comparatively discussed.

Copyright law in any country clearly defines which works are protected and which are not. Especially for creating generative AI artworks, the basic mechanical tool called a computer is essential. Protection of 'Computer Works' It should be investigated whether the protections available under Sri Lanka copyright law can protect generative AI works. Regarding in-depth interviews, P8 and P9 from Legal Perspective stated that there is no provision for the protection of AI creations referred to as 'computer works' in the Sri Lanka copyright law. "Computer program" is a set of instructions expressed in words, codes, schemes, or in any other form, which is capable, when incorporated in a medium that the computer can read, of causing a computer to perform or achieve a particular task or result" (Intellectual property act Sri Lanka, 2003)

According to P8, the definition of "computer program" in the IP Act applies to the concept of computer software and emphasizes copyright protection for original expressions of software functionality or outputs rather than the specific results it produces. Consequently, generative AI works are not eligible for copyright protection under this classification. P9 further states that software cannot be registered as a patent or copyright work in Sri Lanka and that the Act focuses on protecting unique processes or embedded devices rather than software. This implies a lack of clear copyright protection for specific results or outputs generated by AI systems within the provisions of the Act. According to the IP Act No. 36 of 2003 Sri Lanka, 6 (1) The following works shall be protected as literary, artistic, or scientific work (hereinafter referred to as "works") which are original intellectual creations in the literary, artistic and scientific domain, including and in particular—

(a) books, pamphlets, articles, computer programs, and other writings.

(b) speeches, lectures, addresses, sermons, and other oral works.... (2003)

Since AI creations are generated by mechanical means such as computers, people who do not have a clear understanding of the law have the idea that the term 'computer work' mentioned in the Act is protected. But on a clear perusal of the Act, the term 'computer program' does not represent generative AI creations. Although some countries have taken steps to protect AI works under 'Computer Programmes', Sri Lanka's Copyright Act doesn't imply such a thing. P10 has mentioned what aspects of computer programs are protected by copyright and protected by patents.

Copyrightable parts - The executable object code in digital format, the source code is written in high-level languages, The algorithms (steps of solving the problem)

Patentable part - The algorithms (or source codes in addition to algorithms) that are steps of solving the problem that can be used in another process, The processes involving mathematical equations, Products, and processes that embed computer programs are patentable.

Accordingly, AI systems, generative AI works, are not represented by computer programs designated as protected works according to Sri Lanka's copyright law. This research focuses on copyright protection as it affects artworks generated by artificial intelligence. AI Artworks, which are created for audio-visual media, are special. Whether these generative AI works can be protected as 'protected works under the Intellectual Property Act No. 36 of 2003 can be discussed with reference to data from in-depth interviews. The following are listed as protected works in the Intellectual Property Act of Sri Lanka.

The following are listed as protected works in the Intellectual Property Act of Sri Lanka.

6. (1) The following works shall be protected as literary, artistic, or scientific work (hereinafter referred to as "works") which are original intellectual creations in the literary, artistic and scientific domain, including and in particular (a) books, pamphlets, articles, computer programs, and other writings, (b) speeches, lectures, addresses, sermons, and other oral works, (c) dramatic, dramatic-musical works, pantomimes, choreographic works, and other works created for stage productions, (d) stage production of works specified in paragraph, (c) and expressions of folklore that are apt for such productions, (e) musical works, with or without accompanying words, (f) audiovisual works, (g) works of architecture, (h) works of drawing, painting, sculpture, tapestry, and other works of fine art, (j) photographic works, (k) works of applied art, (l) illustrations, maps, plans, sketches, and three-dimensional works relative to geography, topography, architecture, or science. (Sri Lanka, 2003)

Among the works designated as protected works in the copyright chapter, underlined are the types of artistic works that can be used for audio-visual media. Those human creations can also be generated by generative AI technology. The features of the works underlined above are very clearly set out in the section containing the definitions of the Act. Those features are also available in AI-generated creations for audio-visual media.

According to Intellectual Property Act No. 36 of 2003, "Audiovisual work" means a work that consists of a series of related images which impart the impression of motion, with or without accompanying sounds, susceptible of being made visible, and where accompanied by sounds susceptible of being made audible, "photographic work" means the recording of light or other radiation on any medium on which an image is produced or from which an image may be produced, "sound recording" means any exclusively aural fixation of the sounds of a performance or of other sounds...

In the definition section of the Intellectual Property Act, several audio-visual works are defined as mentioned above. The characteristics of those creations are also present in generative AI artworks (Since AI images cannot be defined in the same way that photographic works are defined, it seems that a new definition should be included). Therefore, the problem of whether generative AI artworks cannot be protected can be answered with the help of in-depth interviews.

The comments made by P8 and P9 from a legal perspective regarding AI-generated artworks and their copyrights are more important for discussion. The essence of their ideas is the same. They claim that existing copyrights protect AI-generated artworks. Even if it is generated by AI, there is copyright protection for its final output, they further state that the main problem is that it is not clear who is the author of those artworks.

One of the main points to be noticed here is that there must be an author to provide IP protection for creation. But still, there is a dilemma regarding the authorship of AI artworks. When the authorship is determined, if legal amendments or a new law is drafted, protection can be given to AI creations without any problem.

4.1. Ownership and Authorship

Authorship and ownership should be interpreted separately. An author is the creator of the work but may not always be the owner. An author is someone who creates a work either alone or at the direction of another person. In the context of copyright law, an author is usually the person who brings the original work into existence. Writers, artists, musicians, filmmakers, programmers, and other creators may fall under this category. Under copyright law, an author is often allowed specific rights and protections, such as the exclusive right to make copies, distribute the work, and give public performances or exhibitions of it.

In the Intellectual Property Act No. 36 of 2003, "author" is defined as follows: "Author" means the physical person who has created the work (IP Act Sri Lanka, 2003). According to that, one who contributes to a certain creative work, directs his creativity, and creates a certain creation as a fixed medium can be identified as a tool.

Some works may have several authors and may be referred to as joint authorship. A creative work produced by two or more authors who collaborate to become joint authors is referred to as a "work of joint authorship". According to copyright law, joint authorship usually happens when multiple individuals work together on a single piece of work and their contributions are so interwoven that it is hard to identify the authorship of the work as attributable to just one person. In the Sri Lanka Intellectual Property Act, 'joint authorship' is defined as follows: 'Work of joint authorship' means a work to the creation of which two or more authors have contributed, provided the work does not qualify as "a collective work' (IP Act Sri Lanka, 2003).

Each person involved expects to be acknowledged as a joint author, which means they each own a portion of the rights and credit for the work. It's difficult to separate their contributions since they are so blended. Each joint author has an equal ownership stake in the work's copyright, even if they all contributed to it jointly, so they all benefit from its advantages and protections. It was discussed above about how copyrights are mentioned in the Sri Lanka copyright law. Also, the authorship of generative AI artworks can be discussed according to the in-depth interview data related to the research.

P8 argues that in giving authorship to AI creations, authorship should be given to the user/generator who prompts the creation. If other creations are used for the training process, it is indicated that proper copyright permission should be obtained from those creations or open-access creations should be used. He has stated that if all the necessary legal factors are fulfilled, there is no problem in attributing the authorship to the person prompting the AI artwork. He offers a counterargument to the argument made by some that authorship of the AI artworks should be given to a company/AI system developer creating and developing the AI software or model. It is according to the concept of the **doctrine of exposition/exhaustion**.

According to Michael V. Sardina, in intellectual property law, there is a concept known as the theory of exhaustion/exposition, which is often referred to as the first sale doctrine. It refers to the idea that the rights of a person to regulate the use of a certain work, device, or good are exhausted if the owner of a copyright, patent, or trademark sells a particular copy of that item. It means that the intellectual property owner will not be able to prevent the consumer from using, selling, or disposing of the product how they see fit (Sardina, 2011). Before discussing the Doctrine of Exposition and Generative AI comparatively, we should pay attention to the idea of AI authorship by **P4**. He points out that in generating AI work, the AI service does a lot of work, so the user and the AI system share 50%. Also, **P11** stated that the authorship of AI artworks should belong to the user.

If we discuss the data obtained through in-depth interviews and the doctrine of exposition/exhaustion, it will be possible to build some basic ideas regarding the authorship of generative AI artworks. Let's take an example of the Doctrine of Exhaustion: a consumer has the right under the Doctrine of Exhaustion to highlight, fold pages, and tear pages from a book purchased for money. But this can only be done with the copy he bought, and the customer is not able to get any kind of financial benefits.

Sales of AI software - The doctrine of exhaustion may limit the copyright holder's power to regulate what the buyer does with the copy of the software if it is sold to an end user. For example, depending on the terms and conditions of the license agreement, a customer of AI software for image generating may be allowed to use the software without any further limitations on distribution or use.

Terms of Use and Licence Agreements: It is important to consider that the doctrine of exhaustion could be subject to agreements made in agreement between the end user and the copyright holder. Most software licenses have restrictions that place further limitations on how the software may be used and

distributed, as well as how it may be used for generating works. These agreements could go beyond what the doctrine of exhaustion permits. There is no need to attribute authorship to the AI system or the company that created it under the doctrine of exhaustion for creations that are generated using a generative AI service as a free version or a paid version in a legal way (from the relevant official website). However, users should be aware of any license agreements or conditions of use connected to the AI software/system since they may impose additional restrictions or limits on top of what the doctrine of exhaustion provides.

According to the Doctrine of Exhaustion, when using the AI Service/Software provided for the Customer's use, authorship doesn't need to be attributed to the parties that created it or the Service. Therefore, the idea given by **P8** under the Doctrine of Exposition was discussed above as a counter to the argument presented by some that the copyright related to AI works should be given to the AI service/system or company.

In order to determine the authorship of AI artworks, **P9** has expressed the opinion that the amount of human input and machine input applied to the relevant artwork should be precisely measured and accordingly an accepted decision should be reached regarding authorship. In her comments, it has been stated that there is a problem with authorship in the 'AI system'. She stated: "One can argue that since the AI model was created and trained by humans, the person or organization creating the AI model should have the rights. But if we draw a character, someone can also present the counterargument that the person who made the pencil or brush is not given the right of creation. Another person can say that even if there is an AI tool, artwork cannot be generated automatically without human involvement. The creative right of any creative work should belong to its creator. When developing an AI model or system, the relevant company or person owns the relevant rights. However, the rights of the creations generated using that technical method (AI) should belong to the respective creators. If the relevant AI system is created for the customer, the person providing the creative input related to the creation should own the authorship right to the creation."

However, the comments make it clear that since an AI system provides more input than traditional software, it must adhere to a certain standard of authorship. **P3** states that the authorship of a work should be given to the person who uses his creative thinking and skill to prepare a certain artistic work as a fixed medium. He responds to the notion that authorship for AI creations is given to the AI system or to the company/individual creating it by referring to Pablo Picasso's 'Bull's Head'. He states "Even if other creations are used to generate art, there is no problem in giving the authorship to that creator because the final creation is a new output". The reality that is clear from this is that even if other existing artworks are used to create an art piece, even if it is inspired by them, if the final creation is original and unique, then the creator should own the authorship.

A problem that arises here is that many creations must be used for training an AI system. In order to generate artwork from an AI system, the user has to give it a small input (prompt). The entire creation is generated using the trained artworks in the respective system. Although a big task is done by the AI system, some creative output can be obtained from the creative input applied by the user. Thus, if the user does not apply creative input (prompt), all the creations in the system will be just a dataset. Therefore, using the data of thousands of those creations, even though the AI system has done a great job of getting a creative output, it is clear from **P3**'s comments that the user who creates it as an output should own its authorship.

P7, a news producer of National Television who created AI-generated presenters for TV programs for the first time, is of the opinion that if authorship is offered for AI-generated works, it should be given to the user. His argument becomes that once an AI tool is offered to the public for use, the person who performs any work using it should own the right to it.

Many of the experts involved in the in-depth interviews thought that the user should receive the authorship for the AI artwork. But that is their opinion. According to the Doctrine of Exhaustion, since many rights belonging to an AI service are lost once it is made available for consumer use, it is understood that the AI service does not receive copyright for an AI-generated artwork. But it is also clear that there are times when this factor is subject to limitations according to the regulations and terms agreed by the customers while using the AI service.

An owner of a work protected by copyright is the person or organisation that possesses the legal rights to it. At first, the author is usually regarded as the only owner with the authority to decide how the work is used and distributed. Owners have the power to protect their rights against unauthorised use and can transfer ownership through agreements. Ownership has the same problem as authorship in generative AI artworks. The issue of ownership can also be resolved if the authorship is clearly disclosed.

P4 indicates that the ownership of a work generated by a free version of Generative AI should be 50% owned by the AI service and the user. He stated that "But if I pay and buy an AI service, I must have the right to publish, recreate, and distribute the artwork generated by it". The argument he presents here is that the rights of a creation generated through a free AI service are 50% owned by the user and the AI service. Although the user has some rights related to authorship, he further states that the AI service has 50% rights related to its ownership. He commented on the ownership of such a creation after it is generated by a free AI service "If I generate art from a free AI service, the right can be mentioned as 'Art by Chanux', or 'Generated by Midjourney'". In his opinion, the generative AI service should have the ability to make decisions related to display, distribution, and reproduction related to that creation (free version). However, he points out that if you use a paid premium version, you should have full ownership of the creations generated from it.

According to the creative input used for a creation and the originality of that creation, the ownership of that creation should be received by the person who creates the final output. Whether it is a free version or a premium version, it is the nature of IP law that ownership belongs to the person who generates it for the creation or to the person who obtains the legal rights from him. According to the creative input used for an artwork and the originality of that artwork, the ownership of that artwork should be received by the person who creates the final output. Whether it is a free version or a premium version, it is the nature of intellectual property law that ownership belongs to the person who generates it for the creation or to the person who obtains legal rights from him.

P12, an AI artist, has the same idea as **P4** about giving copyright ownership and authorship for AI creations. His idea is, if the AI service is purchased and used for a fee, then there is no problem in giving full authorship to the person who generates a creation using that service. But even if the copyright is given to the user, its ownership should be shared 50% between the user and the AI service company. In the nature of AI technology, the AI service plays a major role in generating design. Although some human intervention is done by the user, the AI service contributes more to the task of generating a new creation from the existing works. Therefore, in his opinion, it is fair to divide 50% of the ownership of an AI-generated work between the user and the AI service. Operational issues arise when users and AI are given 50% of the rights each. This brings up useful considerations regarding licensing, distribution, and modification decision-making. Due to AI's lack of agency, the complexity of the law, accountability concerns, and the requirement for considerable legislative and regulatory reforms, a 50/50 balance of rights between AI and the user is not practicable.

By analyzing the interview data of **P10**, a discussion about AI authorship and ownership can be built. His argument becomes that there is no creativity in AI creations and the prompt provided by the user cannot be called creativity. Even if the user gives a prompt to generate an AI artwork, the AI system doesn't have the imagination or experience that a creator should have in creating one of them. Also, artwork is generated by an AI system, by a user's prompt, and by using the existing data and existing creations in the AI service. The argument he presents is similar to **P9**'s argument.

He states that if it is possible to measure the human input and machine input applied to an AI creation in some way, it is fair to grant copyright if the user who created it has made a significant contribution to the AI-generated artwork. The basic problem of granting copyright for AI works in copyright law is the dilemma of who is the author of an AI work. The factor of 'lack of human creativity', which is contained in his idea, creates problematic situations in the granting of copyright. Because artistic works are protected by copyright, the generated artworks must also contain at least a minimum of creativity. It is also mentioned in the use of copyright law as a 'modicum of creativity'.

But according to this analysis, it is clear that there is some practical logic in the opinion of **P10**. His idea is that the AI system lacks creativity. Questions arise about what creativity exists in applying such

a prompt by the user. The AI system truly plays a major role in generating AI creation. No matter how creative a prompt is given to the AI service by the user applying the prompt, the AI system takes the lead in generating the final output. However, it cannot be denied that there is creativity in AI creations deserving copyright. For that, the entire world must come to a mandatory discourse. If the creativity in AI creations cannot be determined by the concept of 'human creativity', then it should be encouraged to focus on the concept of 'machine creativity + human creativity'.

The Chief Operating Officer of well-known Sri Lankan music company, **P2**, comments on authorship and ownership. He claims that musicians around the world have been using AI technology to create songs for some time. He states that AI is used for chord progression, instrumental sound generation, etc. for those creations, and there is a lot of human intervention in those creations, so giving copyrights to the creators of those songs is not a problem. He says that if the songs are generated by AI technology, similar to other copyrighted songs, it is a copyright violation of the original musical work, otherwise it is not a problem to give a copyright authorship if the AI technology is used for song creation. He is particularly concerned that "If a 100% AI-generated creation has to be given authorship, then the problem will be". If **P2**'s statement is discussed, several interesting facts can be revealed. In relation to that, a survey conducted by Ditto Music, a world-famous music streaming, download and social platform, has revealed that AI technology is used by almost 60% of the musicians who deal with their platform (Hetherington, 2025). This makes it clear that many musicians in the world are using AI technology for their song creations. But since these creations are not 100% AI generated and have clear human input, there seem to be no copyright issues.

P8 points out that if AI technology is used for a certain creation for tasks such as changing colors, shaping music, then a clear human input is reflected in it. He states that it is not problematic to use AI technology to shape a creation because it is not completely AI generated and there is a clear human intervention. Although AI technology was used for Sri Lanka's first deepfake advertisement, it is relatively less than the human contribution used in that creation. AI technology has been used to recreate the appearance and voice of four Sri Lankan artists. However, although AI technology is used for this advertisement, there is a clear human input for it. Reconstructing old photographs, shooting dummies, using dummy models, studio shooting, post-production work has been created with human contribution, so getting copyright protection for this kind of work does not become a problem.

Once certain legal agreements are reached regarding the authorship of AI artworks, ownership issues are also over. If such a specific agreement is reached, there are clear provisions in the IP Act of Sri Lanka regarding the legal protections related to the copyrights of the owners of those creations. Therefore, if there is sufficient and identifiable human input for creation, it is necessary to enact a special copyright law to give authorship and ownership to the person making the creation, and protection can be provided through existing copyright law.

4.2. Exclusive Rights

Original works of authorship, fixed in tangible forms of expression like music, dramatic, painting, or literature, are protected by copyright law. Owners of copyright are the only ones with the authority to make copies of their original works and to reproduce, distribute, perform, exhibit, and create derivative works from them. While copyright protection lasts for various durations, it covers the author's lifetime plus an additional number of years in many countries. The author of a creation does not always own its exclusive rights. The author of a creation can legally transfers its exclusive rights to another person or organization through an agreement.

P8 believes that the exclusive right of an AI artwork should belong to the user who creates that artwork. He points out that AI software is merely a facilitating tool and cannot be entitled to exclusive rights after applying the doctrine of exhaustion. Therefore, if the authorship of AI artworks are correctly interpreted and included in copyright law, it will be possible to solve the problems related to exclusive rights. Determining who owns the exclusive rights to reproduce, rent, distribute, and display an AI-generated artwork in particular becomes easier after determining precisely who owns the authorship of AI artworks.

The IP Act No. 36 of 2003 in Sri Lanka (09(1)) provides the holder of rights the primary economic rights, which include the exclusive rights to reproduction, distribution, public communication, importation for commercial purposes, rental/lending, and public performance, for specific types of works. By granting the right to reproduce, distribute, publicly perform, rent, or lend, transmit to the public (public display/public perform), and prohibiting the importation of copies that infringe their copyrighted works or subject matter, these exclusive rights provide the holders of the rights control over the commercial use of their creations. The Act's economic rights framework attempts to give owners of intellectual property the ability to profit financially from their ideas and to be compensated when others misuse their works.

P1 says that there is no originality in AI creations because existing creations are used for it. Also, when studying exclusive rights, it is important to discuss his views. He states that “Many television channels earn money by promoting our songs. But paying royalties to the original creators of those songs is deliberately avoided. In such a situation, a strong discussion should be built to protect the copyright of human creations before creating a discussion about the protection of creations created by AI. The owners of the work should have economic rights. It is questionable whether the copyrights of the authors/owners are protected in a country like Sri Lanka”.

Especially for musical compositions in Sri Lanka, the copyright belongs to the lyricist and the composer. However, there is a big allegation in Sri Lanka that the relevant parties do not receive royalties under their economic rights regarding song creations. His statement is confirmed by comments made by two senior television producers, **P5** and **P6**. They stated that currently there is no proper system to pay

royalties to song creators from the channels they work for, and there have been no legal problems related to royalties so far.

Therefore, the argument brought by **P1** is reasonable. In order to protect AI creations, it is necessary to prepare a proper legal system for the proper protection of human artworks and how economic rights should be owned by the relevant parties before the creation of copyright law for AI work. There is a period of copyright protection for a work, which is not the same globally. According to the copyright law of Sri Lanka, copyright protection of creation can be enjoyed only during the lifetime of the author and up to 70 years after his death. Then it becomes public domain. Also, a 50-year protection for related rights has been provided by the act. Therefore, the author can enjoy exclusive rights within the copyright protection duration.

P8 presents a suggestion regarding the protection period to be given to AI creations in copyright legislation. He states “This is because related rights are created based on copyright. Since AI artworks are created based on copyright, it can be argued that they can be given a protection period of 50 years”. Based on related rights, he proposed to provide a 50-year protection for AI creations, but it may change according to the internal laws, international conventions, and agreements of each country. However, there is no problem with the IP Act of Sri Lanka granting exclusive rights to AI works. But to grant exclusive rights, it is necessary to first decide who the author is. After reaching a unanimous decision regarding authorship, it is not a problem to give exclusive rights to AI creations. . But even though AI technology has been used for certain parts of songs, since there is a clear human involvement in the process of those musical works, exclusive rights can be offered to those musicians under copyright law. A problem arises here when the entire creation is generated by AI.

4.3. Moral Rights

In copyright law, moral rights are a different kind of rights from economic (exclusive) rights. Protecting the non-economic interests and reputations of creators or authors of works is their focus. Moral rights are divided into three main parts: the right of attribution, the right against false attribution, and the right of integrity. The right of attribution grants authors acknowledgment and identification of their work, and they are protected from fraudulent attribution by the right against false attribution. Lastly, authors can have the ability to shield their work from derogatory remarks that might damage their reputation according to the right to integrity. Authors may give up these moral rights, but they are nontransferable and exist independently (copyrightLibGuides: Module 1: Copyright Basics: Moral Rights, 2023).

It is important to discuss the idea presented by **P8** regarding the moral rights of AI artworks. He claims that the author owns moral rights based on the originality of the creation and if it is included under protected works. In particular, some people allege that since a large amount of existing AI works are trained to generate AI creations, it is not reasonable to grant moral rights to AI creations. But **P8** also

comments on that and states that “Moral rights are not something that we get because we have done the work fairly, and it belongs to the final creation”.

Whether existing works used for a particular creation are copyrighted or open access, if originality is demonstrated by the final creation, the author owns the moral rights. Under Section 10 of the IP Act of Sri Lanka, the provisions regarding Moral Rights are given. According to the IP Act 2003: (a) to have his name indicated prominently on the copies and in connection with any public use of his work, as far as practicable, (b) the right to use a pseudonym and not have his name indicated on the copies and in connection with any public use of his work, (c) to object to any distortion, mutilation, or other modification of, or other derogatory action in relation to, his work which would be prejudicial to his honor or reputation.

Accordingly, the author can obtain moral rights based on the originality of an AI work and if there is no copyright violation in that creative work. Also, the author's name must be used for the related creation, even if the author assigns its ownership to someone else. It is a right received for the creative work and creative labor of the author. Also, it is stated that the creation should be used without harming the fame, honor, and final creation of the original author. Accordingly, even though the author of an AI artwork also inherits moral rights for the creator, it should be determined who is the ‘author’ to be given moral rights for an AI creation.

P8 points out that, to give moral rights to an AI creation, it is necessary to define the author precisely, but the use of AI technology to make a certain design sharp is not a reason to refuse to offer copyright protection. **P8** also states that the authorship, exclusive and moral rights can be granted under copyright law to the person who uses AI technology for voice adjustments, color changes, etc., and is not fully AI generated and has a clear human intervention. **P9**'s opinion also contains the points discussed above. She states that if the author of an AI artwork is determined specifically—whether the user, the AI system, or the entity/person who created the AI service—the author can be granted moral rights under the Sri Lankan IP Act.

According to **P2**, AI technology has been used for musical works for many years. Here, human intervention is very high compared to AI technology in musical works. Therefore, those creations belong to human creations and for that, they get copyright protection. There, those creations' authors will have exclusive and moral rights. In this way, providing moral rights is problematic for fully AI-generated or relatively low human intervention creations.

Accordingly, when discussing the data obtained through in-depth interviews, there are provisions in the existing IP Act to provide moral rights for AI creations. When someone uses an author's creation, the original author is entitled to moral rights to mention the name of the author of that creation, to give the corresponding credit to the author, and to protect the expression of the creator and the creation from

distortions. However, the main problem in providing exclusive rights for AI-generated artworks as well as in providing moral rights is that the IP Act has not properly defined who should be given those rights.

5. Conclusion

According to the analysis of the data obtained in conducting this research, final conclusions can be drawn regarding certain matters. The direct answer to whether AI generated works can be protected by existing copyright law in Sri Lanka, which became the research problem of this research, is 'no'. There is the possibility of protecting AI generated works (Audio-visual works) under the categories of works specified as 'protected works' by Sri Lanka copyright law. However, since the authorship of AI generated works is not clearly legally defined, it cannot be protected.

The reason is that in order to provide protection for a certain work by copyright law, the work must have a clear authorship. But the fact that the author of the AI generated work has not yet been clearly defined has become the main problem in providing protection. It became clear through the analysis.

Art is constantly changing and the latest trend in this evolution is AI art. It is technical art. According to the results of this research, future developments in AI art could bring about a lot of changes. Also, it will become another common art at some point in the future. Therefore, the problem of authorship of AI artworks must be solved. The authorship of an AI artwork must belong to the user. Some scholars are against giving the authorship of AI works to the user because the AI system does a big task related to generating the artwork and the human involvement is less in comparison. However, any service is offered to the public for their use and Generative AI tools are created for people to use. Therefore, once a person generates an artwork through an AI tool, if the authorship of that creation is assigned to the AI tool, there is no point in making it available to the public. When copyright is granted to AI tools or systems rather than users, the fundamental justification for public accessibility and creative agency conflict. Although the majority of the technical generation process is performed by AI systems, this study argues that the user who initiates and controls the output through queries should be considered the legitimate author, if the originality and intent can be demonstrated. In this way, the creators of AI artworks will be crippled by not giving the authorship of AI artworks to the user who is prompted for it. Also, there will be no creation and innovations through AI technology. The alternative is to assign authorship and ownership to the person or organization that designs, trains, and develops the AI tool or service, and grants the necessary patent rights for that. But once it is made available for public use, the person who generates an artwork using that tool should get the copyright related to his creation. However, compared to other services or tools, the AI tool/service makes a great contribution to the work generated, so ethically the relevant tool or service should be mentioned.

Finally, a clear and specific copyright law should be prepared for AI generated artworks. This study was conducted to examine whether the Intellectual Property Act of Sri Lanka No. 36 of 2003 adequately protects AI-generated works of art. The analysis confirmed the hypothesis that current legislation is inadequate due to the lack of a legal definition of authorship in AI contexts. Especially, clearly confirming the authorship of AI works will make the legislative work easier. Future studies should explore the legal definition of machine creativity and the adaptation of global best practices for countries like Sri Lanka. The qualitative scope of this study and the lack of case law in the local setting at this time are its limitations. In conclusion, Sri Lanka urgently needs a functional and well-defined legal framework to address the new problems posed by generative AI. For such a framework to promote innovation while protecting rights, it must strike a balance between user innovation, ethical considerations, and global best practices.

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