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President's Message

I am delighted to share this message to the third Research Journal of the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka).

CA Sri Lanka has always taken the leadership as a professional accounting organization and played an influential role in developing the profession in the current climate of several challenges in regulatory and technological areas.

With this objective in mind, the Institute ventured into research activities with the aim of further enhancing the profession which will also have a positive bearing on not our profession alone but also our country as a whole.

Transformation and disruption are words that are very relevant to our profession in the current context, and there is an underlying need to focus on research and to be privy to these changes that are taking place revolving our profession. It is important for us as a profession to adapt to these changes, if we are to remain relevant and be in demand. Our third Research Journal is part of a continuing endeavor to help our members understand the importance and requirement of remaining pertinent despite the challenges.

This publication carries eight research papers covering Corporate Reporting, Contemporary Issues and Regulatory Effectiveness on Auditing and Taxation. I believe this journal will be very insightful to the readers, while also giving them an important perspective on these pertinent areas which are most relevant to the accounting profession today.

Any publication needs a commitment team, and the journal is the result of the hard work from a cross section including that of the committee and contributors. Therefore, I wish to express my sincere appreciation to the Research Committee led by its chairman Mr. Nishan Fernando and the members, as well as the researchers and the staff who have all contributed to ensure the success of this publication.

Jagath Perera
President
The Institute of Chartered Accountants of Sri Lanka

09th December 2019

Chairman's Message

It is my honour and privilege to issue this message in my capacity as the Chairman of the Research Committee for the CA Journal of Applied Research, which is published for the consecutive third year. This Journal carries 8 research papers on contemporary issues in relation to the accounting profession which will be presented at the conference. The key areas addressed in this Journal are Corporate Reporting, Contemporary Issues and Regulatory Effectiveness on Auditing and Taxation.

Research is an area which is somewhat lacking in most professional accounting curricula but is an important element that a comprehensive professional accountant should possess. I am certain that this initiative will open new avenues for CA Members, CA Students, SAB Graduates as well as Academia to engage in research and publish the research papers in a recognized research journal.

I have been fortunate to have an excellent committee and immense blessings of the President, Vice President and the Council. The contribution made by Dr. Roshan Ajward, Editor in Chief in getting this journal at this level of quality is invaluable. It is also my pleasure to appreciate the excellent coordination of all activities connected to the journal and the conference displayed by Mr. Thilan Malinga, Secretary to the Committee. I trust that the research papers will provide valuable findings in the respective areas which could be useful in various means. I am certain that this initiative would prosper in the coming years.

I wish the research conference all success.

Nishan Fernando
Chairman
Research Committee

09th December 2019

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INVESTORS' PERCEPTION AND AUDIT EXPECTATION-PERFORMANCE GAP (AEG) IN THE CONTEXT OF LISTED FIRMS IN SRI LANKA

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Abstract

Corporate failures around the globe in recent times have placed the auditing profession in the spotlight. The profession is beset by confusion and crises caused by the differences in the beliefs held by auditors and the public concerning the auditor's duties, which have even led to lawsuits against auditors. This situation is the result of what is known as the 'Audit Expectation–Performance Gap' (AEG). In the light of the contemporary importance of the subject, lack of theoretical underpinnings of the causes of AEG and the dearth of studies on it in Sri Lanka, the present study attempts to ascertain the status of AEG and to examine the factors contributing to AEG, in the Sri Lankan context. A positivist approach was adopted and a structured questionnaire survey done involving professional auditors and investors of listed firms. The results of independent sample *t*-test indicated a statistically significant difference between the perceptions of professional auditors and investors regarding the duties of auditors in the context of listed firms in Sri Lanka. The relative contribution to the overall AEG was that much of the gap (50 per cent) in AEG was attributable to deficient standards, 16 per cent to unreasonable expectations of society about auditors' duties, and 34 per cent was due to the perceived sub-standard performance of auditors. On the other hand, in terms of the contributory factors, the mean ranking with one sample *t*-test results found that 12 factors contributed significantly to AEG. The main contributory factors highlighted by respondents were the lack of auditing education and lack of auditing experience among users. Thus, as regards policy implications, it was noted that policymakers and regulators need to increase community awareness through audit education to reduce AEG in Sri Lanka as one of the main measures.

Key words: Audit Education, Audit Expectations Gap, Duties of Auditors, Factors, Institutional Theory, Porter Model (1993).

1. INTRODUCTION

1.1 Introduction

Accounting is the "process of identifying, recording, and communicating economic information to interested parties for their decision making" (Kumar & Sharma, 2005, p.5). In addition, auditors examine the final output of the accounting system, and on the basis of his/her examination and accumulated audit evidence, express their impartial opinion on whether the accounting information is properly recorded and reflects fairly the financial affairs of the firm (Gray & Manson, 2010; Adeniji, 2004). The firms' owners have to rely on external audits in order to gain a 'reasonable assurance' that the financial statements are free of material misstatements and that they present a true and fair view of the affairs of the company (CA Sri Lanka, 2017). Thus, statutory audits can benefit shareholders, who have specific expectations regarding the scope of the statutory audit and auditors' services. This has been proven in the past in the case of listed firms (Ruhnke & Schmidt, 2014). The Securities and Exchange Commission of Sri Lanka, having recognized the importance of the role of the external auditor, especially in the case of listed companies that come within its purview, requires the companies to maintain complete and accurate financial reports on a continuing basis (CA Sri Lanka, 2004). It has been noticed, however, that in the context of listed firms in Sri Lanka, there may be differences in the views of auditors and of investors. Thus, auditing has been largely recognized as a 'social phenomenon' because its functions are constantly subject to change, depending on the outcome of interactions between the auditing profession and the public (Power, 1998). Further, Shelahi et al. (2009) have pointed out that the auditor is essentially entrusted with the task of reporting reality in financial statements and this is what the users really expect from the accounting information. However, the auditors may not deliver this reality and so the results may differ from user expectations (Porter, 1993). This difference in expectations from an audit is broadly considered as an audit expectation-performance gap (AEG). On many occasions, users of financial statements may consider an auditor's report to be unclear. When this happens, an expectation gap occurs because there are differences between what society expects from the auditor and what the auditor actually provides (Shelahi et al., 2009).

Following the exposure of unexpected corporate collapses (Enron, WorldCom, Tyco International, Parmalat, Arthur Andersen, etc.) as well as frauds, financial scandals and 'retouched' audited reports widened AEG, prompting debates on the global stage with waves of questions being raised regarding the duties of auditors (Osazevbaru, 2018). Further, some auditors in Sri Lanka also were also brought to court in the recent past and the auditors' duties were questioned. In addition, the fall of Sri Lankan companies including Pramuka Savings Bank, and Golden Key Credit Card Company caused considerable harm to the auditing profession in Sri Lanka (Gunathilaka, 2012).

Numerous studies of AEG have been conducted since 1970 in many countries of the world. But they have only learned about the existence, structure, and components of AEG (Osazevbaru, 2018; Masoud, 2017; Ruhnke & Schmidt, 2014; Porter et al., 2012). Though the long existence of AEG had been acknowledged, its causes had not been identified properly by either auditors or researchers. This stands as evidence of the auditing profession's inability to bridge the gap (Shakish & Thalha, 2003). This study attempts to ascertain the investors' perception of the Audit Expectation-Performance Gap (AEG) in Sri Lanka.

1.2 Problem Justification and Problem Statement

The gap between society's expectations of auditors and society's perception of their performance has been and continues to be an important issue for the auditing profession (Osazevbaru, 2018).

1.2.1 Existence of AEG and Its Consequences

In the early 1970s, Liggio first used the word 'Audit Expectation Gap' in the literature, and it continues to be discussed until today (Porter, 1993). In a review of AEG, it was noted that AEG is not new nor is limited geographically (Porter et al., 2012). Numerous empirical studies have been done in many countries on the issue of AEG internationally (Osazevbaru, 2018; Masoud, 2017; Ruhnke & Schmidt, 2014). Some of them have also confirmed the existence of AEG in Sri Lanka (Kumari et al., 2017: Gunathilaka, 2012; Abayadeera, 2005). Based on the literature review performed by the authors, AEG has a long history and its pervasiveness of AEG is not in doubt.

AEG diminishes the value of the accounting information that can potentially make an important contribution to decision making. If users do not have sufficient confidence in audit reports, they will certainly disregard them when making decisions (Osazevbaru, 2018). AEG tends to diminish the value of the audit report that is expected to confirm that a true and fair view of a company's financial affairs is being presented in its financial statements. This can have negative repercussions for the company concerned because both society and the Companies Act accord great importance to the audit report. Therefore, the value of a financial audit depends on society's confidence in the audit function (Ruhnke & Schmidt, 2014). Further, Lee et al. (2009) reviewed the reliability and credibility challenges to the audit function and the auditing profession resulting in large- scale corporate financial scandals in and the collapse of many multinational corporations shortly after clean audit reports were issued on them. Similarly, Ojo and Akkeren (2017) pointed out that AEG is an issue that is detrimental to the auditing profession because the greater the gap in expectations, the lower is the credibility, earning potential and prestige associated with auditing work. Further, AEG is an issue not only for auditors in general but also for the public and investors in particular, since wealth creation and political stability depend heavily on confidence and accountability; and it is an independent external audit that is supposed to provide such confidence and accountability (Ojo & Akkeren, 2017).

Furthermore, there is evidence of the existence of AEG in Sri Lanka. According to Arjuna Herath, a past President of CA Sri Lanka and a Partner of Ernst and Young Sri Lanka, auditors are causing the profession some distress and creating an expectations gap. "AEG will undermine the reputation and credibility of the entire profession. This expectation deficit will lead to a trust deficit that could undermine the entire financial system" (Deven, 2016, p.4).

Accordingly, the foregoing observations indicate that AEG exists in both developed and developing economies and in both cases it arises from differences in beliefs between auditors and users regarding the duties of auditors. The pervasiveness of AEG is proving to be a huge issue to the auditing profession. The widening AEG causes a lot of harm to the reputation of the auditing profession. If the profession is serious about addressing the problems relating to the expectations gap, it needs to acknowledge the reasons for such a gap (Porter et al., 2012).

1.2.2 Reasons for the Audit Expectation-Performance Gap

Different studies have examined the different reasons for AEG (Masoud, 2017; Enes et al., 2017; Litjens, Buuren & Vergoossen, 2015). In fact, over time many scholars have canvassed for an expanded auditor's report to address the expectation gap (Litjens et al., 2015). However, Bik and Wijnmaalen (2017) pointed out that even in an extended audit report, it is impossible to see how the audit firm conducted the audit and therefore, it is difficult to assess the audit quality in order to reduce the gap. Gold, Pott and Gronewold (2012) have also confirmed that an AEG will still exist in the new auditor's report. Further, they have suggested that "wording changes alone are not the solution needed to overcome the expectations gap, possibly because users' demands are based on rather entrenched preconceptions" (p.7). It has been suggested in some studies that the expectation gap can be narrowed by public awareness of the nature and limitation of an audit and that it is lack of education that has made the public harbour a wrong notion about audit (Enes et al., 2017). In contrast, Humphrey et al. (1993) argued that it was not proper to expect the public to abandon their hope in auditors through education, or modify the length of the audit report, or pretend that highly publicized audit failures are exceptions. Gray and Manson (2010) also emphasize that the audit expectation gap is caused by the unrealistic expectations of the public while Pierce and Kilcommins (1996) argue that misinterpretation and misunderstanding on the part of users of the financial reporting method are responsible for the existence of AEG.

Further, several studies that examined the reasons for AEG identified the following factors as causing the expectation gap after reviewing the extant literature: the complex nature of the audit function, lack of audit education, the conflicting role of auditors, technical wording in the audit report, retrospective evaluation of auditors' performance, time lag in responding to changing expectations, the self-regulation process of the auditing profession and unreasonable expectations (Masoud, 2017; Lee, Ali & Kandasamy, 2009).

The extant studies discussed above have yielded mixed findings regarding the causes of AEG, making it difficult to draw clear conclusions. As mentioned earlier, even though the prolonged existence of AEG had been acknowledged by many, its causes had not been identified properly by either regulators or researchers.

In addition, a few researchers have also explored and quantified AEG in Sri Lanka (Kumari et al., 2017; Gunathilaka, 2012; Abayadeera, 2005). The preliminary literature review reveals a dearth of research on assessing AEG in the Sri Lankan context. The models used in previous studies to measure AEG have not been updated in line with recent changes in the accounting and auditing regime. Moreover, a review of the extant literature indicates that factors contributing to AEG have not been examined according to a broad-based theory. Contributory factors mainly reviewed in the present study are based on elements of Institutional theory, such as coercive, normative and mimetic isomorphism (DiMaggio & Powell, 1983). Further, factors affecting AEG have not been adequately examined, particularly in the South Asian context. Most of the AEG studies have focused on establishing whether or not a gap exists in the country where the study was undertaken and in identifying some of the contributory factors. The studies by Lin and Chen (2004) in China, and by Haniffa and Hudaib (2007) in Saudi Arabia (Ruhnke & Schmidt, 2014; Porter et al., 2012) are two notable examples.

Thus, in view of the contemporary importance of AEG, the lack of theoretical underpinnings of the causes of AEG and the dearth of studies on it in Sri Lanka, the present study attempts to assess the status of the audit expectation-performance gap among auditors and investors in the Sri Lankan context and to examine the factors contributing to such a gap. Accordingly, the problem statement of this study is: "whether there is an Audit Expectation-Performance Gap in the context of listed firms in Sri Lanka and if so, the causes for such a gap?".

1.3. Research Objectives

Based on above problem statement, the research objectives of the study could be stated as follows:

i. To ascertain whether there is any difference between auditors' perceptions and investors' perceptions regarding auditors' duties in listed firms in Sri Lanka.
ii. To determine whether there is an Audit Expectation-Performance Gap (AEG) in Sri Lanka.
iii. To examine the significant factors that impact on AEG in Sri Lanka.

2. LITERATURE REVIEW

This section discusses the regulatory background of accounting and auditing in Sri Lanka, providing the history and background of auditing regulations, theoretical perspectives of the Audit Expectation-performance Gap (AEG). Then it presents on expectations about performance of duty and analyzes the AEG based on previous research studies of the auditing environment in order to present evidence of the existence of an audit expectation gap in Sri Lanka and in the international context too. The next part elaborates on the factors that contribute to the gap, including theoretical foundations and its empirical studies.

2.1 Regulatory Background of Accounting and Auditing in Sri Lanka

Sri Lankan accounting and auditing systems were directly influenced by the British, and more recently by International Conventions and Practices. In 1948, the newly independent country of Ceylon did not automatically accept the inherited arrangements as adequate and so a post-independence Commission recommended the creation of an indigenous professional accountancy body with improved financial reporting requirements (Asian Development Bank, 2002). The statutory framework established the requirements for accounting and auditing standards and other legal requirements according to which all listing companies had to prepare and present their financial statements. It also empowers CA Sri Lanka to adopt suitable accounting and auditing standards from time to time. On the other hand, external auditors play a key role in the listed companies. The above mentioned statutory requirements which recognized the importance of the role of the external auditor, especially in the case of listed companies that come within its purview, require the companies to maintain complete and accurate financial reports on a continuing basis (SEC, 2004). Thus, it has published guidelines to assist listed companies to easily determine the criteria for selecting their external auditors and also provided guidance to these companies on managing conflict of interest situations that may be prejudicial to the company and its stakeholders.

2.2 Auditors' Duties

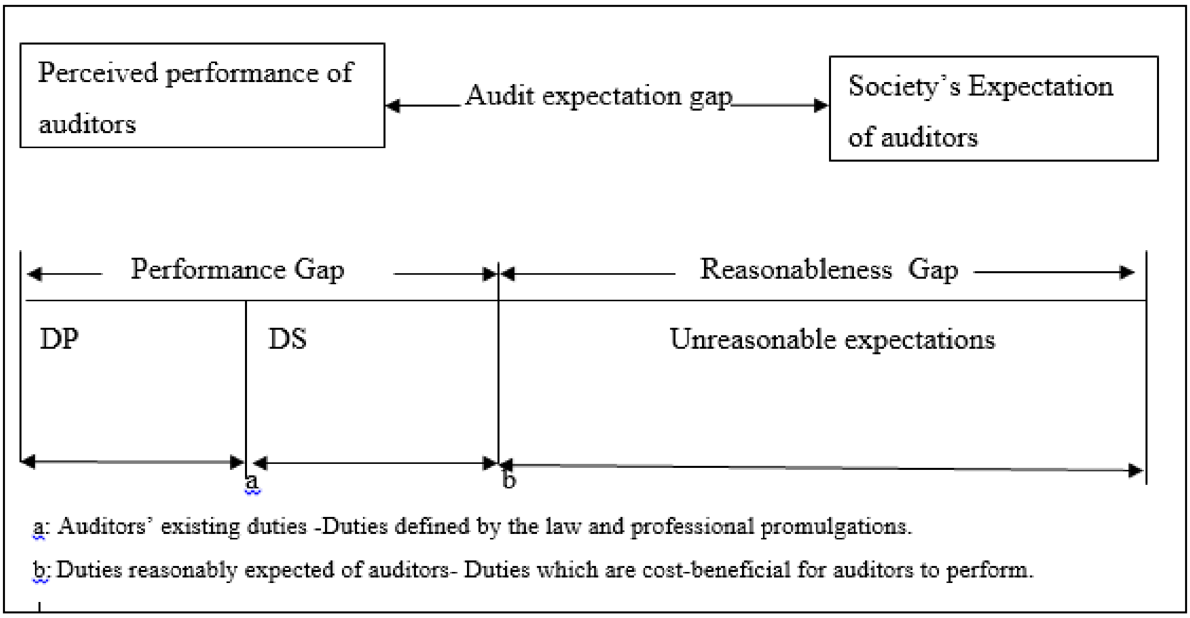
The legal obligations of auditors require them to follow the statutory framework based on the prevailing laws and regulations relating to accounting and auditing. The set of financial statements of every listed firm is audited by a member of the Institute of Chartered Accountants of Sri Lanka holding a certificate to practice issued by CA Sri Lanka. The auditors assure in their audit report that the audit has been conducted in accordance with the Sri Lanka Auditing Standards and that the financial statements have been prepared and presented in accordance with Sri Lanka Accounting Standards (CA Sri Lanka, 2017).

The duties of external auditors have been identified by researchers and professional bodies (Masoud, 2017; Porter et al., 2012; Porter, 1993). The areas of major concern to most people were fraud detection, assurance of a going concern, guarantee of the accuracy of financial information, and reporting to the regulatory authorities. As a result, many changes have been made to expand the role and the responsibilities of an auditor. Almost all studies have recognized that with respect to fraud and going concern reporting, the auditor should play a more active and responsible role. The studies also assert that the duties of auditors need to be changed in accordance with changes in the regulatory environment.

2.3 Audit Expectation-Performance Gap

Liggio (1974) defined AEG as "the difference between the actual and the expected performance". This definition was extended by the Cohen Commission on auditors' duties in 1978, where the expectation gap is represented as the gap between the performance of auditors and the expectations of the users of financial statements. However, Porter (1993) argued that the definitions used by Liggio (1974) and by the Cohen Commission Report (1978) were quite different. She stated that Liggio, who was the first to apply the phrase 'expectation gap' to auditing, saw it as the difference between the levels of expected performance 'as envisioned by the independent accountant and by the user of financial statements'. The definition of Liggio (1974) was adopted to some extent in the Cohen Commission's (CAR, 1978) terms of reference as 'to consider whether a gap may exist between what the public expects or needs and what auditors can and should reasonably expect to accomplish. However, it is considered that both of these definitions are too narrow in that they do not recognize that auditors may not accomplish 'expected performance' or what they 'can and reasonably should'. They do not allow for sub-standard performance. Further, Humphrey et al. (1993) argued that the 'audit expectation gap' debate was triggered by major financial scandals that regularly placed the audit function under close public scrutiny. He defined the expectation gap as 'a representation of the feeling that auditors are performing in a manner at variance with the beliefs and desires of those for whose benefit the audit is carried out' (p.138). This definition is stated more narrowly as a "role perception gap", that is, the expectations of users can be considered a predetermined notion of what auditors can reasonably be expected to provide.

As explained at the beginning of this section, in a later study, Porter (1993) arguably refined the components reported by CAR (1978) and suggested that the expectation gap can be divided into two components, namely, the audit expectations gap, which consists of the performance gap and the reasonableness gap. As for the former, i.e., performance gap, Porter (1993) referred to it as the difference between "what society can reasonably expect auditors to accomplish and what they are perceived to achieve" (p.50). In respect of the latter, i.e., reasonableness gap, Porter referred to it as the difference between "what society expects auditors to achieve and what they can reasonably be expected to accomplish" (p.50). Total AEG comprises of two components: the reasonableness gap, i.e., "the gap between what society expects auditors to achieve and what the auditors can reasonably be expected to accomplish", p.50) and the performance gap (i.e., "the gap between what society can reasonably expect auditors to accomplish and what auditors are perceived to achieve", p.50). The performance gap is further subdivided into "deficient standards" (i.e., the gap between the duties that can reasonably be expected of auditors and auditors' existing duties as defined in the law and by professional promulgation), and deficient performance (i.e., the gap between the expected standard of performance of auditors' existing duties and auditors' performance, as perceived by society). Thus, the Porter model (1993) is a comprehensive framework for defining the components of AEG (Figure 1).



DP: Deficient Performance
DS: Deficient Standards

Figure 1: Porter Model (1993)
Source: Porter (1993)

2.4 Empirical Studies of AEG

2.4.1 Empirical Studies in Sri Lanka

The differences in beliefs held by auditors and the public about the duties of auditors may create an audit expectation gap. This section discusses the empirical studies of AEG in the Sri Lankan context. Abeyadeera (2005) examined the Audit Expectations Gap between auditors and investors in Sri Lanka by using 12 areas of duties in examining the gap. Specifically, detection of frauds, of errors, of irregularities, and of illegal acts, investors' trust in the audit opinion, auditors' support for preparing financial statements in the management's interest, auditors' support for selecting aggressive accounting policies rather than assertive policies, adequacy of evidence, auditor's independence, auditor's honesty and impartiality, prediction of business failure and prediction of company bankruptcy (Abeyadeera, 2005). The study reported that gap is very high in the detection of frauds and errors. . Similarly, Gunathilaka (2012) examined expectation differences between auditors and society in terms of auditor responsibility, reliability of audit function and usefulness of audit. The results indicated significant perceptual differences in the detection and prevention of frauds, preparation and presentation of financial statements, assurance in financial statements, objectivity of auditors and auditor's independence in the audit function. The expectations gap is less in the case of respondents with accounting experience. Auditors' reliance on audited financial statements is less than that of the public. Gunathilaka (2012) argued that the auditor's role is of value to society. Kumari et al. (2017) concluded that "an AEG continues to exist in the Sri Lankan context, but audit education has had the effect of reducing the gap" (p.20).

All studies conducted in Sri Lanka have confirmed the existence of AEG, which was measured using the Porter (1993) model. The next section discusses the empirical studies of AEG done in the international context.

2.4.2 Empirical Studies in the International Context

The extant studies have established the existence of AEG in Sri Lanka, which has been investigated in several studies in the international context, too. Studies on AEG (Cohen Commission, 1978; Liggio, 1974) in the international context explained the foundation and origins of the expectation gap (Porter, 1993). Likewise, Porter (1993) introduced several fresh insights by proposing a formal definition of AEG, identifying its structure and composition, and measuring its component parts. This empirical study was done in New Zealand to investigate AEG. The findings of this study revealed that half the gap (50%) is attributable to deficient standards, 34% is the result of society holding unreasonable expectations of auditors, and 16% is due to the auditors' perception of sub-standard performance. In a similar context, Porter's and Gowthorpe's (2004) study also established the existence of AEG in the United Kingdom (UK) and New Zealand (NZ) in a cross-cultural analysis and a comparison of its audit expectation-performance gap with that pertaining to NZ. A mail survey was the research instrument used. Four broad interest groups were first identified. In both countries, deficient performance by auditors accounted for a relatively small proportion of the audit expectation gap and that proportion decreased sharply in NZ in a decade during which auditors' performance was monitored by a professional accounting body. Further, Porter et al. (2012) conducted a study relating AEG to the main objective of ascertaining the structure, composition and extent of AEG in the UK and NZ. Correspondingly, it found that the extent of society's unfulfilled expectations in respect of the responsibilities that constitute the reasonableness, deficient standards and deficient performance components of the audit expectation gap were greater in NZ than in the UK. Overall, AEG was nearly 40 per cent wider in NZ than in the UK. Ruhnke and Schmidt (2014) also confirmed that the prevalence of AEG in Germany had increased. The proportion of auditors confirming its existence had risen from 83.7% in 1996 to 95.5% in 2011 and in the case of public groups, from 77.1% in 1996 to 91.7% in 2011 (Ruhnke & Schmidt, 2014). Similarly, Masoud (2017) examined AEG in Libya. His study built on the frameworks developed by Porter (1993) and Porter & Gowthorpe (2004) to investigate the influence of AEG on the auditing profession in the case of Libya. The findings of the study revealed that AEG prevails and that the gap is a result of the following factors at different percentage levels. Deficiency standards and deficient performance gaps constitute 49% and 15%, respectively, of the audit expectation-performance gap. AEG is derived from society's unreasonable notion that the auditor is responsible for a significant proportion (36%) of the gap.

The above sections indicate clearly the existence of AEG in the national and international context and the classification of duties is almost similar to the Porter model in both contexts.

2.5 Factors Contributing to the Audit Expectation Gap

Institutional theory examines the processes and mechanisms by which structures, schemas, rules, and routines become established as authoritative guidelines for social behaviour (Scott, 2008). However, Institutional theory has experienced a remarkable recovery as it enters the new century as one of the most vigorous and broad-based theoretical perspectives in the social sciences. Further, Institutional theory describes how both deliberate and accidental choices lead institutions to mirror the norms, values, and ideologies of the organizational field. As a result, organizations that meet the environment's expected characteristics receive legitimacy and prove worthy of using the resources of society and the broader environment (DiMaggio, 1991).

The expectations of stakeholders may deviate with their own insights (Porter et al., 2012). Todeva (1999) pointed out that values, beliefs, preferences, attitudes, and norms are all personal constructs that enable individuals to make sense of their cultural environment and to act according to the circumstances and predicted expectations of 'others'. Further, individuals are under the technical and normative influence of institutionalized environments. Institutions could be seen from both a structural and a social perspective. Institutional factors selected for the present study are based on elements of Institutional theory: coercive, normative and mimetic isomorphism.

Auditing is a profession (CA Sri Lanka, 2017). A profession is considered to be a societal institution that is subject to the same coercive and mimetic pressures as are organizations in which both individuals and organizations are directed by societal norms (Meyer, 2006; Dimaggio & Powell, 1983). Thus, it would seem that the coercive, normative, and mimetic elements of Institutional theory are ideal for identifying the factors contributing to AEG. Factors affecting the expectation gap may be based on the way those factors are perceived by auditors, senior management and other stakeholders. Similarly, the key determinants may be factors such as laws and regulations, corporate governance structures and auditors, compliance with standards, organizational characteristics, characteristics of the individual auditor, and partners of the audit firm. These factors correspond to some extent with the factors of Institutional theory, which some scholars have applied as a theoretical framework in the context of AEG. Institutional theorists have pointed out that the auditing profession is an institution and is affected by cultural, cognitive and regulatory pressures.

2.5.1 Empirical Studies on Factors Contributing to AEG

Little consideration has been given to the influence that institutional and cultural factors may have on the interest groups' expectations. However, two studies, those of Lin and Chen (2004) and Haniffa and Hudaih (2007), demonstrate that such factors may have a significant impact on society's expectations of auditors and its perceptions of their performance (Porter et al., 2012). Based on the extant literature, Lin and Chen (2004) concluded that the differences in the opinions and expectations of auditors and audit beneficiaries in China resulted from the unique institutional setting of auditing there. This suggests that the institutional context in which the audit function is performed may affect society's expectations of auditors and its perceptions of their performance. The findings of a study by Haniffa and Hudaih (2007) indicate that a similar conclusion may be reached in respect of cultural factors. Further, the extant literature suggests a number of other factors that affect the audit-expectation gap. Most notable among them are auditing education as suggested by Enes et al. (2017), Monroe and Woodliff (1994), and the auditor's roles and responsibilities as suggested by Porter (1993), Porter et al. (2012). The nature and meaning of audit report messages were also a factor as suggested by Litjens, Buuren and Vergoossen (2015), and Saleshi et al. (2009). Another factor was audit independence as proposed by Lee et al. (2009), and Lin and Chen (2004). With so many factors influencing AEG, Humphrey et al. (1993) found it necessary to classify them into four main categories: audit assurance, audit reporting, audit independence and audit regulation.

However, it seems that factors suggested as being responsible for AEG in previous studies have yielded inconclusive results regarding the reasons for AEG in later studies. Further, the lack of theoretical underpinnings can be observed in the reasons for AEG.

2.6 Theoretical and Empirical Gap

The extant literature shows that AEG has been investigated in several national and international studies. This gap in the beliefs of auditors and the public had to do mostly with the auditors' duties and responsibilities. The results indicated that AEG persists and is, in fact, widening.

Most of the researchers have also examined and explored AEG using several models (Fulop, 2015; Lee et al., 2009; CICA, 1998; Porter, 1993). The model introduced by Porter in 1993 is probably the best to define the components of AEG. However, it seems that most of the duties identified by Porter (1993) and others have not been updated to suit the current accounting and auditing environment that had been subjected to an evolution. The duties of auditors need updating according to the new and revised standards and newly introduced code of ethics. In this study, Porter's model was updated for measuring AEG taking into consideration the duties after a major revision of auditing standards and new codes of ethics.

On the other hand, reporting the presence of AEG also suggests the need to identify the factors that might have contributed to the gap and feasible ways to narrow it (Enes et al., 2017; Humphrey et al., 1993). While most AEG studies conducted since 1970 have focused on whether or not a gap exists in the country where the study was undertaken and on empirically identifying some of its contributing factors. Those of Lin and Chen (2004) in China and Haniffa and Hudaib (2007) in Saudi Arabia indicate that institutional and cultural factors may have a significant impact on interest groups' expectations of auditors and their perceptions of auditors' performance (Porter et al., 2012). However, the extant literature suggests the presence of a number of other factors as well that affect AEG. But the findings of these studies are inconclusive. Thus, uncovering the factors contributing to the expectation gap is one of the main objectives of this study. However, the theoretical foundations of AEG are not covered in the extant studies. Osazevbaru (2018) pointed out that theoretical underpinnings have helped to illuminate the factors contributing to the expectation gap (Osazevbaru, 2018).

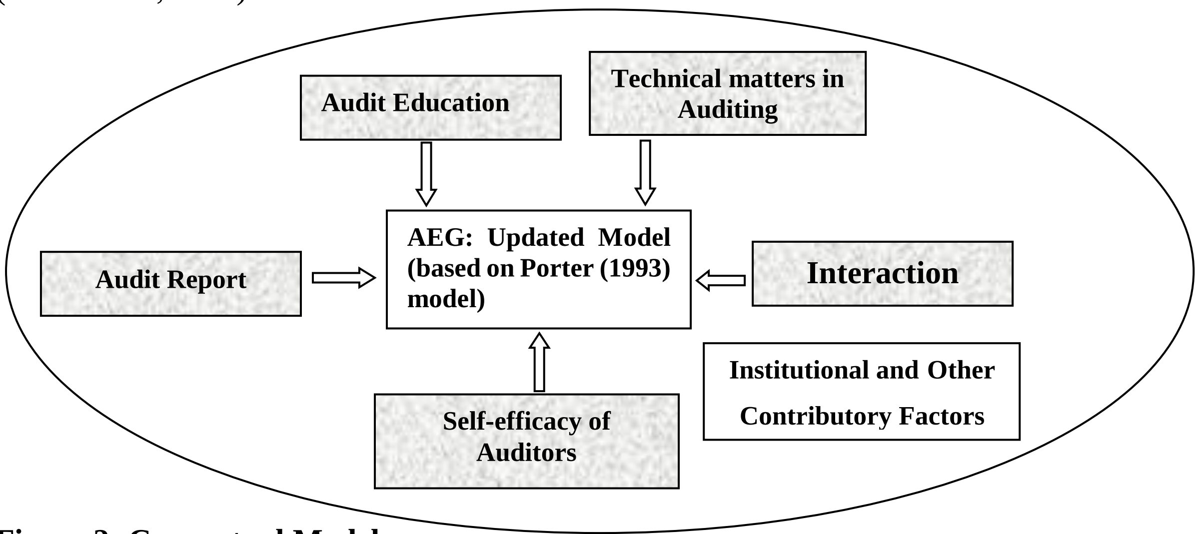


Figure 2: Conceptual Model
Source: Constructed by Authors

On the other hand, reporting the presence of AEG also suggests the need to identify the factors that might have contributed to the gap and feasible ways to narrow it (Enes et al., 2017; Humphrey et al., 1993). While most AEG studies conducted since 1970 have focused on whether or not a gap exists in the country where the study was undertaken and on empirically identifying some of its contributing factors. Those of Lin and Chen (2004) in China and Haniffa and Hudaib (2007) in Saudi Arabia indicate that institutional and cultural factors may have a significant impact on interest groups' expectations of auditors and their perceptions of auditors' performance (Porter et al., 2012). However, the extant literature suggests the presence of a number of other factors as well that affect AEG. But the findings of these studies are inconclusive. Thus, uncovering the factors contributing to the expectation gap is one of the main objectives of this study. However, the theoretical foundations of AEG are not covered in the extant studies. Osazevbaru (2018) pointed out that theoretical underpinnings have helped to illuminate the factors contributing to the expectation gap (Osazevbaru, 2018). Institutional theorists have pointed out that the auditing profession is an institution and is affected by cultural, cognitive and regulatory pressures. According to a conclusion derived from a selection of factors contributing to AEG, it became clear that institutional theory is one of the prominent theories used for a study of the factors contributing to AEG.

Based on the theoretical and empirical gap discussed above, the conceptual framework of this study was constructed to fill the gaps (Figure 1). The selection of factors contributing to AEG was mainly based on Institutional theory, which is the overriding theoretical contribution to this study. Further, an updated model for measuring AEG was introduced that took into consideration the duties after a major revision of auditing standards and new codes of ethics were introduced. Furthermore, there is also a dearth of research on assessing AEG in Sri Lanka. This study explored and quantified the audit expectations gap in Sri Lanka using the Porter Model introduced in 1993 (Kumari et al., 2017; Gunathilaka, 2012; Abayadeera, 2005). However, New and Revised Auditing Standards were introduced in 2010, 2012, and 2017 to enhance the quality and uniformity of the practice worldwide (CA Sri Lanka, 2017). As a result, corresponding duties were passed on to the auditor and managers of entities. They need to take all necessary steps to comply with current auditing requirements. Assessing the audit expectations gap in the theoretical and current regime in Sri Lanka is important for building a favorable image of the auditing profession. Accordingly, based on these observations, the following hypothesis is developed and tested in this study;

H_1: There is a gap between investors' perceptions of auditors' duties and their perception of what auditors actually do.[1]

3. METHODOLOGY

This section elaborates on the methodology adopted in addressing the research objectives discussed under Section 1.2 i.e., to ascertain whether there is any difference between auditors' perceptions and investors' perceptions of auditors' duties in listed firms; to examine the status of AEG among auditors and investors; and to examine the significant factors that impact on AEG in the Sri Lankan context. A positivistic research approach was deemed appropriate for achieving the aforementioned objectives and is also supported in the extant literature (Lee et al., 2007; Lin & Chen, 2004). The population of this study included

[1]This study considers the stakeholder group: investors as the main constituent due to the importance in the context of listed companies.

practicing auditors (i.e., audit partners, senior audit managers, audit managers, assistant audit managers, audit supervisors and senior auditors) and investors in listed firms in Sri Lanka. Contact details of investors were obtained via stockbrokers that the researchers had contacted. Questionnaires were administered among 200 practicing auditors (the response rate was 81 per cent) and among 200 investors (the response rate was 94 per cent). Further, Section 03 of Part Two of the questionnaire was given to 200 company officers (auditees) in order to measure the reasonableness of auditors' duties. The convenience sampling method was used to select the sample. Population so as to ensure its representativeness of the target population. Part one of the questionnaire was on demographic information of the respondents. Part Two of the structured questionnaire listed 49 duties (i.e., duties 1 to 20 captured the deficient standards gap; 21 to 35 deficient performance gap; and 36 to 49 the unreasonable expectation gap) among auditors (see Appendix 1) as identified by the authors based on the definition of Porter (1993) and updated; the opinions of the respondents were obtained as to whether such duties are auditors' existing duties (Section 01), the level of auditors' performance of these duties (Section 02), and whether such duties should be performed by the auditors (Section 03). Accordingly, Section 01 was based on whether the listed duty 'is' or 'is not an existing responsibility' of auditors, or whether the respondent is 'Not sure', which were coded as +1, -1 and 0, respectively. When the mean of an interest group's responses is positive, it indicates that the group considered that the responsibility is, or should be, (as applicable) a responsibility of auditors. Then, if a respondent had considered a particular duty as an existing duty of auditors' (by indicating 'is 'under Section 01), then under Section 2, the respondent is asked 'how well is it performed'. The respondents rated such information on a Likert scale from 'poorly' (1) to 'excellently' (5) performed. Finally, Section 03 inquired about 'Should the duty be performed by auditors?' The answers were 'Yes' (+1), 'No' (-1) or 'Not certain (0). Part Three of the structured questionnaire listed 19 factors (i.e., lack of auditing education among users, lack of audit experience among users, etc.). In respect of the factors that contributed to AEG, the respondents were asked to select the appropriate response from the choices: 'not applicable', 'strongly disagree', 'disagree', 'average', 'agree', and 'strongly agree'. Once the questionnaire was formulated based on a comprehensive survey of the literature, it was submitted to two academic and professional experts for and their expert opinions, which were used to revise and update the questionnaire. Finally, the questionnaire was pilot tested before it was circulated among the professional auditors and investors. These measures were taken to ensure the validity of the questionnaire.

In terms of the analysis, descriptive statistics was used to understand the demographic profiles of the audit professionals and investors. Next, the independent sample *t*-test was used to test the differences of opinion between the groups, the AEG was analyzed based on the updated model (based on Porter (1993) model) that was introduced in this study and examine the significant factors contributing to AEG examined through mean ranking and the one sample *t*-test to test whether the mean values were significantly different from the neutral value '3' in the 5-point Likert scale.

If significant differences are found between auditors and investors, it may be claimed that an expectation gap exists. Then, AEG is measured in terms of deficient performance, deficient standards and unreasonable expectations based on the updated model (based on the Porter (1993) model). Further, statistically significant factors were identified based on the one sample *t*-test that had contributed to the AEG. The next section presents the findings secured by following the methodology suggested under this section.

4. RESULTS AND DISCUSSION

This section presents the results of the analyses and a discussion of the findings.

4.1 Descriptive Analysis

This section elaborates on the demographic profile of professional auditors. In terms of sample characteristics of professional auditors (not tabulated due to parsimony), the majority of the sample are audit managers (48.4 per cent) while audit partners comprise a minority of 5.0 per cent. 50.9 per cent of the practicing auditors are from the Big 3 audit firms. In terms of gender, the majority of practicing auditors consist of males (71.5 per cent). The majority of auditors who responded had quite strong academic backgrounds, with 74.5 per cent of them having a first degree. Most of the auditors who responded gave their professional qualification as CA Sri Lanka (CA). The reason for this is that practicing auditors had to be members of CA Sri Lanka. They comprised 32 Associate Members and 05 Fellows. As for their audit experience, the majority of auditors had work experience spanning between 3 to 5 years (51.9 per cent). In addition, the majority possessed work experience in their present position of more than one year (40.5 per cent). Further, more than 72.3 per cent of professional auditors belonged to the age group of 21 to 30 years. Furthermore, in terms of the demographic profile of investors, the majority of investors were males (71.8 per cent). The majority of investors who responded had quite strong academic backgrounds, with 41.9 per cent having a first degree. In terms of professional qualifications, 17 investors were members of one or more professional bodies and the majority of investors had a fair knowledge of external audit (52.0 per cent). Further, it was noted that more than 49.7 per cent of the investors represented the age group between 31 to 40 years. The majority of investors had invested in the service sector (55.6 per cent). In terms of monthly gross income, the majority of investors earned below Rs. 50,000 (35.2 per cent).

4.2 Analysis of Differences between Auditors' and Investors' Perceptions regarding Auditors' Duties

As discussed earlier, the present study selected 20 duties as existing duties of auditors (deficient performance) based on the extant literature, expert opinions, Sri Lankan law, rules and professional promulgations and following the definition of Porter (1993). Part 'Two' Section 01 of the questionnaire refers to 49 duties with 20 actual existing duties of auditors. This section was designed to ascertain whether there is a difference between auditors' and investors' perceptions regarding the existing duties of auditors, performance of duties of auditors and duties that auditors should perform. Independent sample *t*-tests were performed to determine the statistical differences between professional auditors' and investors' perceptions regarding the existing duties of auditors, performance of duties of auditors and duties that auditors should perform.

The results of an independent sample t-test (Table 1) indicated statistically significant differences (p<0.05) between professional auditors and investors in all existing duties of auditors (Section 01 of the questionnaire) other than the duty to report on the financial statements, and communicate as required by the Sri Lanka Auditing Standards (SLAuSs), in accordance with the auditor's findings (2), to detect illegal acts by company officials which directly affect the company's accounts (4) and to report in the published audit report the early application of new accounting standards (17).

Table 1: Mean Differences – Professional Auditors and Investors Regarding Auditors' Duties

Duties[1]	Section 01	Section 02	Section 03
1	.348**	.952**	.284**
2	.167	.833**	.209*
3	.214*	1.132**	.117
4	.183	1.179**	.098
5	.302**	1.232**	.336**
6	.471**	1.157**	.223**
7	.352**	1.247**	.385**
8	.363**	1.191**	.234**
9	.445**	1.146**	.232**
10	.314**	.898**	.230**
11	.542**	1.116**	.514**
12	.556**	1.374**	.499**
13	.498**	.945**	.477**
14	.438**	1.045**	.335**
15	.418**	.950**	.250**
16	.631**	1.302**	.519**
17	.064	1.113**	.111
18	.254**	.716**	.159
19	.498**	.842**	.533**
20	.612**	1.221**	.342**

[1]See Appendix 1 - Duties of External Auditors

Section 1: Auditors' Existing Duties; Section 2: Performance of Duties of Auditors; Section 3: Duties that Auditors should Performed

**p<0.01; *p<0.05

Source: Constructed by Authors

It is noted a statistically significant difference (p<0.05) exists between professional auditors and investors in regard to auditors' performance of all of their existing duties (Section 02 of the questionnaire). Further, there are significant mean differences (p<0.05) between auditors and investors in respect of nearly all existing duties of auditors (Section 03 of the questionnaire) except the following duties: disclosing in the audit report a deliberate distortion of financial information (03); detecting illegal acts by company officials which directly affect the company's accounts (04), duties of SLAUS 706: report in the published audit report early application of new accounting standards (17), report in the published audit report any major catastrophe, or a significant effect on the entities' financial position (18).

Table 2 presents the results of the analysis on the mean difference between auditors and investors in all three sections (Objective One).

Table 2: Overall Mean Difference between Auditors and Investors

Sections	Mean Difference
Section 01: Are auditors required to perform this duty?	.137**
Section 02: Extent to which existing duties are performed well.	.983**
Section 03: Should auditors perform this duty?	.146*

*p<.05; **p<.01

Source: Constructed by Authors

The results of independent sample *t*-tests (Table 2) indicate that there is a statistically significant difference ($p<0.05$) between professional auditors and investors in terms of all three sections i.e., recognizing existing duties, performing duties of auditors, and duties that auditors should perform. These findings are consistent with the extant literature (Masoud, 2017, Porter et al., 2012, Porter, 1993).

4.3 Audit Expectation-Performance Gap

Both groups correctly identified the 20 existing duties of auditors. Perceived sub-standard performance by auditors was identified by applying two measures: the mean of interest group responses of 2.9 or less and 20 percent or more of a stakeholder group (i.e., investors) signifying that auditors perform their duties poorly (Porter, 1993).

Table 3 shows that, by applying these two measures, the investors overall considered the standard of auditors' performance of their existing duties to be satisfactory (mean was 3.0 or above of non-deficient performance gap duties). Reviewing the duties for which the investors signaled unsatisfactory or borderline performance (Table 3), and it is pertinent to note that ten 'unsatisfactorily performed' duties were listed. According to Table 3, eight duties contributed to the deficient performance component of the audit expectation-performance gap. Further, auditors as a group acknowledged that less than 20% of auditors perform their duties poorly with respect to all of their duties. As might be expected, the group of investors acknowledged that 20% (parentages of the addition of column 'poorly' and 'can't judge' are more than 20%) or more of the auditors perform their duties poorly (Table 3).

To differentiate between the deficient standards gap and the unreasonable expectations gap, it is necessary to recognize that only certain duties can reasonably be expected of auditors. This can be explained in detail with the data in Section 03 of Part 'B' of the structured questionnaire used in this study. Although the perception of the stakeholder groups regarding the duties that auditors should (or should not) perform is interesting, this part of the research is particularly important for the guidance it provides in identifying the duties that are reasonable to expect of auditors.

Accordingly, the succeeding section explains how to analyze the duties reasonably expected of auditors. In order for the duties reasonably expected of auditors to be acknowledged as such by them, they must be cost-beneficial for auditors to perform.

According to Porter (1993) and confirmed in almost all relevant studies (Masoud, 2017; Porter et al., 2012), in the absence of a formal cost-benefit analysis, for the purposes of the research, the duties identified by both company officers (auditees), and financial community audit beneficiaries (investors) as 'duties auditors should perform' are considered as an acceptable surrogate for cost-benefit analysis[2].

[2] Further, Section 03 of Part Two of the questionnaire was given to 200 company officers (auditees) in order to measure the reasonableness of auditors' duties (The response rate is 89%).

Table 3: Assessment by Investors[1] of Auditors' Performance of Their Duties

	Mean of Responses[2]	Poorly[4]	Can't judge[4]	Deficient Adequately	Satisfactory	Completely Satisfactory	Contributing to Performance Gap[5]
Suggested Duties of Auditors[3]		%	%	%	%	%	%
Duty No. Deficient Performance Gap Duties							
03	2.9	04	36	31	25	04	11
04	2.8	11	29	30	23	06	11
05	2.7	18	30	23	27	02	13
11	2.9	08	31	30	27	04	10
12	2.7	13	42	17	20	09	14
16	2.6	06	57	14	17	06	17
17	2.8	10	35	21	29	05	12
20	2.9	16	32	21	14	18	12
Non- deficient Performance Gap Duties							
01	3.1	06	21	33	34	06	-
02	3.3	05	16	34	37	08	-
06	3.0	08	29	28	31	06	-
07	3.0	13	21	32	24	10	-
08	3.0	05	35	21	27	12	-
09	3.0	09	29	24	28	09	-
10	3.2	05	29	25	25	16	-
13	3.0	07	33	20	37	03	-
14	3.0	04	36	28	22	10	-
15	3.0	06	33	21	35	05	-
18	3.2	04	31	19	20	16	-
19	3.1	05	32	23	22	18	-

[1] Investors [2]The duties as shown here are abbreviations of their description in the questionnaires (Annexure 1). [3] 2.9 has been adopted as the point of differentiation between satisfactory and unsatisfactory performance (calculated from responses to Options 1-5) [4] Represents the response options 'less than adequately'. [5] Based on the proportion of the society group who signified that auditors perform their duty poorly.

Source: Constructed by Authors

Thus, these stakeholder groups may be assumed to be reasonably knowledgeable about the audit function, but their perspectives are from the opposing direction. Company Officers (Auditees) are subject to the auditor's examination and are likely to be particularly cognizant of the costs involved. As a result, this stakeholder group may be expected to lean towards limiting the duties delegated to auditors. Financial community audit beneficiaries, on the other hand, rely on the auditor's work and are therefore likely to be particularly conscious of the benefits that may flow therefrom. Thus, in contrast to company officers (auditees), this stakeholder group may be expected to lean towards extending the auditors' duties.

An interesting (and unexpected) finding of the survey is that (not tabulated), notwithstanding the differing perspectives of auditees and financial community audit beneficiaries whose potential biases are in opposite directions, these two interest groups identified the same 49 duties as duties auditors should perform. These same 49 duties identified by auditees and financial community audit beneficiaries are identified as duties auditors should perform. On the basis of the above reasoning, all duties listed in the questionnaire are identified as duties that are reasonable to be expected of auditors. These coincide with the duties shown in Table 4 as duties auditors should perform. A detailed analysis of society expectations was done in order to validate the reasonableness of duties discussed in the next section. As observed above, duties identified by at least 20% of an interest group as duties auditors should perform are considered to warrant further examination to ascertain whether these are duties that are reasonable to expect of auditors. In the absence of a formal cost-benefit analysis, hat for the purposes of the research, the duties identified by both company officers (auditees) and financial community audit beneficiaries (investors) as duties auditors should perform are considered as an acceptable surrogate for cost-benefit analysis. Of the 49 duties qualifying for further examination, six duties were found not to be duties reasonably expected of auditors (44, 45, 46, 47, 48 & 49) as they do not meet the cost-benefit criterion explained above (Table 4).

As noted above, all 49 duties were identified by 20% or more of a non-auditor interest group as duties auditors should perform, and all accepted it in lieu of a cost-benefit test (not tabulated). It is clearly reasonable to expect auditors to perform these duties (all the listed duties of deficient standards, from No. 21 to No. 35), each of which contributes to the reasonableness gap component of the AEG in this study (Table 4).

An estimate of the relative contribution of each duty to the reasonableness gap may be derived from the proportion of the society group (all non-auditors) who stated that the duty in question should be performed by auditors (Table 4). The higher the proportion of the group that (unreasonably) expects auditors to perform the duty, the greater the level of unfulfilled expectations attaching to the duty, and thus, contribution to the reasonableness gap. The reasonableness gap and the relative contribution of each of the duties are shown in Figure 2.

Of the 49 duties that meet the cost-benefit criterion, and thus qualify as duties that are reasonable to expect of auditors, 20 are existing duties of auditors (not tabulated). Another 15 duties (satisfactory cost-benefit results for 15 duties) that can reasonably be expected but not currently required of auditors (Table 4) contribute to the deficient standards component of AEG. Auditing standards need to be extended to encompass these duties. 29 duties listed in the questionnaire (out of 49 duties), eight were found to contribute to the deficient performance gap, fifteen to the deficient standards gap and six to the reasonableness gap (see Figure 2).

Table 4: Cost-benefit Criterion for Duties of Reasonableness Gap

Duty No[1].	Company Officers[2]	Audit Beneficiaries[3]
	Mean[5]	Mean[6]
Cost-benefit Satisfied[4]		
21	55	44
22	54	51
23	41	34
24	53	39
25	48	34
26	46	49
27	52	34
28	49	24
29	49	38
30	43	25
31	51	40
32	43	20
33	50	62
34	47	29
35	46	44
36	30	45
37	22	53
38	13	49
39	16	20
40	16	27
41	04	29
42	25	48
43	17	32
Cost-benefit Not Satisfied		
44	0	27
45	-5	33
46	-8	20
47	-5	40
48	-18	26
49	-7	34

[1]The duties as shown here are abbreviations of their description in the questionnaires (See Annexure 1).
[2] Company officers (auditees) are subject to the auditor's examination and are likely to be particularly cognizant of the costs involved
[3] Investors: rely on the auditor's work and are, therefore, likely to be particularly conscious of the benefits which may flow therefrom.
[4] the duties identified by both auditees and financial community audit beneficiaries as duties auditors should perform provide.
[5] mean value of company officers
[6] mean value of audit beneficiaries (investors)
Source: Constructed by Authors

Members of the investors who indicated that a particular duty, not currently performed by auditors, should be performed, and those who signified that auditors perform an existing duty poorly, have expectations of auditors that are not being fulfilled. Thus, a measure of investor's unfulfilled expectations attaching to each duty contributing to the reasonableness, deficient standards or deficient performance components of the audit expectation-performance gap may be derived from the proportion of the investors group who indicated that a duty not currently required of auditors should be performed, or an existing duty is performed poorly. The relevant proportions for the audit expectation-performance gap's components in the are shown in Figure 2, in the columns headed 'Reasonableness gap', 'Deficient standards gap' and 'Deficient performance gap'. From this, the relative contribution of each component of the overall gap between society's expectations of auditors and auditors' perceived performance could be calculated. From Figure 2, calculated in this way, it appears that half of the gap (50 per cent) is attributable to deficient standards (i.e., 567/(378+567+180)), 16 per cent (i.e., 180/(378+567+180)) results from society holding unreasonable expectations of auditors, and 34 per cent (i.e., 378/(378+567+180)) is derived from perceived sub-standard performance by auditors. It is noted that the current widespread criticism of, and litigation against, auditors is a ramification of auditors failing to meet society's expectations of them and, further, that such failure serves to undermine confidence in auditors and the work they do. If irreparable damage to the profession's standing in society is to be prevented, urgent and effective action to narrow the AEG is needed (Porter, 1993).

4.4 Analysis of Empirical Research Results Relating to Contributory Factors for AEG

The results of objective one highlighted that there is a significant difference ($p<0.05$) between the perceptions of auditors and of other stakeholders regarding the duties of auditors in Sri Lanka. Further, the results indicate that 20% or more of investors (non-auditors) perceived auditors as performing their duties poorly. The present study found evidence of an audit expectation gap in Sri Lanka arising from differences in the perceptions of auditors and of investors. Thus, factors contributing to AEG need to be examined in order to bridge such gap. In regard to factors contributing to AEG, the nineteen factors (i.e., that were derived from a comprehensive literature survey and refined via expert opinions and pilot-testing) that were listed in the questionnaire had to be marked by the respondents on a Likert scale ranging from 'not applicable' to 'strongly agree'.

Table 5 presents the results of mean rankings with one sample *t*-test in regard to factors contributing to AEG. The mean values derived were interpreted based on the Likert scale used in the questionnaire; i.e. *not applicable-0, strongly disagree-1, disagree-2, average-3, agree-4 and strongly agree-5.* The main contributory factor highlighted by the respondents was the lack of auditing education among users (mean value of 3.693).

Further, significant factors highlighted include lack of auditing experience among users, higher user needs of external audit, narrow scope of external audit, lack of auditor independence, users' unawareness of new and revised auditing standards, complex nature of the audit function, lack of interaction between auditors and intended users, frequent changes in accounting requirements, lack of knowledge of auditing practitioners, too technical wording used by auditors in the audit report and self-regulation of the auditing profession. It should be noted that based on one sample *t*-test performed, 12 factors were found to be statistically significant ($p<0.05$) with a test value of 3 and their respective mean values (Table 5).

Perceived performance by auditors[1] ← Audit Expectation- Performance Gap → Society expectations of auditors[2]

← Performance Gap → | ← Reasonableness Gap →

Auditors' existing duties[3] | Duties reasonably expected of auditors[4]

← Deficient Performance → ← Deficient Standards → ← Unreasonable Expectations →

← 34% → ← 50% → ← 16% →

Deficient Performance			Deficient Standards						Unreasonable Expectations		
Duty	response %[5]	Contr. %	Duty	response %[5]	Contr. %[6]	Duty	response %[5]	Contr. %[6]	Duty	response %[5]	Contr.
16	63	17	33	62	11	25	34	06	47	40	22
12	55	14	22	51	09	27	34	06	49	34	19
05	48	13	26	49	09	34	29	05	45	33	18
20	47	12	35	44	08	30	25	04	44	27	15
17	45	12	21	44	08	28	24	04	48	26	15
04	40	11	31	40	07	32	20	03	46	20	11
03	40	11	29	38	07		**567**	**100**		**180**	**100**
11	40	10	24	39	07						
	378	**100**	23	34	06						

[1]Duties perceived by the society group to be performed deficiently by auditors. [2]Duties expected of auditors by 20% or more of a non-auditor interest group. [3]Existing duties defined by reference to the law and professional promulgations. [4]Duties which are cost-beneficial for auditors to perform. [5]Proportion of the society group whose expectations with respect to the duty are not being fulfilled. [6]Relative contribution of duties to the component.

Figure 3: The Relative Contribution of Duties to Components and of Components to the Audit Expectation-Performance Gap
Source: Constructed by Authors

However, the mean value is more than 3 in respect of the following factors: lack of quality control in audit firms, time lag in responding to changing expectations, lack of information content in the audit opinion, inadequate audit methodologies of external audit and frequent changes in the ethical requirements of the auditing profession' where a statistical significance does not exist. Further, contributory factors like low auditor efforts and low auditor skills have low levels of mean value (i.e. mean value less than 3) without statistical significance.

Table 5: Descriptive Statistics of Factors Contributing To AEG

	Factors	N	Mean	SD	Min	Max
1	Lack of auditing education among users	150	3.693**	.897	0.00	5.00
2	Lack of audit experience among users	150	3.626**	.847	1.00	5.00
3	Higher user's needs of external audit	145	3.472**	.815	1.00	5.00
4	Narrow scope of external audit	148	3.335**	.905	0.00	5.00
5	Lack of auditor's independence	146	3.308**	.965	0.00	5.00
6	Users' unawareness of new and revised of auditing standards	146	3.280**	1.161	0.00	5.00
7	Complex nature of audit function	142	3.267**	.890	1.00	5.00
8	Lack of interaction between auditor and intended users	148	3.236**	1.077	0.00	5.00
9	Frequent changes in accounting requirements	146	3.198**	1.099	0.00	5.00
10	Lack of knowledge of auditing practitioners	147	3.195**	1.021	0.00	5.00
11	Too technical wording used by auditors in audit reports	149	3.187**	.995	0.00	5.00
12	Self-regulation of the auditing profession	148	3.174**	1.044	0.00	5.00
13	Lack of quality control in audit firms	148	3.162	1.166	0.00	5.00
14	Time lag in responding to changing Expectations	148	3.128	1.138	0.00	5.00
15	Lack of information content of the audit opinion	148	3.114	1.059	0.00	5.00
16	Inadequate audit methodologies of external audit	149	3.080	1.036	0.00	5.00
17	Frequent changes in ethical requirements Of the auditing profession	147	3.039	.974	0.00	5.00
18	Low auditor skills	146	2.945	.937	0.00	5.00
19	Low auditor efforts	146	2.876	1.144	0.00	5.00

[a] Based on the one sample *t*-test performed; the significance of the difference between the test value of 3 and the mean values are also indicated, where $^{**}p<.01$ and $^{*}p<.05$.

Source: Constructed by Authors

5. DISCUSSION AND CONCLUSIONS

The current study was conducted to examine whether there is an Audit Expectation-performance Gap in Sri Lanka and the factors contributing to such a gap. The present study applied a positivist approach which is deemed appropriate for achieving these objectives, which is also supported in the extant literature (Kumari et al., 2017; Masoud, 2017; Porter et al., 2012). Previous studies mostly used a structured questionnaire and was administered among the practicing auditors and other stakeholders in collecting data (Kumari et al., 2017; Porter et al., 2012; Porter, 1993; Liggio, 1974). The duties of external auditors were identified according to the new and revised standards and newly introduced code of ethics. However, following discussions with experts in the area (leading auditing practitioners and senior auditing academics), the questionnaire was revised. Next, a pilot test was carried out to finalize the final version of the questionnaire. Thus, the survey instrument of this study included 49 suggested duties of auditors. For each of these, the respondents were asked to indicate "(i) whether the duty is an existing duty of auditors, (ii) if so, how well it is performed, and (iii) whether the duty should be a duty of auditors." Further, the wordings of the original questionnaire were changed to make it very clear for the non-accounting respondents.

The results of the analysis strongly confirmed that there is a difference between auditors' and investors' perceptions regarding auditors' existing duties, auditors' performance of their duties and additional duties that auditors should take on, in the context of listed firms in Sri Lanka. These findings are consistent with the extant literature (Kumari et al., 2017; Masoud, 2017;; Enes et al., 2017;; Gunathilaka, 2012; Porter et al., 2012; Abeydeera, 2005; Porter & Gowthorpe, 2004; Porter, 1993). Masoud (2017) revealed "an expectation gap reflected in the perceptions of users within diverse users, and they do express the need for legal incentives and the need to adopt international standards for taking corrective action to narrow the audit expectation-performance gap more effectively" (p.13). Half of the gap (50 per cent) in AEG is attributable to deficient standards, while 34 per cent results from society (all non-auditors) holding unreasonable expectations of auditors, and 16 per cent is derived from the perceived sub-standard performance of auditors in Sri Lanka. The findings of this study are consistent with the extant literature, confirming that the deficient standards gap forms the largest component of AEG (Masoud, 2017; Porter et al., 2012: Porter, 1993).

According to the results of present study, half of the gap (50 per cent) is attributable to deficient standards, 16 per cent results from society holding unreasonable expectations of auditors, and 34 per cent derives from perceived sub-standard performance by auditors. Further, there were 12 factors significantly impacting on AEG and the main contributory factor highlighted by the respondents was the lack of auditing education and lack of audit experiences among users (Kumari et al., 2017; Pierce & Kilcommins, 1996).

There are theoretical, empirical, and practical implications in this study. In this study, an updated model was introduced to ascertain the Audit Expectation-Performance Gap based on the contemporary changes in the current accounting and auditing regimes, which is expected to derive theoretical and methodological value. Further, the contributory factors used in the study were mainly based on the broad-based theory, namely, Institutional theory. In terms of the practical implications and based on the findings of this study, relevant regulators, educators, and auditing professionals need to take necessary steps to minimize the audit expectation-performance gap in Sri Lanka. The accountancy profession, universities, other educational institutions and regulators need to build an appropriate policy framework for increasing awareness of the nature and limitations of an external audit through audit education. Further, the present study contributes to the *current* auditing literature in Sri Lanka by addressing the vital contemporary issue of AEG and causes for such a gap, and thereby attempts to fill the gap in knowledge to a certain extent.

The study is subject to certain limitations. First, the study considers only the duties of external auditors of listed firms in the CSE in determining AEG irrespective of the duties of public sector auditors, as it was not possible to measure certain gaps with the latter. Yet, to mitigate the impact of being restricted only to the duties of external auditors, future research could test AEG by including the duties of public sector auditors in Sri Lanka, as well. Further, in terms of future research, the expectation gap among more stakeholders could be undertaken by broadening the scope of the present study. Further, AEG and contributory factors were examined only in the Sri Lankan context. Yet, to mitigate the impact of being restricted to only Sri Lanka, further research could be conducted by applying different contexts (i.e., South Asia, Developed Countries).

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Appendices

Appendix 1 – Duties of External Auditors

1. Obtain reasonable assurance that the financial statement taken as a whole are free from material (significant) misstatement, whether due to fraud or error.
2. Report on the financial statements, and communicate as required by the Sri Lanka Auditing Standards (SLAuSs), in accordance with the auditor's findings.
3. Disclose in the audit report deliberate distortion of financial information.
4. Detect illegal acts by company officials which directly affect the company's accounts.
5. Disclose in the audit report illegal acts which directly affect company's accounts.
6. Verify the accounting estimates in the financial statements which are material (significant).
7. Comply with Code of Ethics for professional accountants.
8. Maintain confidentiality and safe custody of the audit working papers.
9. Express doubts about the solvency of the company under audit in the published auditor's report (if applicable).
10. Express an opinion on whether the financial statements are prepared, in all material (significant) respects, in accordance with an applicable financial reporting framework.
11. Report in the published auditor's report on failures of auditors in obtaining all the information and explanation in forming their opinion on the company's accounts.
12. Report in the published auditor's report on any deficiencies or failure on the manner proper accounting and other records (including registers) are kept by the company.
13. Examine the other information in the company's published annual report (e.g. the director's statement) to determine the existence of material (significant) inconsistencies with the audited financial statements.
14. Identify and assess of risks of material (significant) misstatement whether due to fraud or error, at the overall financial statement level and the individual balances and transactions level.
15. Obtain an understanding of an entity and its environment (information system; business process, financial reporting and communication) including entity internal control.
16. Report in the published audit report uncertainty relating future outcomes of exceptional litigation or regulatory action.
17. Report in the published audit report of early application of new accounting standards.
18. Report in the published audit report of a major catastrophe with a significant effect on the entities' financial position.
19. Determine whether the comparatives comply in all material (significant) respects with the financial reporting framework applicable to the financial statements being audited.
20. Disclose (based on audit evidence) whether a material (significant) uncertainty exists about events or conditions that may cast significant doubt on the entity's ability to continue as a going concern (i.e., the ability to operate for a foreseeable future period).
21. Examine and report on the company's internal controls.
22. Examine and report on the fairness of financial forecasts in the financial statements.
23. Disclose in the audit report embezzlement of auditee's assets by directors/senior management.
24. Examine and report to auditee's directors (or equivalent personnel) on the adequacy of auditee's risk management procedures.
25. Report to the relevant authorities that the auditee had engaged in bribery (i.e., of local or foreign government officials for purposes of securing large contracts), fraud or corruption.

26. Report to the relevant authorities of regulated entities about matters of such significance as to affect their license to operate.
27. Report to the relevant authorities of entities listed on the securities exchange that the matter could result in adverse consequences in the fair and orderly market in the entity's securities or pose a systemic risk into the financial markets.
28. Report to relevant authorities regarding the products that are harmful to public health or safety would likely be sold by the entity.
29. Report to relevant authorities when the auditee is promoting a scheme to its clients to assist them in evading taxes.
30. Report significant breaches of environment laws and regulations to the appropriate authorities.
31. Report to relevant authorities that the auditee engaged in money laundering, terrorist financing and/or handing proceeds of crime.
32. Consider and report on the company's impact that are significant on its local community.
33. Communicate in the audit report the areas of higher assessed risk and significant risks.
34. Communicate in the audit report the areas of significant management judgment and having estimation uncertainty.
35. Communicate in the audit report of significant transactions or events.
36. Examine & report in the audit report on the effectiveness of auditee's non-financial internal controls.
37. Perform the audit to prevent the fraud in the auditee.
38. Perform the audit to detect all frauds in the auditee.
39. Examine and report in the audit report on the reliability of information in client's entire annual report.
40. Examine and report on the efficiency and effectiveness of the company's management.
41. Prepare the auditee company's financial statements.
42. Make an assessment of the entity's ability to continue as a going concern (i.e., the ability to continue for a foreseeable future) in preparing financial statements.
43. Provide related disclosures in the financial statement in connection with going concern (i.e., the ability to operate for a foreseeable future period).
44. Guarantee audited financial statements are accurate.
45. Guarantee the auditee company is solvent.
46. Verify every transaction of the auditee company.
47. Guarantee auditee (with a clean audit report) is financially sound.
48. Detect minor (but not petty) theft of the client's assets by non-managerial employees.
49. Audit all interim financial statements issued by the auditee.

LEVEL AND DETERMINANTS OF CORPORATE TAX NON-COMPLIANCE: EVIDENCE FROM TAX EXPERTS IN SRI LANKA

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Abstract

This study examines the level and determinants of tax non-compliance by Sri Lankan corporates that may take several forms such as non- submission of tax returns within the required period, understatement of income, overstatement of expenditures and non-payment of assessed taxes by the due date. In Sri Lanka, the percentage of income tax contribution to the total government revenue and to GDP has been declining over a long time. The negative impact of tax non-compliance on the economy and the evolving nature of the Sri Lankan tax system are disused in this study. It uses the economic deterrence theory to identify the determinants of tax non-compliance in Sri Lanka. Data was gathered through a questionnaire distributed among the tax experts of the Big Four firms in Sri Lanka: KPMG, EY, PwC and Deloitte. The reason for selecting these experts is they understand all the taxation rules and regulations and have practical experience of tax compliance issues among tax-payers. The performance reports of the Inland Revenue Department (IRD), annual reports of the Central Bank and annual reports of the Ministry of Finance were used to collect the information needed to determine the level of tax non-compliance and key determinants of corporate tax non-compliance. The findings of this study indicate that non-compliance in Sri Lanka is at a moderate level. They also reveal that tax complexity and marginal tax rates have a significant positive effect on non-compliance in the corporate sector in Sri Lanka. This study contributed to tax non-compliance research with new evidence of tax complexity and marginal tax rate effect on corporate tax non-compliance. It will also be help policy makers in formulating policies, rules, laws and regulation and execution. Moreover, it will help the tax authorities in IRD to develop an effective and efficient tax system in Sri Lanka.

Key words: Corporate, Economic Deterrence Theory, Tax non-compliance, Tax system, Tax experts, Sri Lanka

1. INTRODUCTION

The objective of this study is to ascertain the level and the determinants of tax non-compliance in Sri Lanka. Taxes are the main source of revenue to a government. The government would take decisions on current and capital expenditure and then decide on the amount of tax to be collected from the residents. Tax non-compliance is a serious and growing problem in almost all countries especially in developing countries (Waidyasekara, 2016). According to Schneider and Enste (2000), tax non-compliance is a universal problem and may have unpleasant effects on the economy. There are two types of tax non-compliances: tax avoidance and tax evasion. In tax avoidance, the taxpayer lawfully under reports his tax obligations whereas in evasion, he illegally understates his tax obligations (Lipatov, 2011). Previous statistical evidence (Waidyasekara 2016, Performance Report of the Commissioner General of Inland Revenue 2017, Central Bank of Sri Lanka Annual

Report, 2017) indicates that corporate tax revenue has been continuously declining over a long of period in Sri Lanka.

Tax non-compliance can have various ramifications. However, this study attempts to establish the extent to which the variables affect corporate tax non-compliance in Sri Lanka using the economic deterrence theory in order to analyze the data collected through a structured questionnaire distributed among the tax experts of the Big Four firms in Sri Lanka. The study uses a deductive approach as evidence is gathered from the extant literature to establish hypotheses and arrive at conclusions. The population of this study is the tax experts of reputed audit firms in Sri Lanka. The reason for selecting them is that they understand all the tax rules and regulations and have practical experience of the tax compliance issues of tax-payers.

This study is expected to help the tax authorities of IRD to address the issue of corporate tax non-compliance and to develop an effective and user-friendly tax system in Sri Lanka. Further, it will help the policy makers to formulate policies, rules, laws and regulations and to enhance voluntary compliance.

As indicated earlier, in Sri Lanka the percentage of income tax contributions to total government revenue and to GDP has been declining for a long period of time even though IRD has implemented new strategies in the tax system and tax administration. Furthermore, a review of many empirical studies (Yusof, Ling, & Wah, 2014, Allingham & Sandmo, 1972) on non-compliance produces mixed evidence. Some results show positive a relationship between the variables examined whereas others suggest a negative or no relationship between them. Most of the empirical studies examine the determinants of tax compliance. The studies that examine tax non-compliance mainly related mainly to individuals and SMCs. Unfortunately, research on corporate tax non-compliance is very limited. Furthermore, most researches use financial data from annual reports and data from finalized audit tax cases obtained from tax authorities. However, for this research expert opinion is sought to analyse the data.

The economic deterrence theory suggests that the marginal tax rate may influence tax payer's compliance behavior. (Allingham & Sandmo, 1972). Furthermore, Rice (1992) and Joulfaian (2000) found that the mariginal tax rate is negatively associated with tax compliance behaviour. In addition, Tedds (2010), Nur-Tegin (2008) and Yusof, Ling and Wah (2014) found a negative relationship between tax non-compliance and company size. Kamdar (1997) discovered that the marginal tax rate and profit performance have a significant impact on tax compliance. Further, Sapiei, Kasipillai and Eze (2014) found that greater audit coverage could act as an effective deterrent to corporate tax non-compliance. Joulafaian (2000) also found that the audit rate influences non-compliance behaviour. In the light of the above the first research objective of the study is to determine the level of corporate tax non-compliance in Sri Lanka. The second research objective of this study is to explore the determinants of corporate tax non-compliance in Sri Lanka.

The study is structured as follows. Section two discusses the existing literature on corporate tax non-compliance. Section three discusses the research method. Section four discusses the key findings of the study. The final section deals with the conclusion, limitations and future research directions.

2. THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

2.1 Tax Non-Compliance

Most of the researchers have used the definition of tax compliance given by Roth et al. (1989) as filling all required tax returns at the due time and accurately reporting tax liability in accordance with the tax code, regulations and court decisions applicable at the time the return is filled (Roth et al., 1989). Further, James and Alley (2002) referred to tax compliance as the willingness of individuals to act in accordance with both the "spirit" and the "letter" of the tax law and administration without enforcement. Simply tax compliance requires adequate record keeping of all transactions and accurate filling of tax returns and making the payment of all taxes owed at the proper time. According to Yusof, Ling, and Wah (2014), there is no standard definition of tax non-compliance. However, James and Alley (2002) described tax non-compliance as a failure of the taxpayer to fulfil all tax responsibilities intentionally or unintentionally. According to Schneider and Enste (2000), non-compliance is a universal problem and may have unpleasant consequences for the economy.

Tax non-compliance can be divided into two categories: tax avoidance and tax evasion. Both categories result in the non-payment of due taxes. However, there is a legal distinction between these two categories in most countries. In the case of tax avoidance taxpayers use loopholes in the law in order to reduce tax liability (Webley, 2004) while in the case of tax evasion, taxpayers deliberately break the law with the purpose of reducing taxes (Elffers et al., 1987). According to Liptov (2011), in tax avoidance, the taxpayer lawfully underreports his/her tax obligations whereas in evasion he/she illegally understates his/her the tax obligations.Tax non-compliance may take several forms such as non- submission of tax returns within the relevant period, understatement of income, overstatement of expenditures and non-payment of the assessed taxes by the due date (Jeyapalan & Jabbar, 2006).

2.2 Economic Deterrence Theory and Corporate Tax Non-Compliance

This research mainly based on the economic deterrence theory propounded by Allingham and Sandmo (1972) who adapted Becker's (1968) model of economic analysis of crime to introduce a theory of tax evasion in a tax compliance setting. This model commonly known as the economic deterrence model is, according to Andreoni et al. (1998), the best and common model of tax compliance. This model mainly focuses on the individual taxpayer. However, it had been used by Abdul-Jabbar (2009) and Sapiei, Kasipillai and Eze (2014) to study corporate and small medium corporate tax non-compliance. It shows that the amount of tax evasion depends on the amount of tax savings and audit probabilities (Allingham & Sandmo, 1972). Tax payers make tax savings if they can easily evade taxes. Furthermore, this theory covers four cases of tax non-compliance: high tax rates positively affect tax non-compliance; individuals with higher risk aversion tend to evade taxes; individulas earning high personal income tend more to evade taxes and high audit probability, and the penalty rate that affects the tax payer's tax compliance behaviour (Allingham & Sandmo, 1972).

2.3 Empirical Studies on the Level and the Determinants of Corporate Tax Non-Compliance

Corporate tax non-compliance is hardly a simple process and is unlike tax evasion because the tax authorities regularly condut audits in corporations (Lipatov, 2011).The extant literature shows how various determinants affect corporate tax non-compliance. Most researches have been carried outside Sri Lanka.

2.3.1 Tax Complexity

Mohd Nor et al. (2010) examined the relationship between fraudulent financial reporting and the firms' characteristics such as size, type of ownership and audit quality after the implementation of the self- assessment system (SAS) in Malaysia. The objective of SAS is to encourage voluntary compliance. This system has provided opportunities to commit misstatements in financial reports in order to lower the profit by understating the sales, overstating the purchases, charging unallowable expenses and subsequently to reduce tax (Mohd Nor et al., *2010).* Under this system taxpayers are responsible for maintaining accurate financial records in order to report the accurate income to the Inland Revenue Board (Marshal et al., 1997). Moreover, before the introduction of SAS, tax audits were not a core activity of the Inland Revenue Board of Malaysia (IRBM). However, after SAS, tax audits have become one of the main activities of IRBM (Enforcement Department Report, 2005). According to Marshal et al. (1997), SAS may not be suitable to Malaysia in its background of Asian culture. Hanefah, Ariff and Kasipillai (2001) found that the level of tax complexity in Malaysia was rising because of amendments to the income tax law and SAS. Moreover, Abdul - Jabbar (2009) observed that tax non-compliance increases as tax complexity increases. According to McKerchar (2002), Thomas and Ferrier, (2003) and Blanthorne and Kaplan (2008), there is a positive association between complexity and tax non-compliance. However, Forest and Sheffrin (2002) argued that simplifying the tax system might not be an effective deterrent to tax evasion.

2.3.2 Marginal Tax Rate

Past studies have shown that the relationship between tax rates and tax non-compliance is mixed. Allingham and Sandmo (1972) adapted Becker's (1968) model in order to formulate a theory of tax evasion. This theoretical model is known as an economic deterrence model, according to which the marginal tax rate influences the taxpayer's compliance behaviour (Allingham & Sandmo, 1972). Rice (1992) and Joulfaian (2000) found that the mariginal tax rate is positively associated with tax non-compliance behaviour. However, Kamdar (1997) found that reducing the tax rate would not enhance coporate tax compliance. Furthermore, Hanlon, Mills and Slemrod (2005) found evidence to support that effective tax rates influence non-compliance.

2.3.3 Company Size

The empirical studies provide mixed evidence of the relationship between company size and tax non-compliance. Tedds (2010) and Nur-Tegin (2008) found that company size was negatively associated with tax non-compliance. Smaller companies report lower amounts of revenue than larger firms because smaller companies conduct business in cash (Gauthier & Reinikka, 2001). Moreover, Nur-Tegin (2008) argued that smaller firms can easily conceal their income and Wallace (2002) argued that tax compliance is an additional burden for the smaller companies. Rice (1992) found that public companies show more compliance than non-public companies. Moreover, Yusof, Ling, and Wah (2014) found an adverse relationship between company size and tax non-compliance.

In contrast, some prior studies found a positive relationship between company size and tax non-compliance. Mohd Nor et al. (2010) support the political cost theory of Zimmerman (1983), according to which the political costs relate to company size because larger companies are more likely to be visible and therefore more likely to make disclosures for government examination and wealth transfers. Therefore, the larger companies try to safeguard their cash flow in order to avoid paying huge taxes to the government (Zimmerman, 1983). However, according to Abdul Jabbar (2009) there is no relationship between company size and tax behaviour.

2.3.4 Penalty Rate

Various studies have examined the relationship between the tax non-compliance and the penalty rate and the results vary due to different interpretations of the economic deterrence theory. According to Allingham and Sandmo (1972), there is a positive relationship between the penalty rate and the reported income. In contrast, Kamdar did not find any evidence to support the above relationship while for Yusof, Lai and Mara (2012) the penalty rate had no significant relationship with corporate tax non-compliance. However, Yusof, Lai and Wah (2014) found a positive significant relationship between tax non-compliance and the penalty rate.

2.3.5 Audit Probability

According to Joulafaian (2000), a tax audit is an investigation conducted by the tax authorities in order to verify the tax returns and to figure out tax non-compliance behaviour. Shanmugam (2003) and Kirchler (2007) defined the term 'audit probability' as the "number of tax returns divided by the tax returns received". According to Kamdar (2000), audit rates has a significant impact on profit performance and tax compliance behaviour. Sapiei, Kasipillai and Eze (2014) found that a higher audit coverage is an effective deterrent to corporate tax non-compliance. Further, Joulafaian (2000) found that audit probability had an impact on non-compliance behaviour. However, the studies of Kirchler, Hoelzl and Wahl (2008) showed the probability of tax audits positively affecting compliance as weak.

According to the above empirical studies, there is mixed evidence of tax non-compliance and tax complexity, marginal tax rate, penalty rate, company size and audit probability being major determinants of non-compliance.

2.4 Theoretical Gap

A review of the empirical studies shows that non-compliance can be identified among tax complexity, marginal tax rate, company size, penalty rate and audit probability with corporate tax non-compliance. Furthermore, some studies show positive relationships between the variables examined whereas other studies suggest a negative or no relationship between them The studies that examined tax non-compliance mainly focused on individuals and SMCs. Research on corporate tax non-compliance is very limited. Most of the studies have used the data in annual reports and finalized audit cases. However, for this study tax experts' opinions were considered in analysing the data.

3 RESEARCH METHODS

The present research focuses on identifying the level and determinants of corporate tax non-compliance in the Sri Lankan context. This section explains the research approach, the population and study sample, the conceptual diagram, hypothesis development, sources of data, data collection and data analysis strategies used.

3.1 Research Approach

This study used a quantitative approach to collecting and analyzing the data. In tax compliance-related empirical studies researchers have followed three approaches: experimental, survey and tax audit approaches. In this research the survey approach was used since the experimental approach is more suitable for individual taxpayers' related studies and the tax audit approach is not possible because of the confidentiality of data. Prior studies have adopted a similar quantitative approach in order to identify the determinants of tax non-compliance (Abdul Jabbar 2009, Sapiei, Kasipillai & Eze 2014).

3.2 Population and Sample

The target population for this study was managers or managers above and assistant managers in the Big four firms (KPMG, EY, PwC and Deloitte) of Sri Lanka. The sample was selected according to Krejcie and Morgan (1970). Table 1 gives the population and selected sample of this study.

Table 1: Population and Sample

Firm Name	Population Size (N)	Sample Size (S)
KPMG	13	13
EY	18	12
PwC	13	10
Deloitte	14	8
Total	**58**	**43**

Source: Constructed by Authors

3.3 Conceptual Framework

Figure 1 gives the conceptual diagram of the research based on the literature review.

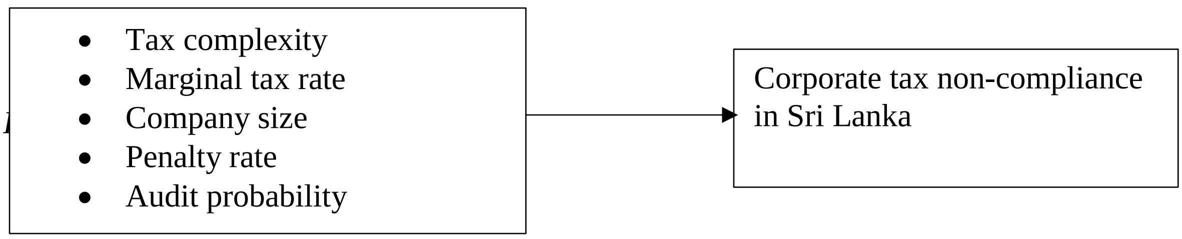

Figure 1: Conceptual Framework
Source: Constructed by Authors

As indicated in Figure 1 above, the independent variables are tax complexity, marginal tax rate, company size, penalty rate and audit probability and the dependent variable is corporate tax non-compliance in Sri-Lanka.

3.4 Operationalization

The questionnaire used by Jouflian (2000) was used to develop the questionnaire. The questions were modified to account for the specific characteristics of the Sri Lankan taxation system. They were in four parts, A to D. Part A gave general information about the responder and Part B the opinion on corporate tax, part C the perceptions and opinions on the level and determinants of corporate tax non-compliance. It was categorized into five main criteria: tax complexity, marginal tax rate, penalty rate, company size and audit probability. Part D consisted of questions to measure tax non-compliance using a Likert scale. The questionnaire was validated by three tax managers, and a pilot study conducted with 20 respondents. Table 2 indicates the operationalization of selected independent variables and dependent variables.

Table 2: Independent and Dependent Variables and Their Measurement Techniques

Variable	Measurement
Independent Variables	
Tax complexity	Likert-type Scale Questions
Marginal tax rate	Indicate “1” if Strongly Disagree
Penalty rate	Indicate “2” if Disagree
Company size	Indicate “3” if Neutral
Audit probability	Indicate “4” if Agree
	Indicate “5” if Strongly Agree
Dependent Variable	
Corporate tax non-compliance	Likert-type Scale Questions
	Indicate “1” if Strongly Disagree
	Indicate “2” if Disagree
	Indicate “3” if Neutral
	Indicate “4” if Agree
	Indicate “5” if Strongly Agree

Source: Constructed by Authors

3.5 Hypotheses

The hypotheses were derived from the extant literature. McKerchar (2002), Thomas and Ferrier, (2003) and Blanthorne and Kaplan (2008) found a positive association between complexity and tax non-compliance. However, Forest and Sheffrin (2002) argued that simplifying the tax system might not be an effective deterrent to tax evasion. Therefore, the first hypothesis of this study was proposed as follows:

H1: There is a relationship between tax complexity and corporate tax non-compliance in Sri Lanka.

According to Allingham and Sandmo (1972), the marginal tax rate influences the tax payer’s compliance behaviour. However , Kamdar (1997) found that reducing the tax rate would not increase coporate tax compliance. Furthermore, no evidence was found by Hanlon, Mills and Slemrod (2005) found no evidence to support that effective tax rates influence non-compliance. Therefore, the second hypothesis of this study could be established as:

H2: There is a relationship between the marginal tax rate and corporate tax non-compliance in Sri Lanka.

Tedds (2010) and Nur-Tegin (2008) found that company size was negatively associated with tax non-compliance and Yusof, Ling, and Wah (2014) found an adverse relationship between company size and tax non-compliance. In contrast, the political cost theory of Zimmerman (1983) claims a positive relationship between company size and tax non-compliance. However, in accordance with the observation of Abdul Jabbar (2009), there is no relationship between company size and tax behaviour. Therefore, the third hypothesis of this study could be stated as:

H3: There is a relationship between company size and corporate tax non-compliance in Sri Lanka.

Allingham and Sandmo (1972) found a positive relationship between penalty rate and reported income and Yusof, Lai and Wah (2014) a positive significant relationship between tax non-compliance and the penalty rate. In contrast, Kamdar did not find any evidence to support the above relationship. Therefore, the fourth hypothesis of this study could be stated as follows:

H4: There is a relationship between the penalty rate and corporate tax non-compliance in Sri Lanka.

Sapiei, Kasipillai and Eze (2014) found that higher audit coverage is an effective deterrent to corporate tax non-compliance. Further, Joulafaian (2000) found that audit probability has an impact on non-compliance behaviour. However, according to Kirchler, Hoelzl and Wahl (2008), the probability of tax audits does not positively affect corporate tax non-compliance. Accordingly, the fifth hypothesis of this study is as follows:

H5: There is a relationship between audit probability and corporate tax non-compliance in Sri Lanka.

3.6 Analytical Strategies

The data gathered from primary data and secondary data was analyzed using SPSS (Statistical Package for the Social Sciences) and Smart PLS 2.0. SPSS enables the use of descriptive statistics and regression analysis. Correlation analysis was performed using Smart PLS 2.0. Descriptive statistics helped to assess the level of tax non-compliance. The relationships within these variables were predicted through regression analysis while the strength of the relationships among them was evaluated through correlation analysis.

4 FINDINGS AND DISCUSSION

This section analyzes the association between tax complexity, penalty rate, marginal tax rate, company size and audit probability and tax non-compliance. As stated previously, the data was gathered through a questionnaire answered by the tax experts of the Big four firms in Sri Lanka.

4.1 Descriptive Statistics

A total of 42 responses were obtained, representing an overall response rate of 74.13%. However, prior to data entry, all completed questionnaires were examined for missing values and accuracy of data. After removing two incomplete responses the usable response rate was 68.96%. Based on the 40 survey results, descriptive statistics of the sample were obtained in order to understand the respondent's demographic background.

As shown in Table 3, the rates of completed questionnaires obtained from KPMG, EY, PwC and Deloitte was 12, 10, 10 and 8, respectively.

Table 3: Profile of Responding Tax Professionals – Workplace

Firm Name	**Frequency**	**Percent**
KPMG	12	30.0
EY	10	25.0
PwC	10	25.0
Delloite	08	20.0
Total	**40**	**100.0**

Source: Constructed by Authors

The questionnaires were distributed among managers or managers above and assistant managers of KPMG, EY, PwC and Deloitte. The profiles of responding tax professionals are presented in Table 4. Around 43 percent of the respondents are managers or above managerial position and 58 percent are managers of the Big Four firms.

Table 4: Profile of Responding Tax Professionals – Position

Firm Name	**Frequency**	**Percent**
Manager or manager above	17	42.5
Assistant Manager	23	57.5
Total	**40**	**100.0**

Source: Constructed by Authors

As shown in Table 5, dealing with tax authorities, understanding income tax legislation and implementing income tax changes are ranked as the main tax-related difficulties faced by corporates. Twenty-two percent of respondents indicated that dealing with tax authorities was the most difficult for corporate clients. The least difficult was the short period of time for lodging the tax returns.

Table 5: Difficulties of Corporates

Difficulties of Corporates	**Number of Responses**	**Overall Present**
Estimating income tax payable	22	13.6%
Understanding income tax legislation	35	21.6%
Implementing income tax changes	31	19.1%
Maintaining the records	10	6.2%
Record keeping burden	07	4.3%
Cash flow position	10	6.2%
Short period of time to lodge tax returns	05	3.1%
Dealing with tax authorities	36	22.2%
Dealing with tax professionals	06	3.7%

Source: Constructed by Authors

As indicated in Table 6, nearly 31 percent of the respondents believed that unavailability of technical knowledge was the main reason for corporates engaging tax professionals. The percentage of respondents who stated that clients engage tax professionals owing to the complications of tax law was 27.

Table 6: Main Reasons for Corporates Engaging Tax Professionals

Difficulties of Corporates Tax Non-Compliance	Number of Responses	Overall Present
Unavailability of technical knowledge	33	30.8%
Complication of tax law	29	27.1%
Requirement for external opinion	13	12.1%
Cost effectiveness	06	5.6%
For income tax planning	24	22.4%
Other	02	1.9%
Total	**107**	**100%**

Source: Constructed by Authors

Respondents were requested to indicate the level of corporate tax non-compliance on a four-point Likert scale. Table 7 presents the opinions of tax experts on the level of tax non-compliance. As many as 72.5% of professionals indicated that the tax non-compliance was at a moderate level.

Table 7: Estimate Level of Corporate Tax Non-Compliance

Level	Number of Responses	Overall Present
Very low	01	2.5%
Low	06	15%
Moderate	29	72.5%
High	04	10%
Total	**40**	**100%**

Source: Constructed by Authors

4.2 Determinants of Tax Non-Compliance

Before analysing the data, the researcher identified the outliers of the data. Therefore, from 43 respondent questionnaires only 40 completed questionnaires were identified for this analysis. Figure 2 presents the hypothesized model as displayed in Smart-PLS before analysing validity and reliability.

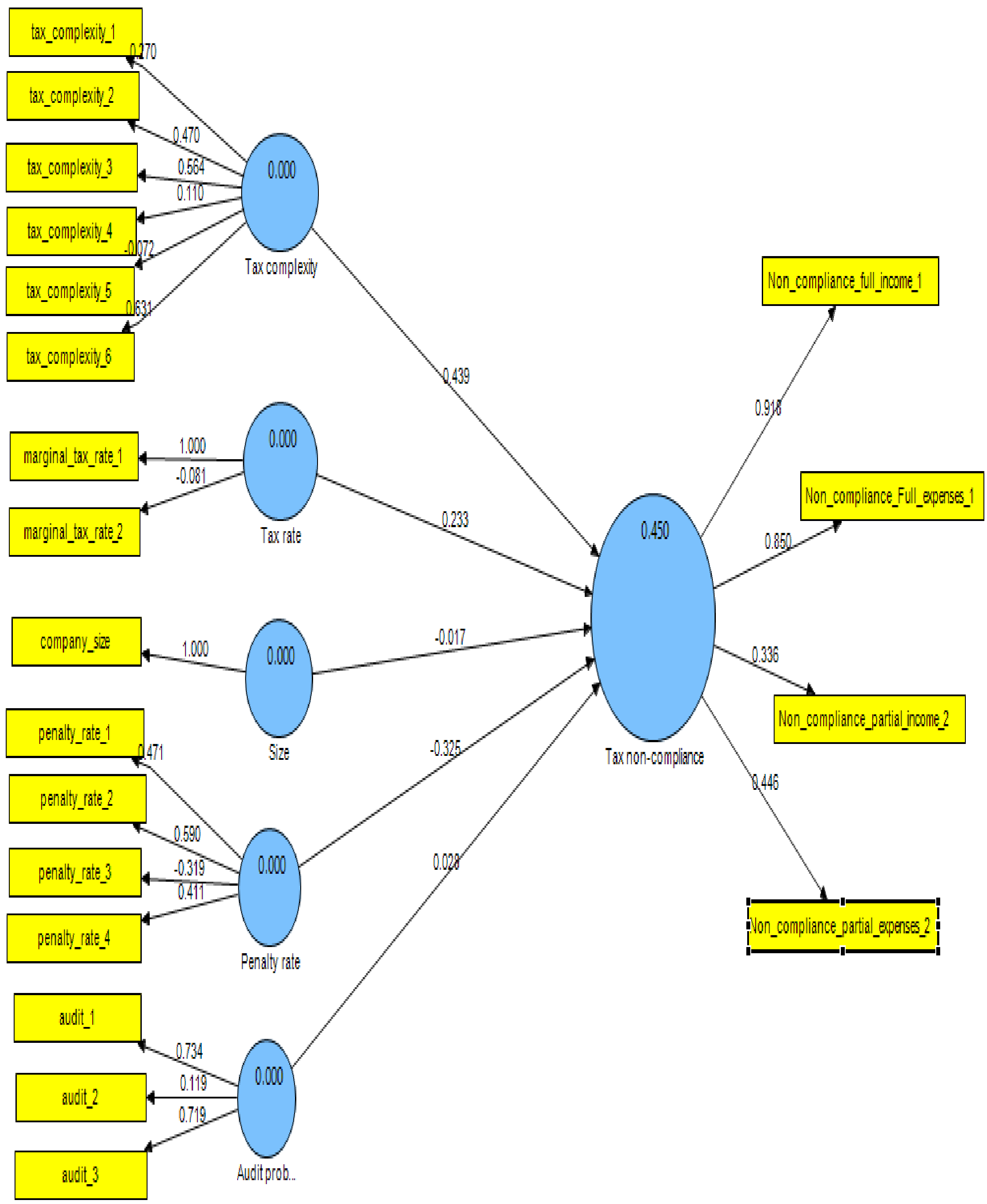

Figure 2: Proposed Model
Source: Constructed by Authors

Further, the model presented in Figure 2 was again applied to test the validity and reliability of the hypothesized model. In testing the validity and reliability the researchers focused on the extent to which the data exhibits convergent validity and discriminant validity and inter consistency reliability. In order to measure the convergent validity factor loading and AVE were used. To measure the discriminant validity latent variable correlation was tested. To measure the internal consistency reliability, the results of composite reliability and Cronbach's alpha were considered.

Convergent validity is based on the correlation between responses obtained by different methods of measuring the same variable. According to Anderson et al. (1988), evidence of convergent validity for a hypothesized model is present if all observable indicators load significantly into the respective latent factors. In order to assess convergent validity, the researcher considered the results of outer loading and AVE. The minimum threshold of outer loading is 0.5. Therefore, all the indicators (questionnaire items) that were insufficient to meet the minimum threshold for outer loading were removed. The final model is presented in Figure 3. Under tax complexity, Tax_complexity_1, Tax_complexity_2, Tax complexity_4, Tax_complexity_5 questions were removed. Under the marginal tax rate marginal_tax_rate_2 was removed. Under the penalty rate Penalty_rate_3 and Penalty_rate_4 were removed. The question of audit_2 was removed from the audit probability variable. Furthermore, Non_compliance_partail_income_1 and Non_compliance_partial_2 were removed from the non-compliance indicators.

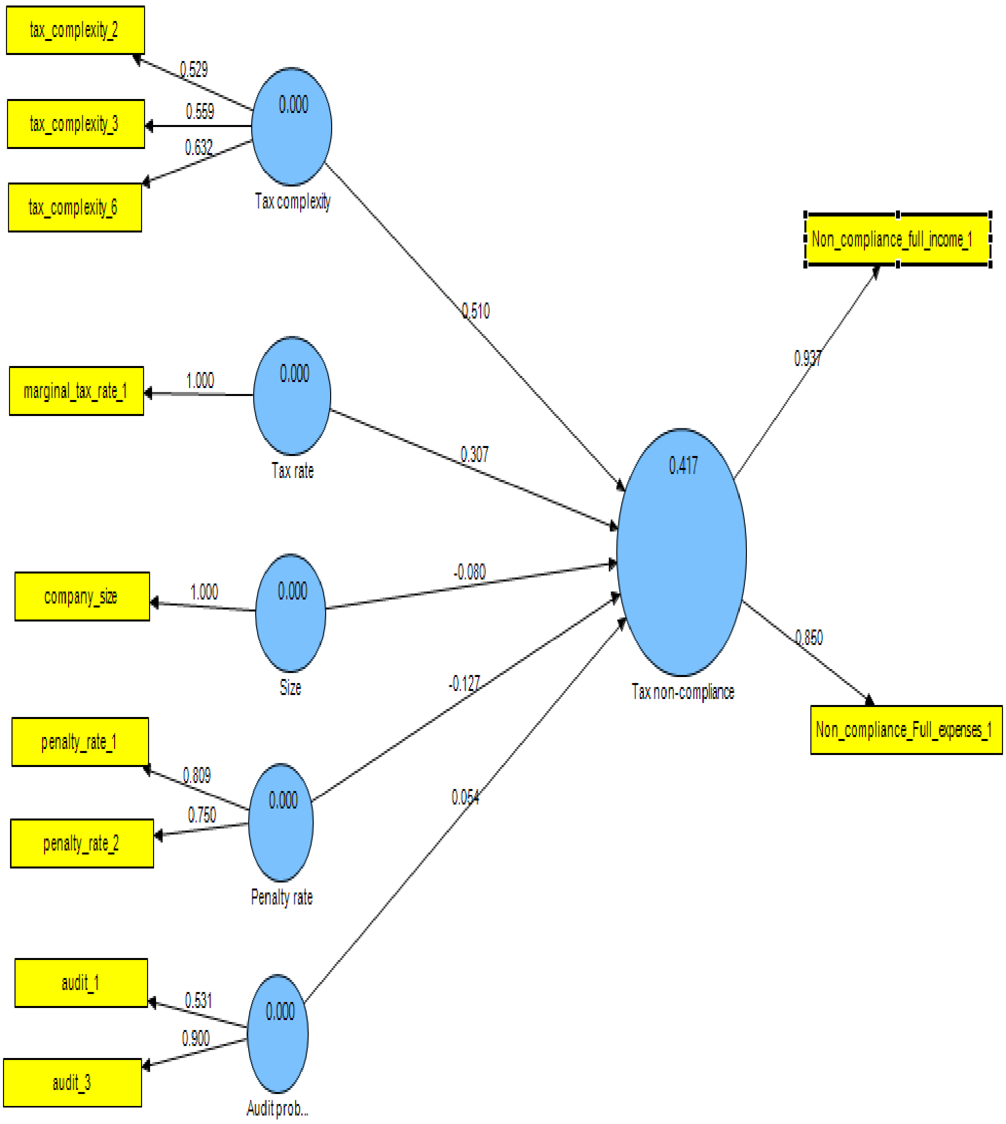

Figure 3: The Revised Model
Source: Constructed by Authors

The final model re-run with the indicators presented in Figure 3 produced the following results of outer loading. The outer loading results as shown in Table 8 shows that all indicators of their related constructs had outer loadings greater than the threshold value of 0.5, which means the items in the questionnaire related to the construct of all indicators presented in Figure 3 were the best to measure corporate tax non-compliance.

Table 8: Outer Loading Results

	Tax Complexity	Marginal Tax Rate	Company Size	Penalty Rate	Audit Probability	Tax Non-Compliance
Tax_complexity_2	0.5288					
Tax_complexity_3	0.5586					
Tax_complexity_6	0.6322					
Marginal_tax_rate_1		1.0000				
Company_size			1.0000			
Penalty_rate_1				0.8093		
Penalty_rate_2				0.7503		
Audit_1					0.5315	
Audit_3					0.9003	
Non_compliance_full_income_1						0.8499
Non_compliance_full_expenses_1						0.9367

Source: Constructed by Authors

In addition to the above measures of convergent validity, Average Variance Extracted (AVE) was used. It reflects the proportion of the explained variance that is captured for a particular latent variable in relation to the amount of variance due to measurement error. The minimum threshold of AVE is 0.5. An AVE above 0.5 means that, on average, a latent variable can explain more than half of the variance due to measurement error. If AVE is less than 0.5, then the variance due to measurement error is greater than the variance due to the construct. Table 9 presents the results of convergent validity. It predicts that all the AVE values are greater than 0.5.

Since all the AVE values are greater than 0.5 and the results of outer loading are greater than 0.5, convergent validity is good. Therefore, the questions are good.

Table 9: The Results of AVE, Composite Reliability, Cronbach Alpha and R square

	AVE	Composite Reliability	Cronbach's alpha	R square
Audit probability	0.5465	0.7932	0.1977	5.
Company size	1.0000	1.0000	1.0000	6.
Complexity	0.5304	0.5955	-0.0037	7.
Marginal tax rate	1.0000	1.0000	1.0000	8.
Penalty rate	0.6089	0.7567	0.3591	9.
Tax non-compliance	0.7999	0.8886	0.7590	0.4172

Source: Constructed by Authors

The researchers used latent variable correlation to measure the discriminant variable. The maximum threshold of latent variable is 0.9. As illustrated in Table 10 below all the correlations among latent variables are less than 0.9. Therefore, all the variables are independent and the overall model is valid.

Table 10: Latent Variable Correlations

	Audit Probability	Company Size	Complexity	Marginal Tax Rate	Penalty Rate	Tax Non-Compliance
Audit probability	1.000	-0.1198	-0.1883	-0.0441	0.1925	-0.0709
Company size		1	-0.0800	-0.1196	0.1710	-0.1856
Complexity			1	0..0067	-0.2095	0.5349
Marginal tax rate				1	-0.0709	0.3269
Penalty rate					1	-0.2597
Tax non-compliance						1

Source: Constructed by Authors

4.3 Internal Consistence Reliability

In order to measure internal consistence reliability, composite reliability and Cronbach's alpha are commonly used. The composite reliability assesses whether all the indicators measure the same latent variable. Cronbach's alpha indicates the degree to which a set of indicators measure the same latent variable. The minimum acceptable threshold value should be 0.7 to indicate internal consistency. As illustrated in Table 9 above, overall all the variables are greater than 0.7, except tax complexity. Cronbach's alpha is greater than 0.7 in company size, marginal tax rate and tax non-compliance. Since the overall composite reliability is greater than 0.7 the study concludes that the internal consistency of the model is good.

4.4 Determinants of Tax Non-Compliance Behaviour

The R^2 values indicate the amount of variance in dependent variables that is explained by the independent variables. In this study, Smart PLS algorithm function was used to obtain the R^2 value while the Smart PLS bootstrapping function was used to generate the t-statistic values, that is, to test the significance of the variables. The recommended bootstrap sample of 5,000 was used in this study. The result of bootstrapping is presented in Figure 4.

The predictor variables examined 45% of the variability in corporate tax non-compliance behaviour. Two variables were found to be significant determinants of tax non-compliance: tax complexity ($t = 6.585$, $p < 0.05$) and marginal tax rate ($t = 3.889$, $p<0.05$). With the other variables held constant, corporate tax non-compliance was positively related to tax complexity and marginal tax rate. However, in this study company size, penalty rate and audit probability are insignificant for corporate tax non-compliance.

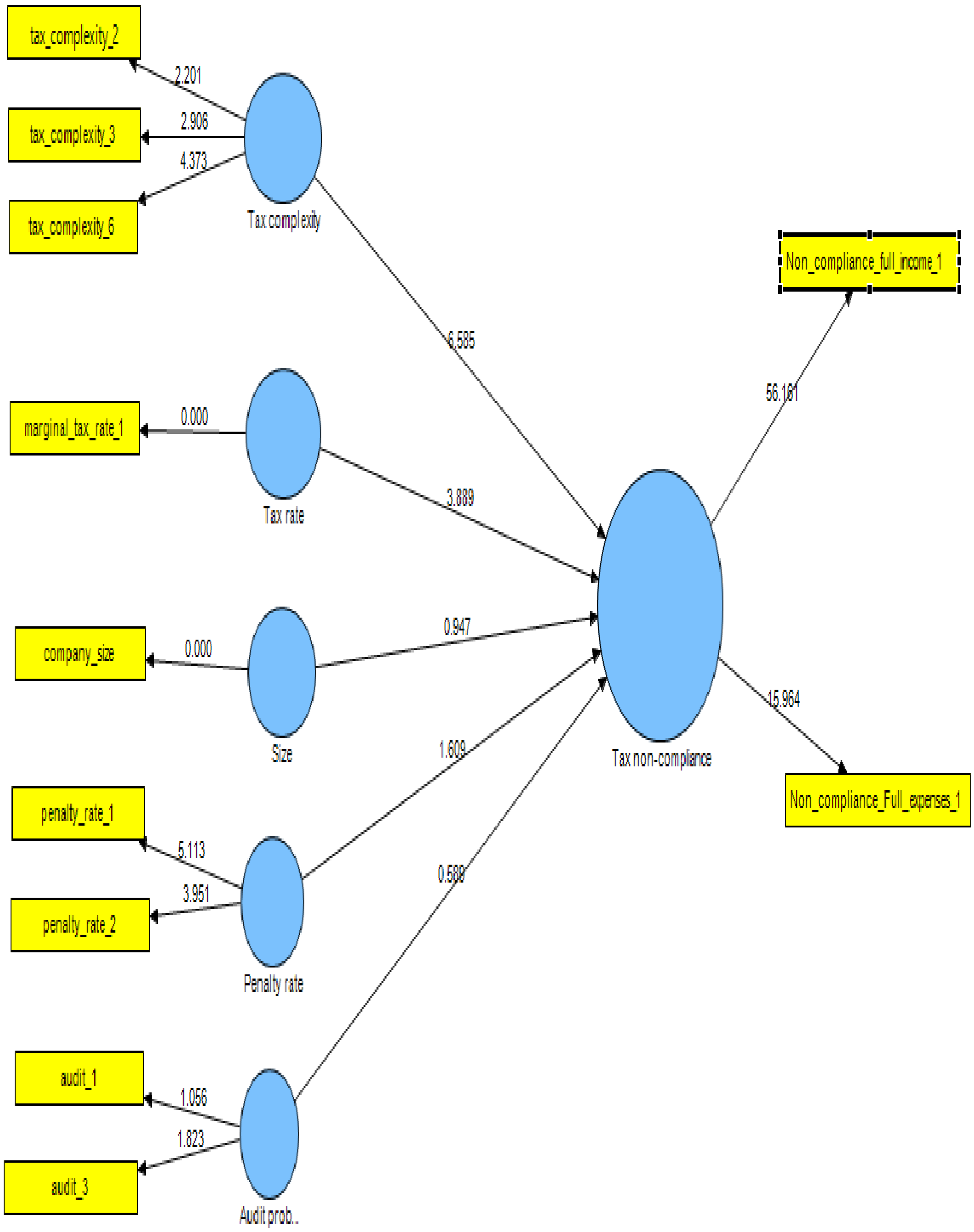

Figure 4: Results of Bootstrapping
Source: Constructed by Authors

4.5 Discussion

Hypothesis 1 (H1) stated that there is a relationship between tax complexity and corporate tax non-compliance in Sri Lanka. The results derived confirmed a positive significant relationship with tax complexity and corporate tax non-compliance. The findings of this study are consonant with the findings of Abdul Jabbar (2009), McKerchar (2002), Thomas and Ferrier, (2003) and Blanthorne and Kaplan (2008).

Hypothesis 2 (H2) states that there is a relationship between marginal tax rate and corporate tax non-compliance in Sri Lanka. In this study H2 was supported confirming a positive significant relationship between marginal tax rate and corporate tax non-compliance in Sri Lanka. The findings are consistent with those of Rice (1992), Joulfian (2000) and Yusof, Ling and Wah (2014) who found that tax rate positively influences corporate tax non-compliance behaviour.

This study does not indicate a relationship between company size and corporate tax non-compliance in Sri Lanka. However, earlier studies have reflected mixed evidence. Tedds (2010) and Nur-Tegin (2008) found that company size was negatively associated with tax non-compliance. Mohd Nor et al. (2010) found a positive relationship between company size and tax non-compliance. However, according to Abdul Jabbar (2009), there is no relationship between company size and tax behaviour.

Further, this study does not support H4 that there is a relationship between the tax complexity and corporate tax non-compliance in Sri Lanka. According to Forest and Sheffrin (2002) also, simplifying the tax system might not be an effective deterrent to tax evasion. However, Abdul- Jabbar (2009) observed that tax non-compliance increases as tax complexity increases. McKerchar (2002), Thomas and Ferrier, (2003) and Blanthorne and Kaplan (2008) found a positive association between complexity and tax non-compliance

Sapiei, Kasipillai and Eze (2014) found that higher audit coverage is an effective deterrent to corporate tax non-compliance. In contrast, according to the studies of Kirchler, Hoelzl and Wahl (2008), the probability of tax audits positively affecting compliance is weak. However, this study does not support H5 that there is a relationship between audit probability and corporate tax non-compliance in Sri Lanka.

5 CONCLUSION

This study aimed to discern the level and the determinants of tax non-compliance in Sri Lanka. In Sri Lanka the percentage of income tax contribution to total government revenue and to GDP has shown a declining trend for a long period of time. Data was collected through a questionnaire distributed among the tax experts of the Big Four firms in Sri Lanka, namely, KPMG, EY, PwC and Deloitte in Sri Lanka.

This study provides an empirical evaluation of the level and determinants of corporate tax non-compliance, namely, tax complexity, marginal tax rate, penalty rate, company size and audit probability. The completed questionnaires were analyzed using SPSS and Smart PLS software. According to this study, tax non-compliance is at moderate level in Sri Lanka and confirms that tax complexity and marginal tax rate influence tax non-compliance in the corporate sector. Further, this study is consistent with the literature review.

The findings of this study will help policymakers in formulating policies, rules, laws and regulation execution. Such formulations can simplify the tax system and the marginal tax rate. Moreover, this will help the tax authorities in IRD to develop an effective and efficient tax system in Sri Lanka. Apart from simplifying the tax system, IRD should consider improving its public relations strategies and developing a more comprehensive taxpayer bond, as practiced in most developed countries. Further, this study presents directions for future studies in order to enhance tax compliance. Dealing with taxation matters, administrative flaws and a lack of government commitment to enforcing tax law are some of these concerns.

This study has certain limitations. One is that it is limited to the corporate sector taxation. Therefore, it is possible that the results of this study may only be applicable to the corporate sector and not to individuals and small and medium corporates since they have different characteristics. The most apparent limitation of this study is that it relies on tax experts' opinion to collect data which will lead to inaccuracies in the data and in the conclusions. Further, this study is limited to the Sri Lanka context and the opinions of other stakeholders could be considered in future studies.

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THE IMPACT OF AUDIT QUALITY ON THE DEGREE OF EARNINGS MANAGEMENT: AN EMPIRICAL STUDY OF SELECTED SRI LANKAN LISTED COMPANIES

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Abstract

The underlying notion that the earnings reported are reliable is questioned when earnings are managed to create a falsified picture. Sri Lanka has witnessed several scandals in the past such as the fall of Pramuka Bank, Touchwood Investments and Golden Key PLC and other scandals. Auditors of such companies were publicly accused in certain instances of failure to act ethically and with due care. In this backdrop, this paper aims to identify the impact of audit quality on earnings management in selected Sri Lankan listed firms. Two proxies were used to measure audit quality (audit firm size and audit independence) and three different measures (discretionary accruals, small positive earnings and earnings smoothing) were used to capture the degree of earnings management. The sample examined consisted of 141 non-financial companies from 2013/14 to 2015/16 and the results indicated an insignificant association between audit quality and the degree of earnings management as well as between earnings management and governance variables; audit committee independence, board size, board independence and CEO duality. The study concludes that audit quality exerts no significant impact on the degree of earnings management in Sri Lankan listed companies, which indicates the need to strengthen the audit mechanisms to prevent such opportunistic behaviour. The findings of this study are expected to be particularly useful to shareholders when appointing/reappointing auditors and to be mindful about financial reporting quality when making effective investment decisions, and to regulators and policymakers to better regulate the quality of audit services and take necessary measures to mitigate the practice of earnings management.

Key words: Audit Quality, Earnings Management, Discretionary Accruals

1 INTRODUCTION

Accounting information in the form of reported earnings form the bedrock of investor decision making. Okolie (2014) reiterates that earnings act as a mechanism to signal and direct resource allocation in capital markets as the theoretical value of equity is the present value of the entity’s future earnings. Therefore, as explained in the Signalling Theory, reported earnings of a company communicate information regarding corporate performance, and is the basis on which investment and allocation decisions are made.

Weil (2009) defines earnings management as the manipulation of reported income through accounting practices and decisions. Accounting is an evolving subject, which adapts to changing business structures and innovative transactions (Levitt 1998). This feature of adaptability stems from the flexibility allowed by the accounting standards to exercise professional judgment. Accounting standards as a regulating mechanism exert rather limited control on accountants' judgment. However, Alves (2013, p. 144) stresses that this inherent pliancy is misused by managers to present falsified information. Managers exercise their professional judgment from an opportunistic perspective rather than efficiency, to create a contrived picture of profitability.

Auditing is a monitoring mechanism implemented to overcome the agency problem and ensure the pliancy offered through accounting standards is not used opportunistically. A strong auditing practice is necessary to support the orderly functioning of the reporting system (Paulson 2007). However, the collapse of companies such as Enron, WorldCom, and Tyco, which recorded excellent earnings growth in their audited financial statements, raised doubts over the quality of the audit, performed. The study conducted by Carcello and Palmrose (1994) showed that 70% of the recorded bankruptcies were preceded by a clean audit opinion. The Enron scandal, which led to the fall of Arthur Anderson, is a notable black mark that affected the public's trust in audit quality. The fall of Arthur Anderson on grounds of obstruction of justice in the Enron Scandal, the lawsuit against another Big Auditor over Lehman Brothers audit by the company's investors (Wiggins, Piontek & Metrik 2014) and failure of the auditors of Satyam (India) to verify the existence of assets and occurrence of revenue (Arens, Elder & Beasley 2010) raised concerns about auditors' role, responsibility and quality of audit and role of audit in restraining earnings management. Such a situation also creates an audit expectation-performance gap, which is also found to be prevalent in Sri Lanka to a certain extent (Jayasena, Ajward & Dissabandara 2017).

External auditors and audit committees are criticised publicly as such scandals provided evidence that audited financial statements were misrepresented. Several studies were conducted in order to find out whether there was an association between audit quality and earnings management. However, they failed to report consistent results (Inaam & Khamoussi 2016). Moreover, Alzoubi (2016) highlights that extant studies examining the relationship between audit quality and earnings management have been largely based on developed economies while studies based on developing economies remain scarce. In this context, this study attempts to address the fundamental issue of whether audit quality influences the practice of earnings management with evidence from Sri Lanka. The objective is to examine the impact of audit quality on the degree of earnings management in quoted public companies in Sri Lanka.

The other sections of the study are structured as follows: the next section discusses the extant literature followed by a discussion of the research approach, the sample and the analysis in the subsequent section. Section four presents the key findings of the study, and the conclusions, limitations of the study and future research directions are presented in the final section.

2 THEORETICAL FOUNDATION AND LITERATURE REVIEW

This section discusses and reviews the extant literature relevant to the study. First, the concept of earnings management and audit quality is reviewed followed by literature relevant to the conceptual and empirical relationship between audit quality and earnings management.

2.1 Definition of Concepts

Earnings Management

Managed earnings reflect the desires of the management rather than the true consequences of the management's decisions (Levitt 1998). Many of the prior studies (Alzoubi 2016, Dechow & Skinner 2000, Okolie 2014) use the definition put forward by Schipper (1986, p. 92), which defines earnings management as a 'purposeful intervention in the external financial reporting process with the intent of obtaining some private gain'. Healy and Wahlen (1999, p. 368) define earnings management as a concept which 'occurs when the managers use judgement in financial reporting and in structuring transactions, to alter financial reports. This definition by Healy and Wahlen highlights the two broader categories of earnings management: real earnings management and accrual earnings management.

Real earnings management involves manipulating the timing of operating, investing and financing activities, which affect cash flow directly (Inaam & Khamoussi 2016). Accruals earnings management, on the other hand, has no direct impact on cash flow (Healy & Wahlen 1999). It is where the managers use judgement and methods of financial reporting to manipulate financial reports with no direct impact on the cash flow. The degree of flexibility offered by the financial reporting framework allows managers to use their own judgement, which, in turn, creates an opportunity for earnings to be managed. Healy and Wahlen emphasize that this manipulation is commonly done through accounting judgements such as useful lives, asset impairment, scrap value and obligation of pension benefits or through accounting methods such as depreciation policy or inventory valuation methods. Fernando and Kelum (2011, p. 66) stress that the listed companies in Sri Lanka commonly use depreciation charge and provision for income tax to manage their earnings.

Audit Quality

Most studies conducted on audit quality begin with the commonly cited definition of De Angelo (1981) on audit quality, who defines quality of the audit service as the 'market assessed' total probability that an auditor can discover and report a breach. This definition highlights two essential components of audit quality: detecting and reporting. Further, it stresses that audit quality depends on the eye of the beholder. Audit quality is 'market assessed' as different users perceive it from different viewpoints. Users of the audited financial statements would gauge audit quality to the extent to which it is free from material misstatements whereas the auditor conducting the audit would measure it based on the audit methodology used (Knechel et al., 2013). This was considered a weakness of the definition.

Nevertheless, this definition was widely accepted probably due to the prevalent audit environment at that time. Many other definitions were very similar to DeAngelo's. For example, Palmrose (1988) states a similar description where audit quality is associated with an absence of material misstatements or omissions in the financial statements. Further, Davidson and Neu (1993) defined audit quality as the auditors' ability to discover and bring to light material manipulations and misstatements in reported earnings. Proxies or indicators of audit quality were also in line with the definitions where the focus was mainly auditor centric. Most commonly used proxies were auditor size and auditor independence (Becker et al., 1998; De Angelo 1981; Palmrose 1988). Auditor size was captured through the type of auditor based on the quality differential between the Big audit firms and non-Big audit firms. Audit fee was used as a proxy to gauge audit independence based on the argument of the economic bond and as a measure of audit effort (higher effort, higher fee).

The following sections focus on the conceptual and empirical association between audit quality and earnings management.

2.2 Conceptual Association between Audit Quality and Earnings Management

In terms of the conceptual association, the Agency Theory provides the fundamental basis for examining the association between audit quality and earnings management. The Agency Theory explains that the principal delegates responsibility to the agent, expecting the agent to achieve principal's interests. However, when incentive and opportunity to maximize the agent's own benefit exists, the agency problem is created (Beaudoin et al., 2012). Accordingly, the agency problem refers to the incongruence between the principal and agent's interests. Earnings management is one that stems from such agency problem. Beatty and Harris (1998) note that opportunity for earnings management is created by informational asymmetry. When managers have full access to the company's information compared to the shareholders, an opportunity is inherently created to manipulate. In order to avoid the costs of the agency problem, several measures such as maintenance of accounting records, timely and relevant information for shareholders and external monitoring of the stewardship function are adopted (Beatty & Harris 1998). Such external monitoring creates the function of the audit. Alzoubi (2016) too reiterates that the agency problem stemming from ownership and control segregation led to the request for a statutory audit. By adapting a quality monitoring mechanism through audit, sub-optimal behaviour can be restrained. Thus, on a theoretical basis, audit quality and earnings management are inversely related.

2.3 Empirical Association between Audit Quality and Earnings Management

Several empirical studies have been conducted globally to comprehend the role and influence of audit quality on earnings management. However, the existing literature reveals has delivered contradictory findings.

2.3.1 Audit Firm Size

The use of audit firm size as a proxy to gauge audit quality was a widely debated area. The standpoint of audit quality being dependent on audit firm size was criticized and considered unfair (Barnett & Danos 1979, cited in DeAngelo 1981). It was argued that audit firm size does not affect audit quality because all firms adopt uniform professional standards irrespective of size. However, DeAngelo (1981) argues that with all other factors being constant, size alone affects the auditor's incentives to act opportunistically. Hence, larger audit firms provide a higher level of audit quality as they have 'more to lose'. This justifies the use of auditor size as a proxy to represent audit quality.

However, researchers have also reported a positive relationship between audit firm size and earnings management, indicating that larger audit firms support the earnings management practices of its clients. The study conducted by Alves (2013), which sampled 33 non-financial quoted companies in Portugal from 2003-2009, revealed that with a confidence level of 95% there was a significantly positive relationship between firms audited by the Big Four and earnings management, indicating that companies audited by the Big Four have a higher chance of reporting managed earnings. This may indicate the ineffectiveness of the Big Audit Firms in restraining earning management activities. Further, the findings corroborate the scandals and collapse of several corporate entities that were clients of the Big firms. Furthermore, Li and Lin (2005) in their study examining the relationship between audit quality and earnings management using US data found a similar relationship of companies with more earnings restatements being audited by the Big Five audit firms of that time. Lin, Li and Yang (2006) generated a similar empirical result, implying that more earnings management practices were followed by the clients of the Big Five audit firms. However, it must be emphasized that Li and Lin (2005) and Lin, Li and Yang (2006) used earnings restatements to measure earnings management as opposed to the other studies which used discretionary accruals.

In contrast to the above, several studies empirically displayed a significant negative association between the two variables. The fundamental assumption is that the larger the audit firm, the greater are its incentives to discover financial irregularities. When audit firms are larger, the partners of the firms will be scrutinized more about their practices, as pointed out by Watts and Zimmerman in 1981 (cited in Alves 2013). Hence, firms would take steps to manage their brand and reputation by avoiding legal liability (Behn, Choi & Rang 2008) and would lose the firm's identity and threaten survival in case of an audit failure (Bauwhede & Willenkens 2004), which can be similar to the consequences of the collapse of Arthur Anderson. This, in turn, will make the Big Audit firms more cautious in detecting and reporting any earnings management practices of its clients to prevent audit failures. The study conducted by Rusmin (2010) revealed a negative association between audit quality and earnings management in Singaporean listed firms. It concluded that the magnitude of earnings management is significantly lower in companies that are audited by the industry specialist audit firm was well as in companies audited by the Big Four audit firms. Similar findings were evident in a study conducted on 367 Taiwan IPO companies, which showed that higher quality auditors (i.e. the Big Five operating in Taiwan) constrain earnings management (Chen, Lin & Zhou 2005). Furthermore, similar results were generated by Becker et al. (1998); Balsam, Krishnan and Yang (2003) and Jordan, Clark, and Hames (2010) using US data, Gore, Pope and Singh (2001) using evidence from the UK, Gerayli, Yanesari and Ma'atoofi (2011) by providing evidence from Iran, Okolie and Izedonmi (2013) using Nigerian listed companies, Tendeloo and Vanstraelen (2008) using data from Europe and by several others (Gul, Tsui & Dhaliwal 2006; Lin & Hwang 2010).

On the other hand, several types of research reports revealed no significant relationship between Big Audit firms and earnings management. Piot and Janin (2007) concluded in their study, which sampled 102 non-financial firms in France, that the presence of the Big Five auditors made no difference or impact on earnings management activities in France. Further, Rahman and Ali (2006) found no statistically significant relationship between Big Audit firms and earnings management based on its sample of the top 100 companies in Bursa Malaysia Main Board.

Maijoor and Vanstraelen (2006) studied the impact of the national audit environment, audit firm quality and nature of capital markets on earning management practices using the European nations -France, Germany and the UK- between 1992 to 2000. The study concluded that a stricter audit environment and stringent environment of investor protection is essential to improve audit quality and Big Audit firm conservatism. The results of the study revealed that the Big Four Audit firms do not appear to constrain earnings management in the sampled companies in France and Germany, as the institutional setting in terms of both audit environment and investor protection was weak in the stated nations.

Ching et al. (2015) reported similar findings in their study, which revealed that audit firm size does not affect earnings management in Malaysian public listed companies. Their study emphasized that its results were different from the findings in the extant literature because the audit environment of Malaysia is different from that of developed nations such as the US and the UK. Ching et al. (2015) noted that the presence of a weak institutional environment with no stringent rules or oversight over audit firms does not provide a stimulus for the firms to improve audit quality.

Further, analyzing the Big Four auditors' audit quality and earnings management based on data gathered from the Turkish Stock market, Yasar (2013) concluded that there was no difference in audit quality between the Big Four and the Non-Big four audit firms in restricting earnings management, and therefore, audit firm size as a surrogate of audit quality had no impact on discretionary accruals. Once again, the reason for there being no significant impact was attributed to the weak institutional environment in Turkey.

2.3.2 Audit Independence

Auditors must be independent both in fact and in appearance. According to Lin and Tepalagul (2015), the extant literature highlights the client's importance as one of the four threats to audit independence. The client's importance measures the extent to which the auditor is financially dependent on the client. DeAngelo (1981) notes that when the audit firm receives its fee, it creates a financial bond between auditor and client.

When a major portion of an audit firm's total fee revenue is received by one client, the audit firm becomes more of a 'stakeholder' interested in the survival of the client's business and in retaining the client. The fee received by an audit firm could be either audit-related fees or non-audit fees for other services provided to the client such as tax consultancy, advisory services, etc. This study measures auditor independence through audit fees due to inadequate disclosure of non-audit fees in annual reports.

Lin and Hwang (2010, p.70), based on the meta-analysis they conducted, state that studies on the relationship between audit fees and earnings management have delivered mixed results. Gerayli, Yanesari and Ma'atoofi (2011) observed an inverse relationship between audit independence and audit fees where large (small) values of audit fees imply low (high) audit independence. Hence, a negative relationship between audit independence and earnings management is reflected in a positive relationship between audit fees and earnings management.

Li and Lin (2005), in their study support the claim that higher fees, audit or non-audit, would create or improve the economic bond between the auditor and client and thus affect their independence and reduce the quality of reported earnings (i.e. higher earnings management). The study examined the relationship between audit, non-audit and total fees and earnings restatement and reported a significantly positive relationship between audit fees and earnings restatement in a sample of 351 companies (they matched each of the 117 restatement sample firms with two non-restatement firms based on firm size and the four-digit SIC Code). Lin, Li and Yang (2006) also reported a positive association between audit fees and earnings restatements using US data based on a sample of 106 restatement firms and 106 control firms.

Antle et al. (2006) reported a significant positive and robust effect of audit fees on earnings management in both the UK and the US. Their findings also supported the position that higher audit fees led to more bias by auditors to accept earnings management practices by their clients. Alzoubi (2016) produced evidence that the level of earnings management is significantly lower in companies audited by independent auditors who were less dependent on the client (i.e., lower audit fees). This is also supported by the research conducted in Nigeria on 57 quoted companies covering the period 2006 to 2011, where audit independence was found to be restricting earning management practices (Okolie 2014).

It is evident that the above studies, which reveal a positive relationship between audit fees and earning management, follow the notion of DeAngelo (1981) of "economic-bonding" due to high reliance upon the client. Holm and Zaman (2012) state that auditors tend to prioritize the interest of the clients as it affects their career progression and due to commercialization of auditing, where auditors are increasingly focusing on winning and retaining their clients.

However, some studies have also reported a negative relationship between audit fees and earnings management (Habbash 2010, Lin & Hwang 2010). The fundamental justification for such a negative relationship is that higher audit fees resemble higher effort (i.e. higher audit quality) and hence a lower degree of earnings management. It must be noted that this notion relies on audit effort/hours rather than audit independence to explain the negative relationship between audit fees and earnings management. The researchers did not come across any study that found a positive relationship between audit independence *itself* and earnings management. This indicates that when referring to the relationship between auditor independence and earnings management, a positive relationship between the aforementioned variables is unlikely and thus may lack theoretical merit.

Srinidhi and Gul (2007) reported a positive association between audit fee and accrual quality, implying a negative association with earnings management that is operationalized based on accruals. Habbash (2010) also reported a significantly negative relationship between audit fees and earnings management using data from the UK, where it was revealed that as audit fees by a client increases, the degree of earning management decreases. Additionally, Lin and Hwang (2010) also revealed results that are consistent with the view that higher effort by the auditor results in higher working hours, which, in turn, result in higher audit fees and thus in less occurrence of earnings management.

Chung and Kallapur (2003) found no statistically significant relationship between any of the client importance ratios (ratios which measure the extent to which the auditor is financially dependent on the client, based on total fees, audit fees and non-audit fees), including audit fees and discretionary accruals in the study conducted based on 1,871 sample companies belonging to 54 diverse industries. Ching et al. (2015) also reported similar findings using data from Malaysian public listed companies from 2008 to 2013, where the results revealed no statistically significant relationship between audit fees and earnings management. The observed association was attributed to the weak audit environment in Malaysia compared to that of the US and the UK.

2.4 Theoretical Gap

Though studies have addressed this research issue in various contextual backgrounds, the extant literature reveals mixed results in terms of the said association. Further, the researchers note that there are limited published studies in the area of audit quality and earnings management in Sri Lanka. To the researchers' knowledge, there exists a notable lack of published studies that examine the relationship between audit quality and earnings management in Sri Lanka. Therefore firstly, the theoretical contribution of this study is its contribution to the extant knowledge by bridging the above-mentioned gap as it provides a wider perspective of the concept and analyses the relationship between audit quality and degree of earnings management in public listed companies in Sri Lanka. Thus, it is hoped that this study will contribute to the extant local literature and fill the gaps observed. The next section explains the methodology adopted in this study.

3 RESEARCH METHODOLOGY

This section presents the research approach, the data and sample selection process followed by the conceptual model of the study and the definitions and measurements of the variables. Finally, the paper explains the analytical strategies deployed in the study.

3.1 Research Approach

The main objective of this study was to assess the relationship between audit quality and degree of earnings management and thus a quantitative approach within a positivistic paradigm was utilized, which is also used in similar extant studies. The data used in the study is secondary data obtained from the published audited annual reports of the sample companies available in the website of the Colombo Stock Exchange (CSE).

3.2 Population and Sample

The population of the study is the listed companies in the CSE. As at 30th September 2016, 291 entities had been listed on the CSE. Out of such a population, this study focused on the non-financial companies whose final year ends on 31st March. The study covers the recent three-year period ending on 31st March 2013 to 2016, as its sample period. The sample consisted of 141 non-financial companies listed in the CSE, with a total of 423 observations (see Table 1).

Table 1: Sample Selection

Description	Number
Firms listed in CSE as at 30th Sept. 2016*	291
(Less)	
Financial Companies and Mutual Funds Listed in the CSE	67
Listed Firms Operating with December as FY end.	36
Change of Auditors (from Non-Big Three to Big Three)	1
Newly Listed Entities	4
Companies under the Following Categories**	21
Companies with Insufficient Information to Construct Proxies	3
Companies in Unqualified Sectors	18
Final Sample Used for Statistical Analysis	**141**

* This excludes companies delisted during the research period.

** Default Board, Dealing suspended, Trading suspended and Trading halt categories

Source: Constructed by Authors

3.3 Conceptual Framework

Figure 1 below elaborates the conceptual framework of the study based on the literature review discussed in Section 2 above.

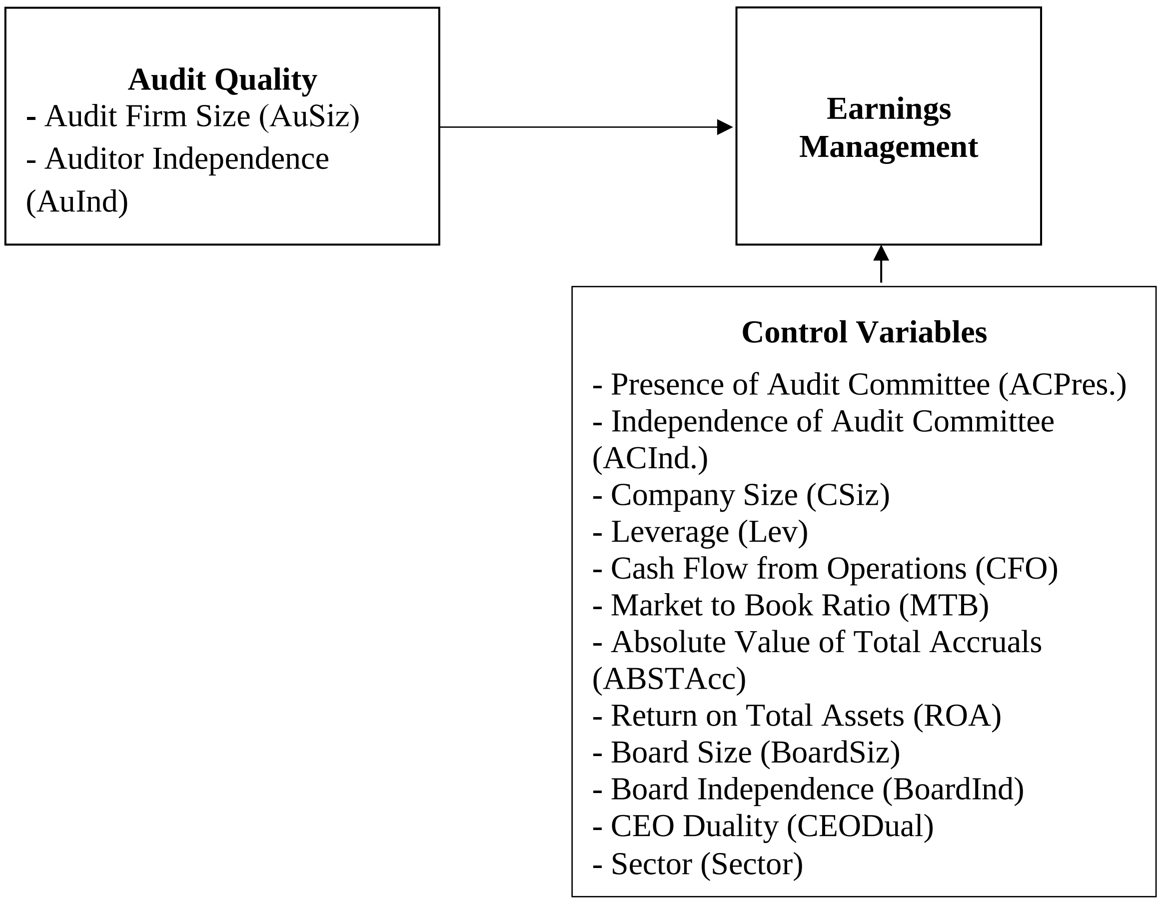

Figure 1: Conceptual Diagram

Source: Constructed by Authors

3.4 Operationalization

This study uses discretionary accruals as the measure for earnings management. Modified Jones Model is the commonly used technique to calculate discretionary accruals (Chen, Lin & Zhou 2005; Maijoor & Vanstraelen 2006; Rusmin 2010; Alves 2011; Yasar 2013). Along with discretionary accruals, the study also uses two additional proxies to measure earnings management; small positive earnings and earnings smoothing. Small positive earnings attempt to identify the presence of earning management practices to avoid reporting earnings decreases or losses (Burgstahler & Dichev 1997). The underlying concept as highlighted by Barth, Landsman, and Lang (2008) is that the management of the company prefers to report positive earnings than negative earnings. This proxy is measured using the variable $SPOS_{i,t}$, a dummy variable that will be "1" if net income scaled by total assets is between 0 and 0.01 and "0" otherwise.

The next proxy used in the study is earnings smoothing. Earnings smoothing is an act of earnings management where variability in net income is minimized in order to reflect a steady performance. While earnings smoothing can be measured through the variability of change in net income alone, this study measures earnings smoothing as a ratio between variability of change in net income to the variability of change in cash flow from operations. This enables to control for volatile cash flows. Companies with high volatility in cash flow experience a high volatility in net income as well. If discretionary accruals are used to manage such volatile earnings, the variability in net income becomes much lesser than the variability in cash flows (Barth, Landsman & Lang 2008). Hence, a lower ratio in the variability of change in Net income to the variability of change in cash flow from operations provides evidence of smoothing company earnings (Barth, Landsman & Lang 2008; Dechow, Ge & Schrand 2010).

Table 2 below depicts the measurement techniques of the selected dependent, independent and control variables.

Table 2: Variables and Their Measurement Techniques

Variables	Denotation	Variable Description
Absolute Value of Discretionary Accruals	AbsDACC_{it}	Absolute value of discretionary accruals of company *i* for year *t* using modified Jones model (Deflated by lagged total assets).
Small Positive Earnings	SPOS_{it}	"1" if net income scaled by total assets is between 0 and 0.01 and "0" otherwise.
Earnings Smoothing	$\text{SMTH}_{\boldsymbol{it}}$	Absolute change in net income divided by the change in cash flow from operations.
Audit Firm Size	AuSiz_{it}	"1" if auditor is a member of Big Three, "0" otherwise.
Audit Independence	AuInd_{it}	Natural logarithm of audit fees of company *i* for year *t*.
Presence of An Audit Committee	ACPres_{it}	"1" if company has an audit committee, "0" otherwise.
Audit Committee Independence	ACInd_{it}	Ratio of Independent Non-executive committee members to total audit committee members.

Company Size	CSiz_{it}	Natural logarithm of Total assets of company *i* for year *t*.
Leverage	$\text{Lev}_{\boldsymbol{it-1}}$	Total Liability of company *i* for year *t* divided by Total assets of company *i* for year *t*-1.
Cash Flow from Operations	$\text{CFO}_{\boldsymbol{it-1}}$	Net cash flow from operations of company *i* for year *t* divided by Total assets of company *i* for year *t*-1.
Market to Book Value	MTB_{it}	Market capitalization of company *i* at the end of year *t* divided by total equity of company *i* for year *t*.
Absolute Value of Total Accruals	AbsTAcc_{it}	Absolute value of Total Accruals of company *i* for year *t*.
Return on Assets	ROA_{it}	Earnings before Interest and Tax of company *i* for year *t* divided by Total Assets of company *i* for year *t*.
Board Size	BoardSiz_{it}	Total number of board members of company *i* for year *t*.
Board Independence	BoardInd_{it}	Ratio of independent non-executive directors in the board to total board members of company *i* for year *t*.
CEO Duality	CEODual_{it}	"1" if the roles of the CEO and Chairman are combined, and "0" otherwise.
Sector	Sector	10 Dummy variables as the study examines 11 industries, which take a value between "1" if a company belongs to a sector and "0" otherwise.

Source: Constructed by Authors

3.5 Hypotheses

Negative association between audit firm size and degree of earnings management was reported notably by Rusmin (2010) using evidence from Singapore, Chen, Lin & Zhou (2005) using evidence from Taiwan, Gore, Pope and Singh (2001) using evidence from the UK, Gerayli, Yanesari and Ma'atoofi (2011) by providing evidence from Iran, and by several others (Gul, Tsui & Dhaliwal 2006; Lin & Hwang 2010). Based on the literature, the following hypothesis was formulated and tested in the study.

H_1: Audit firm size is significantly negatively associated with degree of earnings management.

The following hypothesis was also formulated and tested in the study, based on following literature. Negative association between audit independence and degree of earnings management was reported by Li and Lin (2005) and Lin, Li and Yang (2006) by using US data, Antle et al. (2006) using evidence from both UK and the US and Alzoubi (2016) using evidence from Jordan.

H_2: Auditor independence is significantly negatively associated with degree of earnings management.

3.6 Analytical Strategies

In analysing the data, first, the data was screened and cleaned, and methods such as descriptive statistics, correlation analysis, multivariate regression analysis and univariate analysis were used to measure the levels of the audit quality and the degree of earnings management and to assess the association between them. These techniques were selected based on the extant literature (Chen, Lin & Zhou 2005, Rusmin 2010, Gerayli, Yanesari & Ma'atoofi 2011, Alves 2013, Alzoubi 2016). A brief description of the methods used is given below:

Descriptive Statistics

Descriptive statistics of all variables were generated to provide a general overview of the characteristics of the sample as well as to measure the levels of audit quality and earnings management. Descriptive statistics included the mean, median, standard deviation, maximum, minimum, skewness and Kurtosis values for each variable.

Correlation Analysis

Correlation analysis was used to analyse the relationship between all variables to identify the degree, direction and significance of the association. Both Pearson and Spearman correlations were estimated. These analyses were performed to identify for any significant and strong association between the variables and to observe any indications of multicollinearity in the case of strong relationships between the independent variables of the study.

Multivariate Analysis

The advantage of performing a multivariate analysis is that it considers the influence of several variables on the dependent variable together, rather than merely considering the influence of one variable alone. The study uses both Pooled (OLS) and Panel regression to test the hypotheses developed in the study. Further, in performing the panel regression analysis, the Hausman test was performed to control for fixed and random effects.

The following regression models were used in the study. Each model has a different proxy representing earnings management as its dependent variable while the other variables remain the same. This was done in order to improve the robustness of the findings generated and to ensure the validity of the results. The variables are defined in Table 2 above.

<u>Model A: Discretionary Accruals</u>

$$\begin{aligned}\mathrm{DACC}_{it} = {} & \beta_0 + \beta_1\,\mathrm{AuSiz}_{it} + \beta_2\mathrm{AuInd}_{it} + \beta_3\mathrm{ACPres}_{it} + \beta_4\mathrm{ACInd}_{it} + \beta_5\mathrm{CSiz}_{it} \\ & + \beta_6\mathrm{Lev}_{it-1} + \beta_7\mathrm{CFO}_{it-1} + \beta_8\mathrm{MTB}_{it} + \beta_9\mathrm{ABSTAcc}_{it} + \beta_{10}\mathrm{ROA}_{it} \\ & + \beta_{11}\mathrm{BoardSiz}_{it} + \beta_{12}\mathrm{BoardInd}_{it} + \beta_{13}\mathrm{CEODual}_{it} + \beta_{14}\mathrm{Sector} + \varepsilon_{it}\end{aligned}$$

<u>Model B: Small Positive Earnings</u>

$$\begin{aligned}\mathrm{SPOS}_{it} = {} & \beta_0 + \beta_1\,\mathrm{AuSiz}_{it} + \beta_2\mathrm{AuInd}_{it} + \beta_3\mathrm{ACPres}_{it} + \beta_4\mathrm{ACInd}_{it} + \beta_5\mathrm{CSiz}_{it} \\ & + \beta_6\mathrm{Lev}_{it-1} + \beta_7\mathrm{CFO}_{it-1} + \beta_8\mathrm{MTB}_{it} + \beta_9\mathrm{ABSTAcc}_{it} + \beta_{10}\mathrm{ROA}_{it} \\ & + \beta_{11}\mathrm{BoardSiz}_{it} + \beta_{12}\mathrm{BoardInd}_{it} + \beta_{13}\mathrm{CEODual}_{it} + \beta_{14}\mathrm{Sector} + \varepsilon_{it}\end{aligned}$$

Model C: Earnings Smoothing

$$\text{SMTH}_{it} = \beta_0 + \beta_1 \text{AuSiz}_{it} + \beta_2\text{AuInd}_{it} + \beta_3\text{ACPres}_{it} + \beta_4\text{ACInd}_{it} + \beta_5\text{CSiz}_{it} + \beta_6\text{Lev}_{it-1} + \beta_7\text{CFO}_{it-1} + \beta_8\text{MTB}_{it} + \beta_9\text{ABSTAcc}_{it} + \beta_{10}\text{ROA}_{it} + \beta_{11}\text{BoardSiz}_{it} + \beta_{12}\text{BoardInd}_{it} + \beta_{13}\text{CEODual}_{it} + \beta_{14}\text{Sector} + \varepsilon_{it}$$

Additional Tests – Univariate Analysis

The study used univariate analysis to support the findings from the above tests. The t-test examined whether the means of two groups were statistically different from each other. Both parametric (Independent sample t-test) and non-parametric (Mann-Whitney U test) were used to analyse whether the influence of the Big Three and the Non-Big Three audit firms on earnings management was statically different.

The findings and discussion are given in the following section.

4 FINDINGS AND DISCUSSION

This section presents the findings based on the analytical strategies referred to in the preceding section and a discussion of those findings. The descriptive statistics applied to the sample are presented in Table 3.[3]

Table 3: Descriptive Statistics (N = 432)

Variable	Mean	Min.	Max.	Median	S.D.	Skewness	Kurtosis
Dependent Variables							
$\text{AbsDACC}_{i,t}$	0.110	0.002	0.648	0.060	0.149	2.602	9.461
$\text{SPOS}_{i,t}$	0.057	0.000	1.000	0.000	0.232	3.832	15.685
$\text{SMTH}_{i,t}$	1.440	0.033	8.397	0.571	2.195	2.206	6.865
Independent Variables							
$\text{AuSiz}_{i,t}$	0.887	0.000	1.000	1.000	0.318	-2.437	6.941
$\text{AuInd}_{i,t}$	6.463	5.247	7.925	6.416	0.750	0.328	2.243
Control Variables							
$\text{ACPres}_{i,t}$	1.000	1.000	1.000	1.000	0.000	.	.
$\text{ACInd}_{i,t}$	0.852	0.667	1.000	1.000	0.159	-0.174	1.096
$\text{Csiz}_{i,t}$	14.843	12.493	16.822	14.846	1.160	-0.221	2.415
$\text{Lev}_{i,t}$	0.336	0.015	0.792	0.304	0.243	0.350	1.962
$\text{CFO}_{i,t}$	0.052	-0.132	0.228	0.051	0.090	-0.013	2.731
$\text{MTB}_{i,t}$	1.656	0.432	5.089	1.279	1.231	1.482	4.567
$\text{AbsTAcc}_{i,t}$	0.067	0.002	0.228	0.047	0.063	1.191	3.480
$\text{ROA}_{i,t}$	0.073	-0.023	0.206	0.069	0.063	0.434	2.437
$\text{BoardSiz}_{i,t}$	8.196	3.000	15.000	8.000	2.110	0.485	3.235
$\text{BoardInd}_{i,t}$	0.386	0.222	0.571	0.375	0.103	0.236	2.069
$\text{CEODual}_{i,t}$	0.054	0.000	1.000	0.000	0.227	3.930	16.449

Source: Constructed by Authors

[3]The variables having outliers were subjected to winsorization at 5%.

According to the results, the absolute value of discretionary accruals ($AbsDACC_{i,t}$) of the sample has a mean value of 0.110 with a maximum of 0.648 and a minimum of 0.002. The results of the one sample t-test (not tabulated) indicate a t-statistic of 15.19 with a p-value of 0.000, which rejects the null hypothesis that the absolute value of discretionary accruals is equal to 0. This provides evidence that the listed companies in Sri Lanka do manage their earnings, which is supported also by the results of Fernando and Kelum (2011, p. 66).

As the mean value of absolute value of discretionary accruals reported in this study (i.e., 0.110) exceeds the threshold of 10% as indicated by Balsam, Krishnan, and Yang (2003), it is clear that the degree of earnings management in the sampled companies is economically significant. Further, the mean value is higher compared to the results recorded in Jordon of 9.3% (Alzoubi 2016) and in Malaysia of 5% (Rahman & Ali 2006), but is lower compared to22% reported in the US (Chung and Kallapur 2003) and 62% reported in Singapore (Rusmin 2010), respectively. The mean value of Small Positive Earnings ($SPOS_{i,t}$) indicates that 6% of the sample reported net income scaled by total assets between 0 and 0.01. Earnings smoothing ($SMTH_{i,t}$) highlights that on average, net income vary 1.44 times higher than the operating cash flow. However, the median indicates that 50% of the sample companies record less variability of net income to cash flow of 0.57. As stated earlier, a lower ratio in the variability of change in net income to the variability of change of cashflow from operations provides evidence of smoothing company earnings (Dechow, Ge & Schrand 2010). Hence, the median results imply that at least 50% of the sample companies engage in earnings smoothing practices.

In terms of the audit quality proxies, it is clear that 89% of the sample companies (mean: 0.887) are audited by the Big Three audit firms in Sri Lanka ($AuSiz_{i,t}$); KPMG, Ernst & Young and PriceWaterhouse Coopers, implying a Big Three domination in the segment of listed companies. This is a much higher proportion compared to the results of 81% in Malaysia (Rahman & Ali 2006), 86% in Singapore (Rusmin 2010), 83% in France (Piot &Janin 2007), 70% in Nigeria (Okolie & Izedonmi, 2013) and 47% Iran (Gerayli, Yanesari & Ma'atoofi 2011). The higher proportion could be due to the perceived higher audit quality of the Big audit firms.

Further, audit independence ($AuInd_{i,t}$) reports a mean of 6.5 with a standard deviation of 0.75. This indicates that there is no significant variation in terms of audit fees within the sample as it is clustered closely around the mean audit fee. This could be due to the sample being biased towards the Big Three audit firms. Moreover, the mean value for $ACPres_{i,t}$ (presence of an audit committee) suggests that all companies within the sample have had an audit committee throughout the research period. As there is no variation in the variable over the period considered, the variable was omitted from subsequent tests. In either case, the results do not reflect any changes.

With regard to the independence of the audit committee ($ACInd_{i,t}$), at least 67% of the committee comprises independent members. On average, 85% of the members of the audit committees of the sample are independent with a standard deviation of 0.16. This is a much higher proportion compared to 68% in Malaysia (Rahman & Ali 2006) and 34% in Jordan (Alzoubi 2016). Furthermore, 50% of the sampled companies operate with completely independent audit committees.

Company size indicates a mean value of 14.8 (natural logarithm of total assets) which indicates that the average size of the companies in terms of its total assets is approximately

Rs.2 bn with a minimum of Rs.0.3 bn and a maximum of Rs.20 bn. The median value of Leverage denotes that 50% of the sample operates with a gearing of less than 30% of its total assets. The companies record a marginally positive cash flow from its operations, which on average amounts to 5.2% of its beginning total assets. While this does indicate poor financial performance in terms of lower cash flow generation, it is consistent with the results of Taiwan (Chen, Lin and Zhou 2005), Iran (Gerayli, Yanesari and Ma'atoofi 2011) and Turkey (Yasar 2013).

Market to book ratio examines the growth prospects of the company. As per the descriptive statistics, the maximum reported market value of the sample is five times the book value of equity. The absolute value of total accruals is on average 7% of the opening assets with a maximum of 23%. The mean is consistent with the findings of Yasar (2013) but is much lower compared to 26% reported in Singapore (Rusmin 2010), 11% in the US (Balsam, Krishnan & Yang, 2003; Lin, Li & Yang, 2006).

The average performance of the companies is reported at a return on total assets of 7.3% while some manage to generate a return of 21%. This is consistent with the findings of Manawaduge, De Zoysa and Rudkin (2009). Furthermore, the companies within the sample operate with an average of eight directors on the Board and this could vary within a range of three to fifteen directors. The optimal board size of 7-8 directors, advocated by Lipton and Lorsch (1992), is adopted by 50% of the sampled companies. However, in terms of the Board's independence, on average only 39% of the Board comprise independent non-executive directors with the maximum being of 57% of the Board. This indicates that an average board size of eight would comprise five executive directors and three independent non-executive directors. Duality is recorded at an average of 0.054, indicating that 94.6% of the companies have separated the roles and duties of the Chairman and CEO. The balance 5.4% has not complied with the corporate governance best practice of separating the roles of the Chairman and CEO. However, this is an improvement on the findings of Palipana et al. (2015), who reported a mean value of 0.22 based on data from the financial years from 2010/11 to 2012/13, indicating that on average 78% of the companies operated with CEO Duality.

Table 4 presents the correlation matrix for the variables of this study. Despite the data not being normally distributed, both Pearson (lower bound) and Spearman correlation (upper bound) coefficients were performed in order to identify important relationships in terms of the direction and strength between the variables under consideration. It is evident that though there are correlations between the variables that are statistically significant, none exceeds 0.80. Hence, there are no highly correlated variables in the study. This indicates that there is no threat of multicollinearity.

Both hypotheses of the study are not supported under the Pearson and Spearman correlation analysis. The correlation between the absolute value of discretionary accruals ($AbsDACC_{i,t}$) and the audit quality proxies (audit size and audit independence) is statistically insignificant. The same is evident in terms of the correlation between small positive earnings ($SPOS_{i,t}$) and the audit quality proxies. However, though the correlation between earnings smoothing ($SMTH_{i,t}$) and audit quality proxies indicates a statically insignificant relationship under the Spearman correlation analysis, the results under the Pearson correlation, indicates that auditor independence has a weak negative statistically significant (at 90% confidence level) correlation with earnings smoothing.

Furthermore, the results indicate that audit size is positively correlated to audit independence with statistically significance at 99% confidence level. This implies that the Big Three audit firms tend to be independent. Audit firm size and audit committee independence are positively correlated (at 0.01 level of significance), which implies companies with more independent audit committees opt for the Big-Three audit firms (Alzoubi 2016).

The corporate governance variables (i.e. Board size and CEO Duality) indicate no statistically significant correlation with the earnings management proxies. An unexpected statistically significant (p<0.01) positive correlation was noted between the independence of the audit committee and discretionary accruals and the same statistically significant (p<0.10) positive correlation was observed between board independence and discretionary accruals. However, in both instances, the correlations reported are weak positive. According to the Agency Theory, the existence of independent directors within the board improves the monitoring function. The literature review also reveals that the presence of independent directors reduces earnings management within entities (Klein, 2002; Alzoubi 2016). A descriptive analysis revealed that nearly all companies operate with quite independent boards and audit committees. However, a significant positive relationship reported through correlation analysis poses the question whether the independence of directors is itself sufficient to curtail complex accounting manipulations compared to having accounting expertise *and* whether the members are *in fact* independent to control suboptimal behaviour.

Further, it is evident that a significant positive association exists between audit committee independence and board independence under both the Pearson and Spearman correlation analyses. This could imply that companies with higher board independence operate with highly independent audit committees as well.

The relatively strong correlation between the variables could be supported by the claim of Klein (2002), which stipulates that as the audit committee is a subcommittee of the Board, independent non-executive directors of the audit committee are also independent members of the Board itself. Hence, a higher correlation can be expected between the variables (Klein 2002).

For a multivariate analysis, both Pooled OLS regression and Panel regression were performed to improve the robustness of the results. Additional dummy variables for the years covered in the study and industry sectors were incorporated into the regression models in performing regression based on pooled OLS, to control for industry and time effects. Table 5 represent the results of the Hausman test, which was done to determine the selection of the fixed or random effect model for this study, which indicated that random effect model specification is preferred.

Table 4: Pearson (Lower Bound) and Spearman Correlation (Upper Bound) Correlation Matrix for Variables (N = 432)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. $AbsDACC_{i,t}$		-0.112**	-0.067	-0.020	-0.038	0.139***	-0.199***	0.268***	-0.152***	0.105**	0.649***	0.199***	-0.006	0.091*	-0.037
2. $SPOS_{i,t}$	-0.065		-0.073	-0.009	-0.040	-0.021	0.028	-0.094*	-0.143***	-0.062	-0.079	-0.247***	-0.018	-0.016	-0.059
3. $SMTH_{i,t}$	0.002	-0.053		-0.022	-0.014	-0.044	-0.027	-0.104**	-0.004	-0.013	-0.177***	0.082*	-0.010	-0.023	0.040
4. $AuSiz_{i,t}$	-0.029	-0.009	0.022		0.159***	0.122**	0.242***	-0.106**	-0.026	0.104**	-0.076	0.124**	0.002	0.094*	-0.013
5. $AuInd_{i,t}$	-0.013	-0.050	-0.088*	0.146***		0.076	0.595***	0.298***	0.116**	0.088*	-0.105**	0.100**	0.153***	-0.087*	-0.098**
6. $ACInd_{i,t}$	0.133***	-0.018	-0.001	0.124**	0.070		0.019	0.039	-0.048	-0.033	0.018	0.007	0.021	0.319	0.046
7. $Csiz_{i,t}$	-0.149***	0.017	-0.128***	0.245***	0.583***	0.013		0.053	0.003	0.008	-0.226***	0.026	0.158***	0.003	-0.054
8. $Lev_{i,t}$	0.207***	-0.078	-0.144***	-0.105**	0.296***	0.021	0.090*		-0.060	-0.017	0.266***	0.057	0.033	0.053	0.047
9. $CFO_{i,t}$	-0.224***	-0.112**	0.012	-0.016	0.090*	-0.055	-0.006	-0.107**		0.140***	-0.114**	0.464***	0.045	-0.068	-0.023
10. $MTB_{i,t}$	0.089*	-0.060	-0.002	0.137***	0.019	-0.040	-0.023	0.001	0.078		0.095*	0.252***	0.115**	-0.074	0.049
11. $AbsTAcc_{i,t}$	0.496***	-0.025	-0.019	-0.062	-0.142***	0.021	-0.221***	0.207***	-0.183***	0.164***		0.117**	0.038	0.053	-0.028
12. $ROA_{i,t}$	0.028	-0.229***	0.122**	0.108**	0.067	0.011	0.015	0.002	0.444***	0.218***	0.136***		0.055	-0.090*	0.014
13. $BoardSiz_{i,t}$	0.018	-0.008	0.005	0.005	0.160***	-0.002	0.183***	0.038	0.028	0.094*	-0.001	0.038		-0.130**	-0.172***
14. $BoardInd_{i,t}$	0.080*	-0.007	0.038	0.097**	-0.086*	0.302***	-0.006	0.043	-0.071	-0.094*	0.069	-0.100**	-0.142***		0.006
15. $CEODual_{i,t}$	-0.057	-0.059	-0.017	-0.013	-0.079	0.043	-0.077	0.052	-0.028	0.007	-0.001	0.006	-0.151***	0.004	

*$p < 0.10$, **$p<0.05$, ***$p<0.01$

*Definitions of the variables are indicated in Table 2.

Source: Constructed by Authors

Table 5: Hausman Test and Effect Model Results Under Panel Regression

	Model A	Model B	Model C
	AbsDACC	**SPOS**	**SMTH**
Chi-sq. Statistic (Prob>chi2)	0.1335	0.5331	0.3444
Appropriate Effect Model	Random	Random	Random

Source: Constructed by Authors

Table 6 presents the results of the regression for Discretionary Accruals (Model A), while Table 7 and 8 represents the results of the regression for small positive earning – $SPOS_{i,t}$ (Model B) and the results of the regression for earnings smoothing - $SMTH_{i,t}$ (Model C).[4]

Under both Panel and Pooled OLS approaches, the results indicate a statistically insignificant relationship between audit firm size and the earnings management .proxies (Absolute value of discretionary accruals, Small positive earnings, and Earnings smoothing) under all three models A, B and C, indicating no systematic relationship between them.

Thus, the results of multivariate analysis do not support Hypothesis One ($H_{1)}$ of the study) that the audit firm size is significantly negatively associated with the degree of earnings management. Although the results contradict the findings of several studies (Lin & Hwang 2010, Rusmin 2010, Alves 2013), they support the findings of Maijoor and Vanstraelen (2006), Rahman and Ali (2006), Piot and Janin (2007), Yasar (2013) and Ching et al. (2015). They state that the Big audit firms' conservatism/quality differential is not uniform across companies as the national audit environment and investor protection mechanisms are drastically different among countries.

Further, the results also report a statistically insignificant relationship between audit independence and the earnings management proxies (Absolute value of discretionary accruals, Small positive earnings and Earnings smoothing) under Model A, B and C in both Panel and Pooled OLS analyses.

Therefore, Hypothesis Two (H_2) of the study which assumes a significant negative association between audit fees and earnings management also remains unsupported by the results of Models A, B and C.

The results support the findings of Chung and Kallapur (2003) and Ching et al. (2015) which attribute the statistically insignificant relationship between audit independence and degree of earnings management to the weak audit environment and institutional setting of Malaysia compared to the stringent environment in the UK and the US.

[4] The regression assumptions on multicollinearity (which also was discussed under the correlation analysis), heteroskedasticity, linearity and normality of residuals were tested and no significant anomalies were noted.

Table 6: Regression Analysis for Discretionary Accruals (Model A)

Variable	Model A: DACC			
	Panel (Random-Effects)		OLS Pooled	
	Coefficient	**z-value**	**Coefficient**	***t*-value**
Constant	0.149	1.49	0.153	1.94
$AuSiz_{i,t}$	-0.002	-0.12	-0.004	-0.25
$AuInd_{i,t}$	0.006	0.49	0.006	0.59
$ACInd_{i,t}$	0.057	1.39	0.032	0.95
$Csiz_{i,t}$	-0.014	-1.92*	-0.013	-2.35**
$Lev_{i,t}$	0.091	3.37***	0.082	3.54***
$CFO_{i,t}$	-0.273	-4.71***	-0.333	-5.59***
$MTB_{i,t}$	0.009	1.74*	0.008	1.92*
$ROA_{i,t}$	0.379	4.00***	0.403	4.45***
$BoardSiz_{i,t}$	-0.003	-0.91	-0.001	-0.62
$BoardInd_{i,t}$	0.010	0.16	0.042	0.82
$CEODual_{i,t}$	-0.045	-1.65	-0.042	-1.93*
Sector_2	0.491	15.23***	0.487	19.30***
Sector_3	0.046	1.76*	0.038	1.85*
Sector_4	0.021	0.90	0.015	0.81
Sector_5	0.043	1.44	0.036	1.54
Sector_6	0.027	1.18	0.027	1.51
Sector_7	0.009	0.26	0.003	0.12
Sector_8	-0.013	-0.32	-0.019	-0.60
Sector_9	-0.033	-0.99	-0.034	-1.28
Sector_10	0.033	0.99	0.030	1.14
Sector_11	0.034	0.91	0.034	1.17
Year_2015			0.007	0.60
Year_2016			-0.012	-1.09
	R^2	0.6219	R^2	0.627
	Wald chi2	415.89	Adj R^2	0.605
	Prob.>chi2	0.0000	Prob> F	0.000
			Root MSE	0.094
			F(23, 399)	29.100

Notes: *p< 0.10, **p<0.05, ***p<0.01

*Definitions of the variables are indicated in Table 2

Source: Constructed by Authors

Table 7: Regression Analysis for Small Positive Earnings (Model B)

Variable	Model B: SPOS			
	Panel (Random-effects)		OLS Pooled	
	Coefficient	**z-value**	**Coefficient**	**t-value**
Constant	0.221	1.08	0.620	0.10
$AuSiz_{i,t}$	0.001	0.02	-0.120	-0.13
$AuInd_{i,t}$	-0.009	-0.36	-0.419	-0.73
$ACInd_{i,t}$	0.067	0.78	3.361	1.38
$Csiz_{i,t}$	-0.007	-0.50	-0.180	-0.54
$Lev_{i,t}$	0.028	0.47	0.989	0.73
$CFO_{i,t}$	-0.009	-0.06	-0.506	-0.16
$MTB_{i,t}$	-0.017	-1.63	-0.378	-1.38
$ABSTAcc_{i,t}$	0.246	1.25	3.736	0.77
$ROA_{i,t}$	-0.661	-2.96***	-26.159	-3.19***
$BoardSiz_{i,t}$	0.005	0.86	0.184	1.31
$BoardInd_{i,t}$	0.009	0.07	-1.453	-0.44
$CEODual_{i,t}$	-0.040	-0.71	0.000	
Sector_2	-0.145	-2.24**	0.000	
Sector_3	-0.062	-1.17	-0.839	-0.76
Sector_4	-0.033	-0.71	-0.565	-0.65
Sector_5	-0.098	-1.63	-1.961	-1.28
Sector_6	-0.084	-1.88*	-2.348	-1.79*
Sector_7	-0.086	-1.24	0.000	
Sector_8	0.323	4.06***	3.147	2.46**
Sector_9	-0.088	-1.31	-1.331	-0.91
Sector_10	-0.054	-0.81	0.000	
Sector_11	-0.104	-1.39	0.000	
Year_2015			-0.058	-0.10
Year_2016			-0.495	-0.78
	R^2	0.1515	Pseudo	0.2978
	Wald chi2	61.67	LR chi2(19)	51.4000
	Prob.>chi2	0.0000	Prob> chi2	0.0001

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

*Definitions of the Variables are indicated in Table 2.

Source: Constructed by Authors

Table 8: Regression Analysis for Earnings Smoothing (Model C)

Variable	Model C: SMTH			
	Panel (Random-effects)		**OLS Pooled**	
	Coefficient	***z*-value**	**Coefficient**	***t*-value**
Constant	3.211	1.57	3.218	1.80*
$AuSiz_{i,t}$	0.388	0.95	0.409	1.15
$AuInd_{i,t}$	0.144	0.59	0.133	0.62
$ACInd_{i,t}$	0.318	0.37	0.274	0.36
$Csiz_{i,t}$	-0.268	-1.83*	-0.284	-2.22**
$Lev_{i,t}$	-0.941	-1.62	-0.876	-1.67*
$CFO_{i,t}$	-2.379	-1.74*	-1.957	-1.43
$MTB_{i,t}$	-0.064	-0.61	-0.055	-0.58
$ABSTAcc_{i,t}$	-2.912	-1.56	-3.077	-1.67*
$ROA_{i,t}$	7.541	3.50***	7.526	3.65***
$BoardSiz_{i,t}$	0.024	0.40	0.033	0.63
$BoardInd_{i,t}$	0.631	0.49	0.641	0.56
$CEODual_{i,t}$	-0.592	-1.06	-0.601	-1.23
Sector_2	-0.041	-0.06	-0.019	-0.03
Sector_3	0.935	1.77*	0.963	2.09**
Sector_4	0.178	0.38	0.187	0.46
Sector_5	2.234	3.71***	2.242	4.28***
Sector_6	0.069	0.15	0.069	0.18
Sector_7	-0.443	-0.64	-0.427	-0.71
Sector_8	0.519	0.65	0.557	0.80
Sector_9	1.035	1.53	1.061	1.80*
Sector_10	0.161	0.24	0.149	0.26
Sector_11	0.718	0.96	0.681	1.05
Year_2015			0.335	1.34
Year_2016			0.225	0.90
	R^2	0.1435	R^2	0.1479
	Wald chi2	52.39	Adj R^2	0.0966
	Prob.>chi2	0.0003	Prob> F	0.0000
			Root MSE	2.0867
			F(24, 398)	2.8800

Notes: * $p< 0.10$, ** $p<0.05$, *** $p<0.01$

*Definitions of the Variables are indicated in Table 2.

Source: Constructed by Authors

In order to verify further the above findings, a univariate analysis was conducted, testing for differences between the clients of the Big Three and non-Big Three audit firms.

Table 9: Univariate Analysis According to The Audit Firm Size

	AuSiz (Big3 = 1)	N	Independent Sample t-test Mean	S.D.	t-statistic	Mann-Whitney U test z-statistic
$AbsDACC_{i,t}$	1	375	0.108	0.172	0.593	0.401
	0	48	0.122	0.146		
$SPOS_{i,t}$	1	375	0.056	0.230	0.183	0.183
	0	48	0.063	0.245		
$SMTH_{i,t}$	1	375	1.458	2.233	-0.453	0.457
	0	48	1.305	1.894		
$AuInd_{i,t}$	1	375	6.502	0.731	-3.02***	-3.273***
	0	48	6.158	0.833		
$ACInd_{i,t}$	1	375	0.859	0.158	-2.563***	-2.5**
	0	48	0.797	0.155		

*p< 0.10, **p<0.05, ***p<0.01

*Definitions of the Variables are indicated in Table 2.

Source: Constructed by Authors

It is evident that the difference between the absolute value of discretionary accruals for both Big Three and Non-Big three is not statistically significant based on both the independent sample t-test and the Mann-Whitney U test. Further, the same result is reported for the two alternative earnings management proxies of small positive earnings and earnings smoothing. This further supports the finding generated through the correlation and multivariate analysis, which suggests that there is no statistically significant difference on earnings management based on audit firm size and confirm the results of Jeong and Rho (2004). However, despite the statistical insignificance of all three proxies of earnings management, the following observations can be made with regard to the mean-value for each group.

The mean absolute value of discretionary accruals is less in companies audited by the Big Three audit firms than by the Non-Big Three. Similarly, companies audited by the Big Three also report a lesser magnitude of small positive earnings and earnings smoothing, indicating a quality differential between the Big Three and the Non-Big Three in curbing earnings management practices.

Further, it is evident that audit independence is different and statistically significant between the Big Three and Non-Big Three firms at a significance level of 1% under both tests. This validates the findings of the correlation analysis where a significant positive correlation was reported. Furthermore, as audit independence was measured through audit fees, the findings also report a statistically significant difference between the fees charged. This differential is influenced by audit size as shown through the correlation analysis, which implies the brand name of the audit firms (whether or not it belongs to the Big Three) influences the fee charged.

5 SUMMARY AND CONCLUSION

Studies have been conducted to identify factors that induce or restrain earnings management practices and one such area that has received much attention is the impact of audit quality on the degree of earnings management. The need for audit arises as a solution to the agency problem in terms of conflicting interests. However, review of the extant studies investigating the said relationship has reported contradictory results. Furthermore, extensive studies have been conducted based on developed markets such as the US and the UK, while studies focusing on developing markets remain comparatively scarce. To the researchers' knowledge, there is a dearth of studies in this field. Thus, due to the contemporary significance and the observed dearth, the objective of this study was to fill this gap by examining the impact of audit quality on the degree of earnings management in the context of Sri Lanka using information from public listed companies in the CSE.

Both audit quality and earnings management are unobservable concepts (Alzoubi, 2016; Li & Lin, 2005; Yasar, 2013). Hence, the need for proxies to measure the concept. Earnings management was measured using discretionary accruals as per the Modified Jones model. Additionally, as a step to ensure robustness, earnings management was also measured using additional proxies: small positive earnings and earnings smoothing. Audit quality was measured using two proxies commonly used in the extant literature: audit firm size and auditor independence. The choice of proxies was restricted owing to the limited information disclosed in annual reports relating to audit matters.

The aforementioned main objective was tested using two hypotheses. The first hypothesis was that audit firm size is significantly negatively associated with degree of earnings management. The second hypothesis was that audit independence is significantly negatively associated with degree of earnings management. The study sample includes the listed companies in Sri Lanka with a financial year-end in March in all sectors of the CSE, excluding the banking, finance and insurance sector, investment trusts sector and the closed ended funds sector. The research period was from 2013/14 to 2015/16. The final sample consisted of 141 listed companies in the CSE with a total of 423 firm-years. This final sample represented approximately 48% of the market capitalization of all listed companies in Sri Lanka as at 30th September 2016.

The one sample t-test indicates that the listed companies in Sri Lanka do practise earnings management. Furthermore, the descriptive statistics indicate that the average value of absolute discretionary accruals is statistically significant at a level exceeding 0.10 (Balsam, Krishnan & Yang 2003). This is much higher compared to other emerging nations such as Jordon (Alzoubi 2016) and Malaysia (Rahman & Ali 2006) but is much less compared to developed countries such as the US (Chung & Kallapur 2003).

The study indicated a much higher Big Three domination than in prior studies (Rahman & Ali, 2006; Piot & Janin 2007; Rusmin 2010; Gerayli, Yanesari & Ma'atoofi 2011; Okolie & Izedonmi, 2013) where 89% of the sample companies are audited by the Big three audit firms. Further, all companies within the sample have broadly conformed to corporate governance principles. All companies operate with an audit committee with on average 85% of the members being independent and non-executive. The average board size is in line with the optimum number advocated by Lipton and Lorsch (1992). Even though 5.4% of the

companies still operate without separating the roles of CEO and Chairman, it denotes an improvement in compared to the findings of Palipana et. al (2015).
The results of the correlation analysis did not report any significant coefficients exceeding 0.80. No statistically significant correlation was evident between the audit quality proxies and the earnings management proxies. Furthermore, the corporate governance variables did not indicate any statistically significant correlation with the earnings management proxies, except for audit committee independence and board independence. Under this correlation analysis, an unexpected statistically significant ($p<0.10$) positive correlation between board independence and discretionary accruals, and a similar unexpected positive correlation ($p<0.01$) between audit committee independence and discretionary accruals were observed, which may pose a question whether having independence itself is sufficient for members of the board *and* whether the members are *in fact* independent enough to control suboptimal behavior. Further to the correlation analysis, the results of the subsequent multivariate and univariate analyses do not support the hypotheses of the study. The pooled OLS and panel multivariate results indicate an insignificant association between the audit quality variables (audit firm size and audit independence) and earnings management variable (Discretionary accruals, Small positive earnings and Earnings smoothing). The results are consistent with the findings of Chung and Kallapur (2003), Maijoor and Vanstraelen (2006), Piot and Janin (2007), Yasar (2013), and Ching et al. (2015). The revised literature advocates that an insignificant relationship between audit quality and earnings management is evident when there is no effective mechanism to oversee and regulate auditors.

Such an ineffective oversight mechanism is evident in the results of the study. Though higher compliance with corporate governance regulations is noted in the results of the descriptive statistics, an insignificant association is reported between audit committee independence, board size, board independence and CEO duality and the earnings management proxies (Discretionary accruals, Small positive earnings and Earnings smoothing). This implies that though companies comply with such regulations, the mechanisms put in place may not be effective enough to restraining the degree of earnings management. Therefore, based on these findings, this study concludes that audit quality has no significant impact on the degree of earnings management in Sri Lankan listed companies. These results were supported by tests for additional analyses as well as by previous studies (Chung & Kallapur 2003, Ching et al., 2015, Maijoor& Vanstraelen 2006, Rahman & Ali 2006, Piot & Janin 2007, Yasar 2013). The insignificant association may be due to the presence of a weak oversight mechanism that is not adequate to motive auditors to improve quality (Chung & Kallapur 2003, Ching et al. 2015, Maijoor & Vanstraelen 2006) or due to the earnings considered in the study being already rectified for any *material* misstatements. The researchers observe that in developing countries such as Sri Lanka, action to motivate audit quality such as litigation on auditors and imposition of penalties is not taken as much as in developed countries. Nevertheless, the results of the study confirm the claim of Yasar (2013, p. 160) and Ching et al. (2015, p. 228) that the notion of audit quality constraining the degree of earnings management is not always valid in developing countries.

This study has some limitations. Due to the non-availability of publicly accessible data, this study does not include non-listed companies. This restricted scope may limit the generalisability of the findings. Furthermore, the time period considered for the study was restricted to three years and a different relationship between audit quality and earnings management may have been reported for a longer research period. The study is highly dependent on the proxies involved in measuring the independent and dependent variables. As audit quality and earnings management are unobservable concepts, proxies had to be used to measure such concepts. Even though the selection of proxies is supported in the previous literature, any limitation of the selected proxy becomes a limitation of the study. Furthermore, the discretionary accrual model (the Modified Jones model) used in measuring the degree of earnings management, measure the accruals with error (Dechow, Ge & Schrand, 2010). Thus, the limitations of the modified Jones model become a limitation of the present study.

The findings and results of this research could stimulate future research in several areas. The study reports an insignificant relationship between audit quality and earnings management, which could be due to the audit environment and the institutional setting in the country considered, as highlighted in the literature (Chung & Kallapur 2003, Ching et al., 2015, Maijoor & Vanstraelen 2006). Hence, future studies could study the impact of the audit environment on the relationship between audit quality and earnings management in Sri Lanka or undertake studies to test the notion of Yasar (2013, p. 160) and Ching et al. (2015, p. 228), that audit quality constraining the degree of earnings management is not always valid in developing countries, by considering data from several developing countries. Future research could also focus on the audit environment in both developed and developing countries and on how it influences audit quality.

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AN ASSESSMENT OF INTEGRATED PERFORMANCE REPORTING: THREE CASE STUDIES IN SRI LANKA

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Abstract

This paper investigates the current practice of measuring and reporting sustainability performance in Sri Lanka using three selected integrated corporate reports. Integrated reporting addresses corporate sustainability and is guided by <IR> guidelines (2013). Notwithstanding the criticisms against their shortcomings, the practice of integrated reporting is growing. Although intended, the success of integrated reporting is still open to question as is evident in the inadequacies in integrated performance measurement and reporting, which have not yet received much attention from researchers. Benefiting from the Stakeholder theory and the Stakeholder Agency theory, this research constructs a conceptual framework and studies integrated reports of three leading companies in Sri Lanka as instrumental cases. This is a qualitative inquiry based on the data gathered from the content analysis of corporate reports. It examines the extent to which companies measure and report sustainability performance in their annual integrated reports and reveals the inadequacies in measuring and presenting integrated performance.

Key words: Integrated Reporting, Integrated Thinking, Stakeholder Theory, Integrated Performance, Financial and Non-Financial Performance

1 INTRODUCTION

This research contributes to the discussion of integrated reporting guidelines issued by the International Integrated Reporting Council (IIRC) in 2013 for producing integrated corporate reports. The integrated reporting initiative emerged as an accounting contribution to the sustainability discourse triggered by the United Nations' announcement at its conference on Development and Environment in 1992.

Integrated reporting guidelines aim to promote integrated thinking in the business management process so that social, economic and environmental sustainability is ensured. Integrated reports are expected to reveal financial as well as non-financial information useful for assessing the organization's commitment to corporate sustainability. However, scholars question the adequacy of these guidelines for serving their intended purpose due to their being used for unintended purposes and their inherent drawbacks.

Hopwood (1979) and Samkin and Schneider (2010) show how sustainability reporting is used for organisational legitimating purpose. Beck et al. (2017) illustrate how <IR> guidelines are used for such purposes. Flower (2015) sees that these guidelines adopt a managerial capitalist perspective and deviate from the sustainability perspective. On the other hand, the capacity of the <IR> guidelines to promote integrated thinking in organisations is questioned (Feng et al., 2017; Riccardo et al., 2016) and also their inherent deviation from the sustainability intention (Abeysinghe, 2017) and their failure to communicate the message of integrated thinking (Abeysinghe, 2019) are criticised. Nevertheless, the practice of integrated reporting is increasingly used with or without the underling intentions of creating integrated thinking within organizations (See. Gunarathne a and Senaratne, 2017). Integrated thinking drives business firms towards sustainability. Hence, stakeholders, who are interested in the sustainability of the business firm, must be able to understand the extent to which the firm has operated accordingly. To maintain the validity of integrated reporting, the users' purposes need to be well addressed. This paper uses the term 'integrated performance' to denote the extent to which a business firm is able to ensure corporate sustainability. This definition supports that of Schaltegger and Wagner (2006:2), who define sustainability performance as 'the performance of a company in all dimensions and for all drivers of corporate sustainability.'

Sustainable operation is a result of integrated thinking. The notion of integrated thinking avoids traditional forms of silo thinking in their performance measurement and reporting efforts (Giovannoni and Fabietti, 2013). Integrated reports present information on integrated performance. However, not much attention has been paid to reaching a consensus on the best practices of measuring and reporting integrated performance. This paper questions the adequacy of the integrated performance being measured and presented in contemporary integrated reports. It has two objectives: first, to understand the extent to which integrated performance is presented in contemporary integrated reports and second, to unveil aspects of integrated performance, which are needed but not revealed in integrated reports, to achieve which this study uses the integrated reports of three leading companies in Sri Lanka as instrumental cases. They are analysed against a conceptual framework constructed, benefitting from the Stakeholder theory (Freeman, 1984 & 2001) and the Stakeholder Agency theory (Hill and Jones, 1992). This paper expects to contribute to the knowledge and understanding of accounting practitioners rather than to make a theoretical contribution.

The next section of the paper presents the current knowledge on issues of integrated reporting and integrated thinking followed by a theoretical discussion is carried out to construct the conceptual framework for this study. The research method is described next followed by the findings about the existing practice of performance measures and reporting. The discussion and conclusion together with recommendations for practitioners as well as for further research end the paper.

2 LITERATURE REVIEW

Following the sustainability convention arising from the United Nations Environment and Development conference in 1992, accounting developments such as the Global Reporting Initiative (GRI) (1997) and Accounting for Sustainability (A4S) (2004) emerged focusing on the provision of non-financial accounting information to support sustainable development. With this move, the IIRC was formed in 2010 intending to formulate guidelines for producing a single report as an accounting contribution to sustainable development (Dumay et al., 2016; Rowbottom and Loke, 2015).

The IIRC issued its first draft of guidelines in 2011 and the final version as <IR>, in 2013. According to the IIRC, <IR> guidelines aim to provide a more holistic and concise depiction of how a company creates and sustains value. IIRC's first draft explains how an organization is sustained on a foundation of multi-stakeholder resources and relationships:

'All organizations depend on a variety of resources and relationships for their

success. The extent to which organizations are running them down or building them up has an important impact on the availability of the resources and the strength of the relationships that support the long-term viability of those organizations. These resources and relationships can be conceived as different forms of ''capital''' (IIRC, 2011, p. 11).

This definition illuminates the meaning of capitals as relationships with stakeholders and the dependency of a business firm on its multiple stakeholder capitals rather than only on shareholders' capital. Flower (2015) claims that this idea has changed when it came to the final version, which adopts a managerial capitalist perspective, where managers prioritize profit maximization for shareholders at the expense of sustainability.

Nevertheless, <IR> guidelines (2013) have the objective of creating integrated thinking in organisations.

"The IIRC's long-term vision is a world in which integrated thinking is embedded within the mainstream business practice in the public and private sectors, facilitated by Integrated Reporting (<IR>) as the corporate reporting norm" (IIRC, 2013:2).

Martin and Austen (1999) first introduced the concept of 'integrative thinking' as part of a decision-making model seeking to enable managers to resolve the tension between two (conflicting) choices namely, profit maximization and social and environmental sustainability. The notion of integrated thinking avoids traditional forms of silo thinking in their performance measurement and reporting efforts (Giovannoni and Fabietti, 2013). Accordingly, in the silo thinking, managers focus merely on profit maximization. In contrast to the notion of integrated thinking, profit is only an element of broader stakeholder value creation.

However, according to Dumay et al. (2016), although IIRC envisaged <IR> to promote integrated thinking, contributing to sustainable development, integrated reporting seems still to be a 'vague' practice among practitioners and academics. According to Guranathne and Senaratne (2017), in the Sri Lankan context, most integrated reporting practitioners have no clear idea about integrated reporting or integrated thinking. Riccardo et al. (2016) find that disclosures by <IR> adapters appear inadequate for reporting on actual commitment to managing sustainability. This raises doubts about the clarity of <IR> guidelines (2013). Gunarathna and Senaratne (2017:21) make a similar observation: "despite the various measures taken to create awareness of and provide guidance for IR, we doubt whether the requisite knowledge has been shared and transmitted to potential users."

Criticism is mounting against several deviations from <IR> guidelines (2013) for creating integrated thinking. Feng et al. (2017) find that there is no well-developed concept of, or consensus on, what integrated thinking means, and it is still at the conceptual level. Two studies (Flower, 2015) and Adams, 2015) question the potential of <IR> guidelines (2013) in achieving its intended outcomes. Flower (2015) criticises the guidelines as carrying a managerial focus leading to their failure. Adams observes that the need for value creation for others is not reflected in these guidelines. Abeysinghe (2017) claims that from stakeholder theoretical perspective, <IR> guidelines (2013) deviates from corporate sustainability requirements and in 2019 reveals that <IR> guidelines fail to communicate the message of integrated thinking and sustainability to practitioners.

The failure of <IR> guidelines to provide clear directions for value creation from a sustainability perspective may render integrated performance measuring and presenting for sustainability problematic.

3. CONCEPTUAL FRAMEWORK

This paper focuses on understanding the adequacy of measuring and reporting integrated performance in published integrated reports. For this, the performance that ought to be reported is compared with actual reporting. The former benefits from the stakeholder theory and the stakeholder-agency theory. The actual reporting is guided by <IR> guidelines (2013). Hence, the effectiveness of the <IR> guidelines impacts on actual performance reporting. To this end, first the stakeholder theory and the stakeholder agency theory for sustainability are discussed. Next, a review of <IR> guidelines (2013) is presented. Finally, the necessary conceptual framework is constructed.

The stakeholder theory (Freeman, 1984) identifies investors, managers, employees, customers, suppliers and the local community as stakeholders. This idea is extended by Hill and Jones (1992), who recognize a firm as a nexus of contracts among resource holders (stakeholders). According to them, a firm emerges out of contracts between the firm and its stakeholder groups. Freeman (2001) identifies the interconnections between the firm and stakeholders. Shareholders provide funds for the firm with the expectation of a sufficient financial return. Managers carry out their fiduciary obligation towards shareholders, and in return, they expect financial benefits, social status and other non-financial benefits. Employees bring skills to the firm, and in return, expect reasonable wages and other benefits. Customers provide financial resources to the firm with expectations of goods and services. Suppliers expect a reasonable price and timely payments for their supplies. The local community expects corporate citizenship behaviour from the firm in exchange for the location and local infrastructure and perhaps favourable tax benefits (such as tax incentives). The general public provides national infrastructure expecting corporate citizenship behaviour and enhancement of the quality of life.

3.1 Senior Managers’ Agency Role in Sustainability

Managers of firms fall into two main categories: Senior Managers and Functional Managers (Braverman, 1974). Senior Managers are those who represent investors' interests and are involved in corporate control. For instance, the Board of Directors of a company are appointed by shareholders as their representatives. Functional managers are experts in different disciplines and heading functional areas such as operations, finance and human resources, etc. Senior Managers operate as agents of stakeholders and Functional Managers operate on Senior Managers' directions.

According to Freeman (2001), managers bear a special relationship with the shareholders of the firm. Here, the term ‘managers' means Senior Managers, who naturally tend to focus on satisfying shareholders’ interests as their representatives. This tendency is called managerial capitalism, where managers attempt to exploit all the resources and opportunities for profit maximization for shareholders. However, for sustainability, managers have to maintain a balance among the interests of all other stakeholders. When these relationships become imbalanced, 'the survival of the firm is in jeopardy' (Freeman 2001: 44). For instance, if employees are not satisfied, it's a threat to the firm with efficiency issues. Dissatisfaction among customers affects the market and continuity of operations. In this manner, the dissatisfaction of any stakeholder group has repercussions on the sustainability of the firm.

According to Hill and Jones (1992), the primary issue for an agency is the divergence of interests between the agent and principal. For example, as principal, shareholders' interest in maximizing efficiency while as agent, managers' interest is in maximizing their utility function through growth by diversification and expansion. When the interests of agents are different from those of principals, divergence results leading to higher agency costs of governance and controlling mechanisms to make sure that the agent serves the principal's interest.

Better exchange stakeholder relationships result in a convergence of interests. Following Williamson (1984, 1985), Hill and Jones explain that the exchange relationship is an investment in the firm and the value of the investment could be assessed as the costs to be incurred when such an investment is deployed for an alternative purpose. For example, if a specially trained employee exits the firm, it may cause a substantial cost to the firm.

Similarly, each stakeholder group supplies or invests with critical resources in the firm. In return, they expect their interests to be satisfied (March and Simson, 1958). This investment is the capital, on which the firm creates value. According to Hill and Jones (1992), stakeholders with high capital investment claim higher incentive mechanisms and governance structures to safeguard their investment of capital in the firm.

To create value for stakeholders for their investments, managers are required to maintain a convergence of interests of stakeholders. Value creation for stakeholders supports corporate sustainability. Thus, managers need to report on the actions they take and the resulting value created. Accordingly, managerial performance towards sustainability could be assessed in terms of their action taken and resulting value created.

3.2 <IR> Guidelines and Integrated Reporting

The financial perspective in traditional corporate reporting limits its usefulness for investors in evaluating long-term prospects (IIRC, 2011; Adams and Simnett, 2011). This traditional reporting does not show interdependencies among strategy, governance, operations and financial and non-financial performance (IIRC 2011) because they report the final collective outcome as the profit or loss, financial position and cash flow.

The transition from traditional corporate reporting to integrated reporting signals the need for a shift of managerial thinking from 'silo thinking' to 'integrated thinking' (IIRC, 2013). This shift emphasizes the necessity for managers to re-think about their strategy, business model and corporate governance. However, IIRC (2013) guidelines are somewhat ambiguous, if not misleading, in guiding managers towards integrated thinking and integrated reporting.

To IIRC (2013, p.33), integrated thinking is "*the active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects*". This definition deviates from the IIRC's first draft in 2011, where the need for co-existence between the firm and its stakeholders is emphasized. IIRC (2013:33) defines an integrated report as;

"a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value in the short, medium and long term".

This definition implies that other than shareholders, other stakeholders belong to the external environment. Section 2.5 of IIRC (2013) illuminates its base of managerial capitalism:

"*Providers of financial capital are interested in the value an organization creates for itself. They are also interested in the value an organization creates for others when it affects the ability of the organization to create value for itself or relates to a stated objective of the organization (e.g., an explicit social purpose) that affects their assessments*'.

Sections 2.10 to 2.12 define capitals as the stocks of value that are increased, decreased or transformed through the activities and outputs of the organization. This definition is not in line with the theoretical idea that better relationships with stakeholders form the capitals.

IIRC (2013) provides guidelines for 'performance':

An integrated report should answer the question: to what extent has the organization achieved its strategic objectives for the period, and what are its outcomes in terms of effects on the capitals? (Section 4.30).

Accordingly, the first emphasis is on reporting the achievement of strategic objectives of the organization and the second emphasis is on its outcomes in terms of the effects on the capitals. This can push managers to pay attention to measuring organizational outcomes in favour of shareholders and undermining concern on integrated thinking. Other guidelines in the section substantiate this drawback. For instance, according to Section 4.32, KPIs combine financial measures with other components. For example, the ratio of greenhouse gas emission to sales. This section further suggests that financial implications of significant changes in other forms of capitals need to be disclosed. For example, the expected revenue growth resulting from efforts to enhance human capital should be disclosed. Thus, <IR> guidelines do not provide clear guidance for measuring integrated performance.

However, the business model suggested by IIRC (2013:13) adopts a sustainability perspective and indicates how the business process uses six forms of capitals as inputs and how the output of the business process produces outcomes based on them. This model does not show any intention of using other capitals to promote the interests of providers of financial capital. Instead, it shows the outcomes of the six capitals, in turn, become inputs of the business process. At different places of the <IR> guidelines, this contradiction between managerial capitalism and sustainability concerns is visible. This ambiguity may create implications for the ability of managers or accountants to reporting integrated performance.

3.3 Input and Output Performance

From an integrated performance point of view, managers need to have taken necessary actions to develop capitals and reap the intended output. Actions taken could be considered as 'input performance' and the results obtained as 'output performance'. However, it is worth of noting that, as shown in Table 1, both input and output performance are not traceable in the case of some capitals.

In Table 1, specific action taken to create value (profit) for shareholders cannot be traced because profit is the collective result of managing the business. Similarly, action taken to contribute to the natural capital development can be traced but outcome cannot because it is collectively created by society or the community.

Table 1: Input and Output Performance on Capitals

Capital	Input Performance	Output Performance
Financial	Actions not traceable	Traceable
Manufactured	Traceable	Traceable
Intellectual	Traceable	Traceable
Human	Traceable	Traceable
Social & Relationship	Traceable	Traceable
Natural	Traceable	Outcomes not traceable

Source: Constructed by Author

Based on the foregoing analysis in this section, the conceptual framework is constructed as shown in Figure 1.

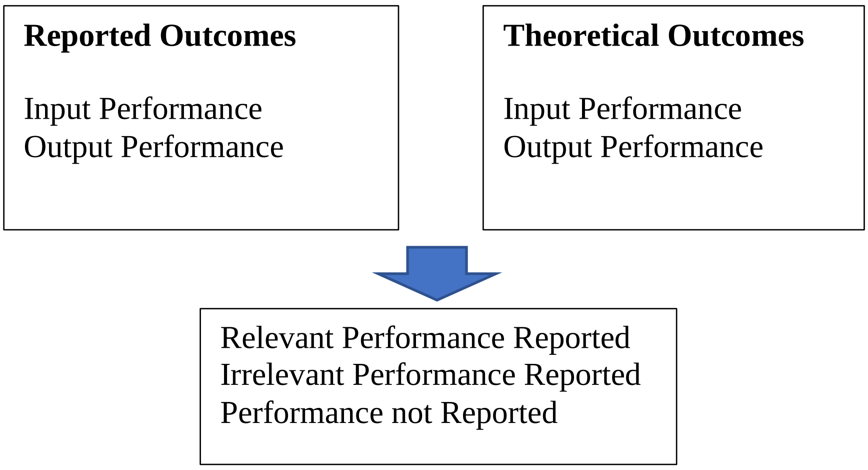

Figure 1: Conceptual Framework
Source: Constructed by Author

Accordingly, first, actual reported performances of the three case companies are identified under input and output categories as applicable. Then, a comparison is made with theoretical performance, which can reveal relevant and irrelevant performance measures used. Among them, those performance measures, which support the measuring integrated performance are considered relevant. This comparison also reveals performance measures that are theoretically needed but not reported.

4. RESEARCH METHOD

As a qualitative investigation, this research is based on the belief that reality is subjective to the perception of the researcher (Hopper and Powell, 1985). Accordingly, a researcher derives the required knowledge by interpreting empirical data on the basis of an appropriate theoretical lens rather than on an established model. Such studies generate data by interpreting the experience of respondents gathered through interviews, observations or content analyses of documents. This research uses only content analysis of the company performance reported in annual corporate reports.

Adopting a case methodology, this study uses three instrumental cases to investigate performance reporting. Accordingly, annual reports issued by three leading companies, namely, Company A, Company B and Company C, are used as instrumental cases. In instrumental case studies, only the theme of the case is studied and not the whole context. The selection of three companies is believed to be reasonably adequate for the study for two reasons. First, the integrated reporting is a standard practice based on <IR> guidelines and therefore variations among integrated reports may be few. Second, the three selected companies are well ahead in the integrated reporting practice as evidenced in the awards they have won for integrated reporting. Company A is a leading automobile dealer in Sri Lanka while Company B is a leading private sector commercial bank in the country with branches abroad. The other company is a leading manufacturing as well as an import-export company. All three companies produce integrated reports and have won awards at the Annual Integrated Reporting Competition organized by the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka).

4.1 Sustainability Performance Measures

According to the business model suggested by IIRC (2013) corporate sustainability is the outcome of the business process. It identifies six types of outcomes related to six forms of capitals. According the stakeholder theory, each category of capital is attributable to a group of stakeholders. As explained above, the value of capital is the extent of the relationship that a particular organization has developed with the specific stakeholder group. Hence, any outcome that enhances the relationship amounts to value creation. Theoretically, when value creation is considered as the enhancement of relationships, any outcome required to create value for a particular group of stakeholders could be termed ‘theoretically derived outcome’. Different theoretically derived outcomes could be identified for each stakeholder group.

Financial capital is the investment made by shareholders. For corporate sustainability, shareholders need to be happy to continue with the company with better expectations. In general, investors or shareholders expect two types of primary outcomes: profitability of the investment and investment value.

Manufactured capital indicates how the shareholders’ capital has been invested in the business to create maximum value. For sustainable operations, these investments need to carry a reasonable market value, need to provide adequate capacity for business operations and must have been adequately used for business operations.

Intellectual capital is attributable to functional managers because it is an outcome that is produced by their skills. The increased effort in developing managerial skills may increase the intellectual capital outcomes produced. Hence, the intellectual capital outcomes produced during the period indicate how well managerial skills have been managed. Such outcomes include innovativeness, improved systems and processes, and improved branding performance.

The extent to which employees are engaged in the business process makes up the human capital. Better relationships produce employee engagement in the business. Obtaining a higher-level engagement is a result of an intentional attempt by managers. Hence, both the effort made and the results obtained are essential aspects of managerial performance towards sustainability.

Social and relationship capital is attributable to several main categories of stakeholders: customers, suppliers, the government, and the general public. The enhancement of the relationship with these stakeholder groups is supportive of corporate sustainability. Hence, this paper identifies outcomes on social and relationship capital under four aspects: improved customer relations, improved supplier relations, improved relationship with the government and improved public support.

Natural capital indicates the favourable conditions available to the business in terms of natural resources and infrastructure. Hence, managerial performance aimed at the preservation and development of natural capital is a contributions to the protection and development of natural resources and public infrastructure.

The purpose of integrated performance measures is to reveal the positive or negative change in the value creation during a given period. Accordingly, managers' efforts to make such a change (input) as well as their achievement of results to enhance the value (output) corresponding to each category of capital are identifiable, as shown in Table 2. To measure the value created for each outcome, different financial and non-financial tools can be used. Table 2 also presents examples of such accounting tools.

Table 2: Theoretically Derived Outcomes for Each Capital

Category of Capital	**Interested Stakeholder Group**	**Theoretically Derived Outcomes**	**Examples for Theoretically Derived Input Performance Measures**	**Examples for Theoretically Derived Output Performance Measures**
Financial	Shareholders	Profit performance		Profit ratios Earnings per share
		Shareholder value creation		Share price growth
				Business value growth
Manufactured	Shareholders	Enhancement of value of assets	Change of Investments in Assets	Asset value per share
		Enhancement of capacity	Change of Investments in capacity enhancements	Change of capacity
		Asset usage		Asset turnover

Intellectual	Managers	Innovativeness	Investments in R&D	New product innovations
				Patents registered
		Systems and processes	Investments in Executive education and training	Operational efficiency improvements
				Executive profile
		Branding performance	Investments in branding	Brand value changes
Human	Employees	Employee engagement	Investment in training	Employee turnover
				Employee satisfaction
			Number of training hours	Efficiency improvements
Social & Relationship	Customers, suppliers, Government and other outside parties	Enhanced relationship outside parties	Investments in Customer training	Customer retention ratio
			Investments in Supplier relations	Supplier credits
			Investments in CSR activities	Public support and image change
			Public sponsorships	State support
Natural	Local and general Community	Contributions made to protect and develop the natural resources and public facilities	Investments in water, emission and waste treatments	
			Investments in public facility improvements	

Source: Constructed by Author

According to Table 2, input performance on financial capital and output performance on natural capital are not measurable. For the other four capitals, both input as well as output performance measures could be presented.

5. FINDINGS

5.1 Performance Measures Reported by Companies

Each company reports their integrated performance measures under each category of capital. These performance measures are classified into relevant and irrelevant categories based on their ability to serve the theoretically derived outcomes. The reported integrated performance measures are shown in Tables 3 to 8 corresponding to each form of capital.

Table 3: Reported Performance on Financial Capital

Expected Outcome	Relevant			Irrelevant		
	Company A	**Company B**	**Company C**	**Company A**	**Company B**	**Company C**
Profit performance	Turnover (Rs. millions)	Deposits from customers	Revenue growth trend	Current ratio (times) at the year-end Quick asset ratio (times) at the year-end Fixed asset turnover (times)	Shareholders' fund Subordinated liabilities Borrowings from banks/ other borrowings Market share in total assets Market capitalization CSE ranking in market cap Price to Book Value	
	Gross profit ratio (%)		Growth of profit elements			
	Net profit ratio					
	Interest cover (times)					
	Return on Equity					
	Earnings per share					
Shareholder Wealth	Debt/Equity (%) at the year-end		Asset growth trend			
			Shareholder returns trend			

Source: Constructed by Author

According to Table 3, Company A presents seven relevant performance measures covering both aspects of outcomes and three irrelevant measures. Company B presents a single relevant performance measure only on profit performance, having no measures of shareholder wealth as against the seven irrelevant performance measures presented. Company C addresses both aspects of financial capital outcomes presenting two measures for each aspect without irrelevant performance measures.

Table 4: Reported Performance on Manufactured Capital

Expected Outcome	Relevant			Irrelevant		
	Company A	**Company B**	**Company C**	**Company A**	**Company B**	**Company C**
Enhancement of value of assets		Investment in capital expenditure				
Enhancement of capacity		Branch network	Industry presence in years			
		Number of ATMs Number of CDMs				
		Bank on wheels				
Asset usage						

Source: Constructed by Author

According to Table 4, three aspects of outcomes of manufactured capital are theoretically identified. Company A presents no measures on performance over manufactured capital development. Company B presents four measures of two aspects. Company C presents only one measure leaving two relevant aspects not measured. No company measures performance on asset usage and also no irrelevant measures are presented on manufactured capital.

Table 5: Reported Performance on Intellectual Capital

Expected Outcome	**Relevant**			**Irrelevant**		
	Company A	**Company B**	**Company C**	**Company A**	**Company B**	**Company C**
Innovativeness	Knowledge base	Value of intangible assets	No. of new products developed.		Employees serving for >20 years	
			No. of products in the pipeline			
			Investments in R&D			
		Receipt of awards and accolades				
Systems and processes	Systems and processes	World's Top 1000 Bank				
		Fitch rating				
Branding performance	Brand reputation	Brand equity				

Source: Constructed by Author

According to Table 5, Company A presents a measure for each aspect but no irrelevant measures. Company B presents five measures covering all three aspects and only one irrelevant measure. Company C presents three measures for one aspect of outcomes but no irrelevant measures.

Table 6: Reported Performance on Human Capital

Expected Outcome	Relevant			Irrelevant		
	Company A	**Company B**	**Company C**	**Company A**	**Company B**	**Company C**
Employee Engagement	Employee engagement ratio		Employee productivity	Number of employees Female employees as a percentage of total employees Percentage of employees blow 40 years of age		New recruits by age, gender and region Employees on payroll workplace injuries Lost working days Female representation
	Employee turnover as a percentage of average employees (%)		Employee turnover			
			Growth of Training hours			
	Employee satisfaction Index					
	Average training hours per employee					
			Value distributed to employees.			

Source: Constructed by Author

According to Table 6, Company A presents four measures on human capital performance with three irrelevant measures. Company B does not measure human capital performance. Company C presents four relevant and five irrelevant performance measures.

Table 7: Reported Performance on Social and Relationship Capital

Expected Outcome	Relevant			Irrelevant		
	Company A	**Company B**	**Company C**	**Company A**	**Company B**	**Company C**
Improved customer relations	Customer ‘service				Compliance	Revenue generated Total number of suppliers (estimate) SME suppliers (estimate)
	Number of CRM personnel	Benchmarked service standards	Customer reach Customers acquired			
	No of customer interaction points					
	No of business locations in					

	the North and East					
	Average Customer satisfaction Index					
Improved supplier relations			The proportion of spending on local suppliers			
Improved relationship with the government	Contribution to treasury		Investment in CSR			
Improved public support	Investing in community Development of youth		Beneficiaries in CSR			

Source: Constructed by Author

To Table 7, Company A presents seven measures in three areas with no irrelevant measures. Company B presents only one relevant and one irrelevant measure. Company C presents five measures of three outcome aspects with three irrelevant measures.

Table 8: Reported Performance on Natural Capital

Expected Outcome	Relevant			Irrelevant		
	Company A	Company B	Company C	Company A	Company B	Company C
Contributions made to protect and develop the natural resources and public facilities	Carbon emission (tC02e) to generate one-million-rupee turnover		Co2 Footprint by sector			
	Carbon emission (tC02e) to generate one-million-rupee turnover					
	Water consumption (M3) to generate one-million-rupee turnover		Water consumption by sector			
	% Usage of reused water					

	Energy consumption (Gj) to generate one-million-rupee turnover	Energy consumption	Energy efficiency and renewable energy			
	Raw material efficiency		Sola power installation locations			
	Rejuvenating land					
	Number of facilities subjected to SEMS screening	Mobile banking users				
	Non-Hazardous solid waste disposal (Amounts)					
	Hazardous solid waste management (Amounts)					

Source: Constructed by Author

According to Table 8, Company A presents ten performance measures, Company B two measures and Company C four measures. No company presents irrelevant performance measures on natural capital.

5.2 Summary of Reported Integrated Performance Measures

The performance measures reported by each company separately shown separately in Tables 3 to 8 are combined in a summary of performance measures corresponding to each category of capital as shown in Tables 9 to 15.

Table 9: Performance Measures on Financial Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Profit performance	Revenue growth	Current ratio (times) at the year-end Quick asset ratio (times) at the year-end Fixed asset turnover (times)
	Growth of profitability	
Shareholder value Enhancement	Debt/Equity ratio	Shareholders' fund Subordinated liabilities
	Asset growth trend	

	Share performance	Borrowings from banks/ other borrowings Market share in total assets Market capitalization CSE ranking in market cap Price to Book Value

Source: Constructed by Author

Table 9 reveals that although various financial capital measures are presented, many of them are irrelevant for reporting integrated performance.

Table 10: Performance Measures on Manufactured Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Enhancement of value of assets	Investment in capital expenditure	
Enhancement of capacity	Acquisitions and network expansions	
Asset usage	Not measured	

Source: Constructed by Author

Table 10 reveals that a smaller number of performance measures is used to report on manufactured capital performance. Asset usage is an essential aspect of performance in the use of manufactured capital, but no company had paid attention to it.

Table 11: Performance Measures on Intellectual Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Innovativeness	Value of intangible assets	
	Receipts of awards and accolades	
	No. of new products developed.	
	No. of products in the pipeline	
	Investments in R&D	
Systems and processes	Not measured	
Branding Performance	Brand Equity	

Source: Constructed by Author

Table 11 shows that very few measures are in use to identify the performance of intellectual capital. Two theoretically identified outcomes are not measured. No irrelevant performance measures are presented in the corporate reports reviewed.

Table 12: Performance Measures on Human Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Employee engagement	Employee Engagement ratio	New recruits by age, gender and region
	Employee productivity	Female employees as a percentage of total employees (%)
	Employee turnover	Number of job opportunities provided during the year
	Employee satisfaction index	Return to work from maternity
	Retention rate	Profit per employee
Effort made	Training provided	
	Health and safety arrangements	
	Value distribution among employees	
	Employee engagement score Average training hours per employee Total number of job opportunities provided	

Source: Constructed by Author

According to Table 12, companies widely use performance measures of human capital. However, some performance measures were identified as irrelevant.

Table 13: Performance Measures on Social and Relationship Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Improved customer relations	Customer Reach	Revenue generated Total number of suppliers (estimate) SME suppliers (estimate)
	Customers acquired	
	Number of CRM personnel	
	Customer satisfaction index	
Improved supplier relations	The proportion of spending on local suppliers	
	Payments to suppliers	
Improved relationship with the government	Contribution to treasury	
Improved public support	Beneficiaries of CSR	
	Investments in CSR	
	Investing in community development	

Source: Constructed by Author

According to Table 13, performance measures for each aspect of social and relationship capital are presented with a few irrelevant measures.

Table 14: Performance Measures on Natural Capital

Theoretical outcomes	Reported Common performance measurements	Irrelevant performance measures
Contributions made to protect and develop the natural resources	The proportion of CO_2 footprint to generate turnover	
	The proportion of carbon footprint to generate revenue	
	The proportion of water consumption to generate revenue	
	% Usage of reused water	
	The proportion of energy consumption to generate revenue	
	Hazardous solid waste management (Amounts)	
	Non-hazardous solid waste disposal (Amounts)	
	Actions of responsible behavior	
Contributions made to develop public facilities	Actions of responsible behavior	

Source: Constructed by Author

Table 14 shows that many performance measures are presentations of contributions made to preserve and develop the natural resources. However, performance towards developing public facilities is not measured. No irrelevant performance measures are presented.

5.3 Input and Output Performance

In developing capitals, managers take various kinds of actions and may produce different results. To develop capitals, managers need to have taken actions as well as achieved the intended output results. Hence, the reported relevant performance measures presented in Tables 9 to 14 are classified into input and output categories as shown in Table 15.

Table 15: Input and Output Performance Measures

Capital	Input Performance Measures		Output Performance Measures	
	Theoretically derived	**Reported**	**Theoretically derived**	**Reported**
Financial			Profit ratios Earnings per share	Revenue growth Growth of profitability
			Share price growth	Share performance
			Business value growth	Debt/Equity ratio Asset growth trend
Manufactured	Investments in Assets	Investment in capital expenditure	Asset value per share	**???**
	Investments in capacity enhancements	Acquisitions and network expansions	Change of capacity	Network expansions
			Asset turnover	**???**
Intellectual	Investments in R&D	Investments in R&D	New product innovations	No. of products in the pipeline No. of new products developed.
			Patents registered	Value of intangible assets Receipts of awards and accolades
	Investments in Executive education and training	**???**	Operational efficiency improvements	**???**
			Executive profile	**???**
	Investments in branding	**???**	Brand value changes	**???**
Human	Investment in training	Training provided	Efficiency improvements	Employee productivity Employee Engagement ratio /Score
		Health and safety arrangements	Employee turnover	Employee turnover

		Value distribution among employees		
	Number of training hours	Average training hours per employee	Employee satisfaction	Employee satisfaction index
		Total number of job opportunities provided		Retention rate
Social and Relationship Capital	Investments in Customer training	Number of CRM personnel	Customer retention ratio	Customer Reach
	Investments in Supplier relations	The proportion of spending on local suppliers		Customers acquired
		Payments to suppliers		Customer satisfaction index
	Public sponsorships	Contribution to the Treasury	Supplier credits	**???**
		Beneficiaries of CSR	Public support and image change	**???**
	Investments in CSR activities	Investments in CSR	State support	**???**
		Investing in community development		
		Actions towards responsible behavior		
Natural	Investments in water, emission and waste treatments	Proportion of CO2 footprint to generate turnover		
		The proportion of Carbon footprint to generate revenue		
		The proportion of Water consumption to generate revenue		
		% Usage of reused water		
		The proportion of energy consumption to generate revenue		

		Hazardous solid waste management (Amounts)		
		Non-Hazardous solid waste disposal (Amounts)		
	Investments in public facility improvements	**???**		

Source: Constructed by Author

According to Table 15, the mark '???' indicates the performance measures required but not presented in three corporate reports reviewed. A summary of those performance measures is given in Table 16.

Table 16: Integrated Performance Measures not Reported

Capital	**Input Performance Measures Not Reported**	**Output Performance Measures Not Reported**
Financial Capital	Not Applicable	All Presented
Manufactured Capital	All Presented	Asset value per share Asset Turnover (Usage)
Intellectual Capital	Investments in Executive education and training Investments in branding	Operational efficiency improvements Executive profile Brand value change
Human Capital	All Presented	All Presented
Social and Relationship Capital		Supplier credits Public support and image change State support
Natural Capital	Investments in public facility improvements	Not Applicable

Source: Constructed by Author

According to Table 16, taking all the three reports collectively, there are performance measures still needing attention for reporting integrated performance except for financial capital and human capital. However, when taken individually, the result is different. For example, although all the aspects of human capital performance are reported, Company B has not presented a single performance measure in this area.

6 CONCLUSION

For achieving corporate sustainability, IIRC issued <IR> guidelines (2013) to promote integrated thinking in organizations. Apart from the observation of Ricardo et al. (2016) that integrated accounting practice is still vague, Gunararthne and Senaratne (2017) find in the Sri Lankan context, that although the companies have increasingly adopted integrated reporting practice, the lack of knowledge and understanding of integrated reporting and integrated thinking is evident. This could be attributed to the failures of <IR> guidelines as mentioned elsewhere. This research was conducted to investigate how companies in this situation adopt <IR> guidelines and report integrated performance in their annual integrated reports.

The presentation of integrated performance was investigated with reference to the conceptual framework developed based on the Stakeholder theory (Freeman 1984 & 2001) and the Stakeholder Agency theory (Hill and Jones, 1992). Accordingly, in order to attain corporate sustainability, the six forms of capitals recognized by <IR> guidelines need to be developed. According to the Stakeholder Agency theory, managers are agents and therefore are responsible for developing the capitals of other stakeholders. Hence, corporate reports should present the performance of managers with reference to the extent to which they have taken action to develop capitals (input performance) and achieved the results thereof (output performance).

The general understanding is that input performance of financial capital and output performance of manufactured capital cannot be measured. This research was conducted with two main objectives: first, to understand the extent to which the current integrated reports present and measure integrated performance and second, to understand the areas of integrated performance that integrated reporting needs to pay attention to.

The findings of this research suggest that the presentation of integrated performance in integrated reports is inadequate and subject to a significant variation. Although practitioners attempt to measure and present integrated performance to a greater extent, only performance aspects corresponding to financial capital and human capital cover all aspects of outcomes derived theoretically. In addition, Table 15 shows that companies present many irrelevant performance measures, indicating a lack of understanding of integrated performance.

On the other hand, variations in integrated performance measurement and reporting are high. For example, although all the aspects of human capital performance are measured, Company B does not present any performance measure on human capital.

In respect of the second objective, this research reveals that except for financial and human capital, corresponding to all other capitals, there are areas of performance measuring yet to be attended to.

The inadequacy of integrated performance measuring and reporting can be attributed to inconsistencies and ambiguities in <IR> guidelines. For example, in Section 4F of IIRC (2013:23) integrated performance means the extent to which strategic objectives of the period have been achieved and its effects on capitals.

This statement passes the message of managerial capitalism (Flower, 2015), which affects the mindset for integrated performance reporting. It is also inconsistent with the business model suggested on page 13. Hence, this finding confirms the criticisms of Abeysinghe (2019), Abeysinghe (2017), Feng et al. (2017), Ricardo et al. (2016), Flower (2015) and Adam (2015) relating to the inadequacy of <IR> in creating integrated thinking within corporate bodies. Despite the inadequacies in <IR> guidelines appearing in the literature; the integrated reporting practice diffuses for various other reasons. For example, Gunarathne and Senaratne (2017) identify isomorphic forces namely, coercive, memetic and normative (DiMaggio and Powell, 1983), experience in sustainability reporting practices, and stimulation by the professional bodies are behind the diffusion of integrated reporting practice in Sri Lanka. The current paper adds to the body of knowledge of integrated accounting practice with another criticism of IIRC (2013) revealing that the ambiguity in <IR> guidelines affect the usefulness of integrated reports in assessing integrated performance.

This paper makes two recommendations, namely, for practitioners and for further research. For practitioners, it suggests that integrated performance needs to be measured and presented in corporate reports in a meaningful manner so as to promote integrated thinking This paper provides with a framework of measuring and presenting integrated performance benefiting from the Stakeholder theory (Freemen, 1984 and 2001) and the Stakeholder Agency theory (Hill and Jones (1992) and specifically suggests that integrated performance measures need to be used for input as well as output performance, indicating managerial effort and results achieved respectively, corresponding to each category of capital.

This paper also suggests to practitioners that if integrated performance measures are presented within the suggested framework, it makes integrated reporting meaningful for managers as well as other stakeholders, thus finally promoting integrated thinking within organizations thereby supporting corporate sustainability

It should be noted that this paper's scope is limited to identify a framework for measuring and presenting integrated performance of a business firm. Hence, it draws attention for further research to identify appropriate ways and means of measuring the integrated performance for the six forms of capital.

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IS SUSTAINABILITY REPORTING A BUSINESS STRATEGY FOR FIRM'S GROWTH? EMPIRICAL EVIDENCE FROM SRI LANKAN LISTED MANUFACTURING FIRMS

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Abstract

Sustainable reporting is an extensively debated subject in the extant literature, with studies focusing on primary research direction on the effect of reporting sustainable actions on economic indicators, namely company value, cost of capital or operating performances (Ong & Djajadikerta, 2018; Clarkson et al., 2011). This study analyzes the impact of sustainability reporting on the growth of manufacturing firms listed in the Colombo Stock Exchange during the period 2014 to 2017. The contribution of sustainable reporting to firms' growth was analyzed in terms of the 79 Global Reporting Index (GRI) framework performance indicators and the firm's growth prospects was disaggregated into three sub-dimensions, namely, operational performance (as reflected in sales growth), cost of capital (estimated *via* the weighted average cost of capital) and the prospect for increased market value (measured *via* the price-to-book ratio). The results obtained indicate a moderate level of sustainability reporting in manufacturing firms in Sri Lanka based on descriptive statistics. Further, according to the correlation analysis, there is a systematic *($p<0.05$)* relationship between sustainability reporting and sales growth, cost of capital and the price to book ratio. Furthermore, a significant *($p<0.05$)* impact was identified between sustainability reporting and sales growth of firms under the regression analysis. This paper contributes to the expanding extant literature by highlighting the involvement of sustainable reporting as a factor in optimizing firms' growth strategies and expects to have significant policy implications.

Key words: Sustainability Reporting, GRI Framework, Firms' Growth, Business Strategies, Manufacturing Firms

1 INTRODUCTION

Sustainability reporting can be regarded as a new trend in corporate reporting, which integrates the financial, environmental and social performance of the company in one report (Zwetsloot & Marrewijk, 2004). Sustainability reporting refers to the practice of measuring, disclosing and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development (Global Reporting Initiative, 2006). It is a voluntary reporting practice which demonstrates the inclusion of social and environmental concerns in business operations as well as in interactions with stakeholders (Marrewijk & Were, 2003). This idea of sustainability having three dimensions stems from the triple bottom line concept formed by John Elkington in 1994. It is demanded and expected by investors, customers, employees, government and other stakeholders (Keeble et al., 2003). Sustainability reporting generates many benefits, for example, enhanced transparency (Oliveira et al., 2010), improved stakeholder relations (Morsing & Schultz, 2006), long-term capital (KPMG, 2017), a favorable investment climate and corporate reputation (Glass, 2012).

Sustainable reporting is an extensively debated subject in the extant literature, with studies focusing on two primary research directions. On the one hand, the analysis focuses on the determinant factors of sustainable reporting, such as corporate governance (Ong & Djajadikerta, 2018), profitability, ownership structure, company size (Dienes, Sassen & Fischer, 2016), debt and liquidity (Kuzey & Uyar, 2017), or even board gender (Al-Shaer & Zaman, 2016). On the other hand, research focuses on the effect of reporting sustainable actions on the economic indicators, namely, company value (Radhouane et al., 2018), cost of capital (El Ghoul et al., 2011) and operating performances (Bhatia & Tuli, 2017). Thus, sustainability reporting can be considered as a course of action to achieve organizational growth. Social responsibility practices influence the growth and streamlining of companies, in terms of both operational performance (by increasing sales) and increased market value, as well as by reducing the risk of litigation resolution. This study analyzes the impact of sustainability reporting on firms' growth prospects. The contribution of sustainable reporting to firms' growth is analyzed in terms of both the role of social and environmental protection actions that are published (the existence of sustainable reporting and the integrated reporting of information) and in terms of the means *via* which the same is disseminated (the quality of sustainable reporting). The firm's growth prospects are disaggregated into three sub-dimensions: the prospect for increased market value (measured via price-to-book ratio), operational performance (reflected in sales' growth) and cost of capital (estimated *via* the weighted average cost of capital.

Previous empirical studies reveal that publishing sustainability information can be seen as positive news and can therefore improve the firm's reputation (with positive effects on performance) and can help to prevent a drop in share price (Bhatia & Tuli, 2017). Thus, certain studies such as by Bodhanwala and Bodhanwala (2018) identify a positive relationship between sustainability and financial performance of the firm (measured by return on invested capital, return on equity, return on assets and earnings per share or cash flow). However, previous literature (Bhatia &Tuli, 2017) identified that a firm's profitability had a statistically significant negative relationship with disclosing information regarding sustainable reporting. Aras and Crowther (2009) identified that sustainable activities allow companies to reduce their costs of capital by inducing investors to believe that the risk associated with their investment is lower. Moreover, Dhaliwal et al. (2012) provide evidence that the information published by firms with superior CSR performances generate a subsequent reduction in their costs of capital. However, Barth et al. (2017) analyzed the annual reports of listed companies in South Africa, where integrated reporting is mandatory, and they identified a positive association between sustainability reporting and the companies' liquidity and cash flows, even though they did not identify any connection between sustainable reporting and cost of capital. From the investor perspective, voluntarily publishing information on the environment tends to influence investor perceptions in a favorable manner mainly by reducing uncertainty and thus contributing to increasing financial value (Clarkson, Richardson & Vasvari, 2008). This would reduce future compliance costs and might positively influence companies' future financial perspectives and the value of firms (Dhaliwal et al., 2012). Since one of the primary tasks of any board of directors is to oversee and exercise control over management by ensuring stakeholders interests (Zhang, 2012), the absence of sustainability disclosure is one of the concerns of stakeholders which may damage the image of the company in society and will lead to a loss of public faith. Lack of disclosure on sustainability creates an information asymmetry for stakeholders and this ultimately results in inefficient resource allocation with an unfavorable impact on the economy at the end (Mapparessa et al., 2017). In this context, this research debates the role of sustainable reporting in optimizing the strategies adopted for growing a firm, thereby making a thorough investigation into whether sustainability reporting acts as a business strategy for growth. On the other hand, Sri Lanka does not show a great fondness for sustainability reporting (Liyanagedara & Senaratne, 2009) and because it is a non-mandatory requirement, there can be considerable variations from high to low in sustainability reporting in the corporate sector in Sri Lanka (Dissanayake, Tilt & Lobo, 2016). Accordingly, based on the contemporary importance, the availability of contradictory evidence and the dearth of studies in the study area, the main issue addressed in this paper is: "what is the impact of sustainability reporting on firms' growth prospects in Sri Lanka?". Based on this problem statement, the two main research objectives of this study are firstly, to ascertain the current level of sustainability reporting in Sri Lanka through descriptive statistics, and secondly, to examine the impact of sustainability reporting on firms' growth through correlation and regression analyses.

The remaining sections of this study are structured as follows: the next section discusses the existing literature followed by a discussion of the research approach, the sample and the analysis in section three. Section four discusses the key findings of the study. The final section states the conclusions and the limitations and future research directions.

2 LITERATURE REVIEW

This section evaluates and summarizes the literature relating to previous studies, the key terms, previous knowledge and the knowledge gap and analyses sustainability reporting and firms' growth indicators.

2.1 Definition of Concepts

The definitions of sustainability reporting and firms' growth indicators are discussed below.

Sustainability Reporting

For decades, the mutual interdependence between society and business has been a well-known fact. ''Sustainability'' is a term that has emerged over time from the ''triple bottom-line'' consideration consisting of (1) economic viability, (2) social responsibility, and (3) environmental responsibility (ACCA, 2003). Sustainability is always focused on the future decisions on resource utilization which should not be threatened or restricted by present actions (Aras & Crowther, 2009). Although traditional financial statements are focused on profitability and financial performances or economic aspects, it is believed that they should present a comprehensive view of how a company interacts with all its stakeholders since it may enhance the level of voluntary disclosure of the firm. Meanwhile, social pressure is exerted for comprehensive reporting which includes information related to environmental management compliances and environmental operational performances, etc. (Mapparessa et al., 2017, p. 1020). Companies that value sustainability require a global framework in consistent and measurable language which can be easily understood by the stakeholders and is thus called 'Sustainability Reporting' (Mapparessa et al., 2017, p.1022). Unlike financial reporting, sustainability reporting is voluntary in the majority of states (Haffar & Searcy, 2018). For this reason, most companies presenting information on the actions taken for social and environmental protection use voluntary reporting guidelines such as the Global Reporting Initiative (GRI) and the Greenhouse Gas (GHG) Protocol developed by the World Resource Institute (Gomes et al., 2015).

Firms' Growth Indicators

A growth firm is a company that is growing faster than its peers or the broader economy. Although there are no hard-and-fast rules for defining growth, these firms generally have increased annual revenues by more than the industry average over a sustained period (Chen et al., 2009). Social Responsibility actions can be a marketing strategy for firms (Mcdonnell & Bartlett, 2009); on the other hand, they can also be a good means for "washing away their sins", as firms receive a chance to present their image in a desirable manner (Kang, Germann & Grewal, 2016) and contribute via their involvement in the social progress to the economic growth of the space where they conduct their business (Asandului, Iacobuta & Cautisanu, 2016). The firm's growth indicators were disaggregated into three sub-dimensions, namely, the prospect for increased market value (measured *via* the price-to-book ratio), operational performance (as reflected in sales growth) and cost of capital (estimated *via* the weighted average cost of capital (Bhatia & Tuli, 2017).

Market value is the price an asset would fetch in the marketplace. It is also commonly used to refer to the market capitalization of a publicly traded company, which is obtained by multiplying the number of its outstanding shares by the current share price (Chen et al., 2009). The market to book ratio captures the success of the management of a firm in maximizing shareholder expectations as well as wealth (Arora & Dharwadkar, 2011). Operational Performance is what a company tries to improve in a bid to meet its corporate strategy (Lozano & Huisingh, 2011). Finally, Cost of Capital is the required return necessary to make a capital budgeting project worthwhile. When analysts and investors discuss the cost of capital, they typically mean the weighted average of a firm's cost of debt and cost of equity blended together (Kitzmueller & Shimshack, 2012).

The next section elaborates on the theories of sustainability reporting and a firms' growth indicators.

2.2 Theories on Sustainability Reporting as a Business Strategy for a Firms' Growth

As part of a social contract promoted by Legitimacy Theory (Cho & Patten, 2017), companies respond to society using sustainable reporting as a tool and a strategy for confirming the socially responsible behavior mandated by the external environment in which they conduct their activities (Manes-Rossi et al., 2018). In accordance with the Stakeholder Theory, companies also perceive the instrumental role of presenting social responsibility information for increasing economic performance (Oh et al., 2017) and submit such data to improve their image and reduce any negative effect of their own activities. Concurrently, the voluntary presentation of financial information, as well as environmental protection and social responsibility information in a single report has become the new trend in corporate reporting (Bhatia & Tuli, 2017). The responsible behavior of companies is not equally appreciated in all economic areas. The effects of sustainable reporting on company performance depend on both the manner in which they present the activities they undertook and on a plethora of factors that are specific to the society and business environment in which they operate (Bhatia & Tuli, 2017).

2.3 Empirical studies on Sustainability Reporting and Firms' Growth Indicators

This section discusses the level of sustainability reporting and its impact as a business strategy for a firms' growth referred to in both local and international literature. It includes a positive, negative or neutral relationship between Sustainability Reporting and a Firms' Growth Indicators.

Corporate social responsibility (CSR) is a concept older than the concept of sustainability. CSR research has a longer history than sustainability because CSR articles began to appear in the 1970s, while articles advocating sustainability came later in the 1990s. CSR is about how the profits earned should be given back to society, while sustainability is about earning profits in a socially responsible manner (Balchandran & Chandrasekaran, 2011). Although sustainability and CSR have evolved with different histories, they push work towards a common goal. In the present time, both share the same vision of balancing economic responsibilities with social and environmental responsibilities. As cited by Bandaranayake, Manawaduge and Ajward (2018), the US banks' CSR disclosure percentage has increased from 2009 to 2011. Moreover, Michelon and Parbonetti (2012) identify companies which disclosed 49 items of sustainability information and there the highest total score of 49 was achieved by a USA company. Further, Ho and Taylor (2017) have shown a similar result which is that only 26% of company reports on sustainability disclosure is from Japan and the USA. Comparatively Japan's level of reporting on sustainability is higher than in the USA.

Majeed et al. (2015) identified that most of the studies are based in developed countries and only a few in developing countries. Al-Shammari (2008) conducted a study in Pakistan and found that only 19% of public listed companies have published sustainability reports within the given period. However, Shamil et al. (2014) identified that as a developing country, 50% of selected public companies in Sri Lanka have published sustainability reports. Further, Dissanayake, Tilt and Lobo (2016) noted a significant difference in the extent and quality of sustainability reporting between the top 30 companies and the bottom 30 companies in Sri Lanka in terms of their market capitalization. Moreover, most companies report on social and economic aspects than on the environmental aspect.

Different studies reveal an association with sustainability reporting as a business strategy for a firms' growth. The empirical literature mentioned below discusses these findings.

Given that the voluntary publication of information on sustainable development is most frequently encouraged, the literature shows that firms tend to report good news and avoid reporting bad news to improve their image (Hahn & Lulfs, 2014). This behavior corresponds to the Impression Management Theory, which determines that companies use strategies for improving the positive aspects of performance in terms of sustainability and omit negative aspects (Cho, Michelon & Patten, 2012). However, Bhatia and Tuli (2017) identified that a firm's profitability has a statistically significant negative relationship with disclosing information regarding sustainable reporting. These results are validated by the fact that firms with high levels of profitability do not depend on foreign resources to attract capital, but can finance their activities using their own resources, and thus they are more preoccupied with economic aspects than contributing to a better society and protecting the environment.

According to the above studies, different outcomes emerge in respect of the association between the sustainability disclosure level and firms' growth. Therefore, it can be concluded that the external literature provides mixed evidence of the relationship between sustainability reporting as a business strategy for a firm's growth.

In terms of control variables that have been used to examine the relationship between sustainability disclosure level and firms' growth, in the study of Senanayake and Ajward (2017), firm size and firm age were not significant control variables of a firm's performance in terms of both ROA and ROE. Moreover, they found that the leverage of a firm positively influences the firm's ROE whereas contradictory findings in relation to leverage have been presented by Palaniappan (2017) who found no significant association between them. Further, Hall (1987) findings indicate that firm size is not a significant determinant of a firm's growth in the manufacturing sector in the USA. Konar and Cohen (2001) who studied sustainability initiatives and firms' performance found that firm size has a negative association with growth strategies and performance. Also, the findings of Wanger (2010) who used advertisement intensity and firm age as control variables in investigating the association between sustainability and economic performances indicate that the aforesaid control variables were not able to hold a significant association with firm performances. Thus, based on a review of the extant literature, the study used four variables to control the relationship between the level of sustainability reporting and a firm's growth aspects, which are often used amidst contradictory findings. Accordingly, firm size, audit quality, leverage and firm age are used as control variables in this study.

2.4 Theoretical Gap

The literature review indicates a dearth of studies on the impact of sustainability reporting as a business strategy on a firms' growth in both the local and international context. Further, Thilakasiri (2012,), Dissanayake, Tilt and Lobo (2016) identified poor concerns in terms of social and environmental indicators in Sri Lanka. Moreover, most of the studies have used a one-dimensional measure to capture the level of sustainability. In contrast, the present study uses a comprehensive sustainability index to measure sustainability. On the other hand, in operationalizing a firm's growth, the construct was disaggregated into three sub-dimensions, namely, the prospect for increased market value (measured *via* the price-to-book ratio), operational performance (as reflected in the sales growth) and cost of capital (estimated *via* the weighted average cost of capital). Thus, it is hoped that this study will add to the extant local and international literature and fill the gaps observed. The next section explains the methodology adopted in the study.

3 METHODOLOGY

This section discusses the research approach, the population, the study sample, hypotheses, operationalization of variables and proposed analytical strategies.

This study used a quantitative research approach because it examines the current level of sustainability reporting and firms' growth as well as the relationship between these two constructs. Other studies too have used a quantitative approach in achieving similar objectives as in the current study (Cho, Michelon & Patten, 2012; Hahn & Lulfs, 2014). As of March 31, 2017, there were 296 listed companies, which formed the population of this study. The selected sample consisted of manufacturing firms listed in the Colombo Stock

Exchange during the period 2014 to 2017. The conceptual framework based on the extant literature is shown in Figure 1 below.

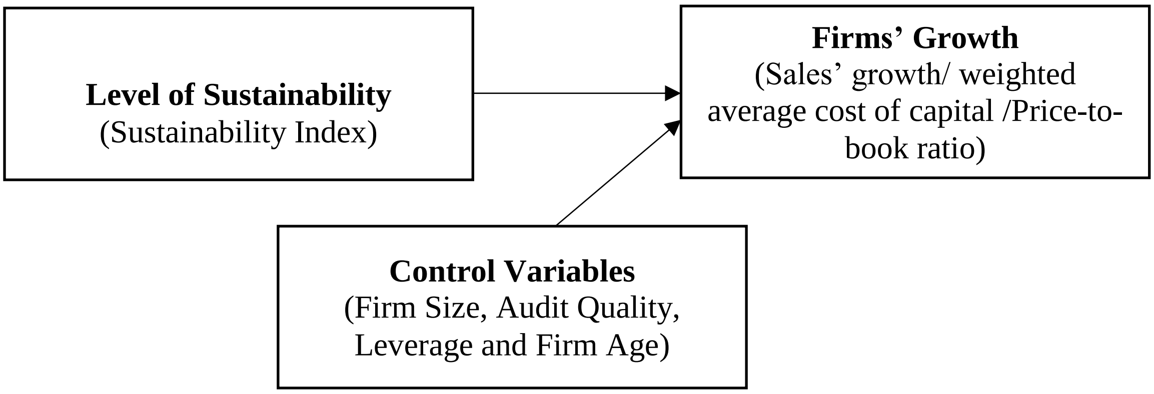

Figure 1: Conceptual Framework
Source: Constructed by Authors

3.1 Hypotheses

The following hypotheses were developed based on the literature surveyed in Section 2:

Publishing sustainability information can be seen as positive news and can therefore improve the firm's reputation (Bhatia & Tuli, 2017). To this end, certain studies have identified a significant association between sustainable reporting and operational performance, estimated *via* sales growth (Bodhanwala & Bodhanwala, 2018; Clarkson et al., 2011). Thus, in determining the impact of sustainable reporting on operational performance, the following hypothesis is developed and tested in this study:

H1: There is a significant association between sustainable reporting and operational performance, estimated *via* sales growth.

Conducting a sustainable activity allows companies to reduce their costs of capital by inducing investors to believe that the risk associated with their investment is low (Aras & Crowther, 2009). To this end, Dhaliwal et al. (2012) provided evidence that the information published by firms with superior CSR performances cause a subsequent reduction in their costs of capital. Based on these findings, the following hypothesis is developed and examined in this study:

H2: There is a significant association between sustainable reporting and cost of capital.

According to Clarkson et al. (2008) voluntarily publishing information about the environment tends to influence investor perceptions favorably, reducing uncertainty and thus contributing to increased financial value. Environmental information is relevant for value. This would reduce future compliance costs and would positively influence companies' future financial perspectives and the value of firms (Dhaliwal et al., 2012).Thus, in terms of the impact of sustainable reporting on the prospect of growing the value of companies, the following hypothesis is proposed and tested in this study:

H3: There is a significant association between sustainable reporting and the prospect of growing the value of companies.

The next section discusses the operationalization of the variables.

3.2 Operationalization

Table 1 below shows the operationalization of the variables selected for this study.

Table 1: Operationalization of Variables

Variable	Measurement	Related Studies
Level of Sustainability Reporting - *($SR_{i,t}$)*	Use Sustainability Reporting Index (see Section 3.2.1 below)	Thilakasiri (2012); Choi et al. (2013); Cho and Chun (2016)
Sales Growth - *($SG_{i,t}$)*	$(Sales_{i,t} - Sales_{i,t-1})/Sales_{i,t-1}$	Dhaliwal, Tsang, Yang (2011); Dhaliwal, Tsang, Yang (2014); Aras and Crowther (2009)
Cost of Capital - *($WACC_{i,t}$)*	Weighted average cost function of the structure of financial resources of firm *i* for the period *t*.	Clarkson, Li, Richardson and Vasvari (2008); Dhaliwal, Tsang, Yang (2014); Plumlee et al. (2010)
Price to Book ratio - *($PBR_{i,t}$)*	The ratio between share price and its book value of firm *i* for the period *t*.	Ho and Taylor (2007); Hahn & Lulfs (2014)
Firm Size - *($FS_{i,t}$)*	Natural logarithm of total assets of firm *i* for the period *t*.	Bozzolan et al. (2015); Kim et al. (2012)
Audit Quality - *($AQ_{i,t}$)*	Coded '1' if the auditor is a BIG 3 audit firm, and '0' otherwise of the firm *i* for the period *t*.	Kim et al. (2012); Mutttakin et al. (2015)
Leverage - *($LEV_{i.t}$)*	Ratio of total debt at the end of the period to the total assets at the end of the period *t* of firm *i*.	Bozzolan et al.(2015); Choi et al. (2013)
Firm Age - *($FA_{i,t}$)*	The number of years firm i has existed since the firm's establishing year till period *t*.	Kim et al. (2012); Muttakin (2015)

Source: Constructed by Authors

Section 3.2.1- Sustainability Reporting Index *($SR_{i,t}$)*

The level of sustainability reporting is the independent variable in this study and this section explains the operationalization of the sustainability index used in this study. This variable is constructed using the Global Reporting Initiative (GRI) framework (Mapparessa et al., 2017). The GRI framework is used since it is one of most comprehensive frameworks among other similar indices and covers a considerable area of sustainability *via* its indicators (Clakson et al., 2008) and it is currently the most widely accepted model in terms of Sustainability

Reporting (Fuente et al., 2017). Since this study intends to measure the level of sustainability, GRI - G3 guidelines were used to measure the sustainability disclosure by using 79 performance indicators that included indicators of the broad categories of economic, environment and social dimensions. It is to be noted that GRI issued a new version of their guideline called G4 in May 2013. Reports issued after December 31, 2015 need to follow G4 guidelines, but in the transition period, companies could use G3 version, and therefore this study used G3 for consistency in the measurements of all the four years considered. Accordingly, this study used the structured content analysis using the GRI G3 indicators, where a quantitative scoring strategy was adopted to gather data from annual reports based on weights adopted from Al Tuwaijri, Christensen and Hughes (2004). This scale of weights consist of four levels, where the maximum of 3 was given for detailed *quantitative* disclosures related to indicators were disclosed while a score of 2 was assigned for disclosures on non-quantitative but specific information related to indicators, and the lowest value of 1 was given for general qualitative disclosures, and finally a score of 0 was assigned for firms which had not disclosed any information related to the indicators. The main reason for the adoption of this scale was the benefits of the quantification of different levels of disclosures. Thereby, all the 79 indicators used under the categories of economic, environment and social were scored under this scale for each company for the selected period of four years.

3.3 Data Analysis Strategies

This section discusses the analytical strategies used in the study to achieve its objectives. Data cleaning and screening strategies were used before performing both the descriptive and regression analyses. Variables with significant outliers were winzorized in order to address the issue of outliers. Measures of central tendency and dispersion such as mean, median and standard deviation were estimated to assess the level of sustainability reporting in Sri Lanka, which is the first objective of this study. Next, for the second objective of this study, which was to find out the impact of sustainability reporting on firms' growth, correlation and regression analyses were performed.[5]

The regression equations are as follows:

$$SG_{i,t} = \propto_0 + \infty_1 SR_{i,t} + \infty_2 FS_{i,t} + \infty_3 AQ_{i,t} + \infty_4 LEV_{i,t} + \infty_5 FA_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$WACC_{i,t} = \propto_0 + \infty_1 SR_{i,t} + \infty_2 FS_{i,t} + \infty_3 AQ_{i,t} + \infty_4 LEV_{i,t} + \infty_5 FA_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$PBR_{i,t} = \propto_0 + \infty_1 SR_{i,t} + \infty_2 FS_{i,t} + \infty_3 AQ_{i,t} + \infty_4 LEV_{i,t} + \infty_5 FA_{i,t} + \varepsilon_{i,t} \quad (3)$$

Note: Definitions of the above variables in the equation are given in Table 1.

[5]In performing these analyses, several assumptions were tested for normality, multicollinearity, homoscedasticity and no anomalies were found.

4 FINDINGS AND DISCUSSION

This section elaborates on the findings of the descriptive analysis, correlation and regression analysis.

4.1 Descriptive Statistics

Table 2 shows the descriptive statistics of the main variables in the study. The variable sales growth ($SG_{i,t)}$ shows an average of 0.288 and a median of 0.151. Next, the average of cost of capital ($WACC_{i,\ t}$) shows 1.890 and a median of 1.192. The average value of price to book ratio ($PBR_{i,t}$) is 0.116 and the median value is 0.109. Further, it ranges from 0.100 to 0.153. In terms of sustainability disclosures in the manufacturing sector, the sustainability reporting score ($SR_{i,t}$) indicated a median value of 0.512 and a range from 0.025 to 0.617.[6] In terms of the control variables, the firm size ($FS_{i,t}$) on average is 21.58 with a median of 21.33; it ranges from 19.14 to 24.51.

Table 2: Descriptive Statistics

Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
$SG_{i,t}$	112	0.288	0.151	0.301	0.023	0.910
$WACC_{i,t}$	112	1.890	1.192	1.678	0.562	5.781
$PBR_{i,t}$	112	0.116	0.109	0.017	0.100	0.153
$SR_{i,t}$	112	0.474	0.512	0.447	0.025	0.617
$FS_{i,t}$	112	21.58	21.33	1.141	19.14	24.51
$AQ_{i,t}$	112	0.883	1	0.321	0	1
$LEV_{i,t}$	112	0.391	0.402	1.164	-0.080	0.815
$FA_{i,t}$	112	36.67	33	16.64	12	85

*Definitions of these variables are given in Table 1.

Source: Constructed by Authors

The audit quality ($AQ_{i,\ t}$) shows that, on average 88% of manufacturing organizations have got the services of the Big three audit companies for their annual audit. Moreover, there is a low leverage ($LEV_{i,t}$) recorded in the manufacturing sectors; it was 0.391 on average and the median was 0.402. Finally, the firm age ($FA_{i,t}$) shows an average of 36.67 years with a median value of 33 years.

4.2 Correlation Analysis

The correlation analysis (Table 3) showed the relationship between the selected variables of the study. Accordingly, there is significant ($p<0.05$) positive association between the level of sustainability reporting ($SR_{i,t}$) and sales growth ($SG_{i,t}$) in the manufacturing sector. Furthermore, there is significant negative association (expected) between ($p<0.05$) firm cost of capital ($WACC_{i,t}$) and the level of sustainability reporting ($SR_{\ i,t}$).

[6]Since, the sustainability reporting score ($SR_{i,t}$) was found to be not normally distributed (having a skewedness of 1.121) the median value over its mean has been used as the mean value would be misleading to interpret results.

Table 3: Correlation Analysis

	$SG_{i,t}$	$WACC_{i,t}$	$PBR_{i,t}$	$SR_{i,t}$	$FS_{i,t}$	$AQ_{i,t}$	$LEV_{i,t}$	$FA_{i,t}$
$SG_{i,t}$	1							
$WACC_{i,t}$	-0.014	1						
$PBR_{i,t}$	0.236	-0.238	1					
$SR_{i,t}$	0.117*	-0.446*	0.283*	1				
$FS_{i,t}$	0.211	-0.272*	0.654*	0.505*	1			
$AQ_{i,t}$	0.107	0.084	0.086	0.138*	0.032	1		
$LEV_{i,t}$	-0.011	-0.177	0.307*	0.174	0.229	-0.002	1	
$FA_{i,t}$	-0.078	-0.172	-0.161	0.003	-0.051	-0.229	0.011	1

The definitions of these variables are given in Table 1.
*p<0.05; **p<0.01
Source: Constructed by Authors

On the one hand, there is a positive systematic association between the level of sustainability reporting ($SR_{i,t}$) and the price to book ratio ($PBR_{i,t}$). The results further show a significant positive association (p<0.05) between the price to book ratio ($PBR_{i,t}$) and the level of sustainability reporting ($SR_{i,t}$). On the other hand, there is a significant negative association between firm size ($FS_{i,t}$) and firm cost of capital ($WACC_{i,t}$). However, audit quality ($AQ_{i,t}$), leverage ($LEV_{i,t}$) and firm age ($FA_{i,t}$) are insignificant firm cost of capital ($WACC_{i,t}$). Moreover, firm size ($FS_{i,t}$) and audit quality ($AQ_{i,t}$) show a systematic positive correlation (p<0.05) with the level of sustainability reporting ($SR_{i,t}$). However, leverage ($LEV_{i,t}$) and firm age ($FA_{i,t}$) are not significant with firm cost of capital ($WACC_{i,t}$). Furthermore, leverage ($LEV_{i,t}$) shows a significant positive correlation with the price to book ratio ($PBR_{i,t}$). However, firm size ($FS_{i,t}$), audit quality ($AQ_{i,t}$) and firm age ($FA_{i,t}$) are insignificant with the price to book ratio ($PBR_{i,t}$). Accordingly, all three hypptheses are supported.

4.3 OLS Regression Analysis

Table 4: OLS Regression Analysis

	$SG_{i,t}$ – Model I		**$WACC_{i,t}$ – Model II**		**$PBR_{i,t}$ - – Model III**	
	Coefficient	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
$SR_{i,t}$	0.044*	0.048	-0.101	0.014	0.038	0.566
$FS_{i,t}$	0.341*	0.053	1.469*	0.000	-0.216	0.211
$AQ_{i,t}$	1.413*	0.013	1.175*	0.090	-0.135	0.800
$LEV_{i,t}$	0.222	0.830	5.306*	0.000	-2.342*	0.049
$FA_{i,t}$	-0.009	0.340	-0.008	0.418	-0.003	0.719
Peseudo R^2		0.0142		0.1121		0.012
Prob > Chi2		0.000		0.000		0.001

The definitions of these variables are given in Table 1.
*p<0.05; **p<0.01
Source: Constructed by Authors

The OLS regression analysis (Table 4) is presented as three models based on the three dependent variables, namely, sales growth ($SG_{i,t}$), cost of capital ($WACC_{i,t}$) and price to book ratio ($PBR_{i,t}$). Model I shows a significant *($p<0.05$)* positive association between sales growth ($SG_{i,t}$) and level of sustainability reporting ($SR_{i,t}$). Further, there is a systematic *($p<0.05$)* positive association between sales growth ($SG_{i,t}$) and firm size ($FS_{i,t}$) and audit quality ($AQ_{i,t}$). Next, Model II shows that firm size ($FS_{i,t}$), audit quality ($AQ_{i,t}$) and leverage ($LEV_{i,t}$) have a significant$(p<0.05)$ positive influence on the cost of capital ($WACC_{i,t}$) of the organization. Finally, Model III indicates a negative association between price to book ratio ($PBR_{i,t}$) and leverage ($LEV_{i,t}$) of the organization. Accordingly, only H1 is supported with the above regression analysis results.

4.4 Discussion

The study aimed to identify the level of sustainability reporting, which could be used as a business strategy for the firm's growth. The first objective was achieved through descriptive statistics, according to which sustainability reporting was identified as 0.512 or 51.2% in the manufacturing sector. Thus, 51.2% is the average level of sustainability reporting ($SR_{i,t}$) in Sri Lanka over the period from 2014 to 2017 in the listed manufacturing firms in Sri Lanka. This result is consistent with the findings of Shamil et al. (2014) according to whom 50% of selected public companies in Sri Lanka had published sustainability reports. Moreover, Wijesinghe (2012) has identified a positive trend towards the disclosure of sustainability reporting based on a longitudinal study across five years in Sri Lanka. Moreover, most of companies reported on social and economic aspects rather than on environmental aspects. However, Wijesinghe (2012) indicates that the analyzed data reveal that Sri Lanka shows a greater upsurge trend towards producing sophisticated sustainability reports than previously.

Further, to achieve the second objective of sustainability reporting use as a business strategy for the firm's growth, the study performed a correlation and regression analysis.

The above correlation analysis indicates a positive systematic relationship ($p<0.05$), between operational performance *via* sales growth ($SG_{i,t}$) and the level of sustainability reporting ($SR_{i,t}$). Moreover, Model I of the OLS regression analysis shows a significant positive association between sales growth ($SG_{i,t}$) and the level of sustainability reporting ($SR_{i,t}$). Thus, it supports the first hypothesis that there is a significant association between sustainable reporting and operational performance, estimated *via* sales growth. Further, this result is consistent with that of Bhatia and Tuli (2017) who showed that publishing sustainability information can be seen as positive news and can therefore improve the firm's reputation (with positive effects on performance) and further help to avert a decrease in share price. Further, Bodhanwala and Bodhanwala (2018) emphasized that there is appositive relationship between sustainability and financial performance.

In terms of the cost of capital ($WACC_{i,t}$), the correlation analysis revealed a systematic ($p<0.05$) negative relationship between costs of capital ($WACC_{i,t}$) and the level of sustainability reporting ($SR_{i,t}$), which was expected to be negative. This result is consistent with that of Aras and Crowther (2009) who showed that conducting a sustainable activity allows companies to reduce their costs of capital by inducing investors to believe that the risk associated with their investment is low. Further, the evidence provided that the information published by firms with superior CSR performances generate a subsequent reduction in their costs of capital. A negative association between disclosing social aspects and cost of capital was identified in countries with low investor protection for firms with high levels of financial capacity (Dhaliwal, Li, Tsang &Yang, 2014). However, the study performed by Qui et al. (2016) does not present clear evidence that the information regarding environmental or social activities is indicative of future financial performance or cost of equity.

On the other hand, the correlation analysis revealed a positive systematic ($p<0.05$) association between the level of sustainability reporting ($SR_{i,t}$) and the prospect of growing the value of companies *via* price to book ratio ($PBR_{i,t}$); this supports the third hypothesis of the study. However, the regression analysis does not point to a significant association between the level of sustainability reporting ($SR_{i,t}$) and the prospect of growing the value of companies *via* price to book ratio ($PBR_{i,t}$) as well as the costs of capital ($WACC_{i,t}$) of the firm. The results obtained by Plumlee et al. (2010) are consistent with this result of the study. However, it is contradicted by Clarkson, Richardson and Vasvari (2008) who explained that voluntarily publishing information about the environment tends to influence investor perceptions favorably thus reducing uncertainty and contributing to an increase of financial value.

This section statistically analyzed and discussed how sustainability reporting is used as a business strategy for the firm's growth in Sri Lankan listed manufacturing companies. The above analyses indicate a moderate level of sustainability reporting in the manufacturing sector in Sri Lanka and that there sustainability disclosure has an impact on the growth prospects of a firm.

5 CONCLUSION

Sustainability information can be seen as positive news and can therefore enhance the firm's reputation (Bhatia & Tuli, 2017). The literature also indicates that sustainability reporting used as a business strategy for the firm's growth has a positive impact and leads to a maximization of value in firms. However, despite the importance of the phenomenon, there is a dearth of studies in Sri Lanka that examine the association between sustainability reporting and the firms' growth prospects in the manufacturing industry. Accordingly, the first objective of this study was to identify the level of sustainability reporting in the manufacturing companies from 2014 to 2017. To assess the sustainability reporting level, a sustainability reporting index was developed by the researchers, based on the literature and Global Reporting Initiative (GRI) G3 guidelines. A structured content analysis was performed to collect data for the sustainability reporting index based on the 79 performance indicators. Overall, the level of the sustainability reporting index was found to be 51.2%, which is quite an average percentage.

The second objective of this study was to examine the association between sustainability reporting and firms' growth. Correlation and regression analyses were used for the empirical analysis. The independent variable was the level of sustainability reporting ($SR_{i,t}$) and the dependent variable was divided into three sub dimensions, namely, the prospect for increased market value (measured *via* the price-to-book ratio ($PBR_{i,t}$), operational performance (as reflected in sales' growth ($SG_{i,t}$) and cost of capital (estimated *via* the weighted average cost of capital ($WACC_{i,t}$). The results correlation analysis results revealed a systematic positive relationship between the level of sustainability reporting ($SR_{i,t}$) and sales' growth ($SG_{i,t}$) and price-to-book ratio ($PBR_{i,t}$). Further, a systematic negative association (expected) was identified between the level of sustainability reporting ($SR_{i,t}$) and the weighted average cost of capital ($WACC_{i,t}$). These findings support the hypotheses postulated under this study. Moreover, a systematic positive association was also identified between the level of sustainability reporting ($SR_{i,t}$) and sales' growth ($SG_{i,t}$) under regression analysis. Overall, based on the results, it could be concluded that sustainability reporting could be effectively used as a strategy for a firm's growth.

This study is expected to fill the empirical gap in the local context and to use the sustainability reporting index as a business strategy for a firms' growth. The above findings are expected to have significant policy implications. Policymakers and regulators could promote sustainability reporting as a business strategy of the organization for growth and for enhancing the level of sustainability reporting.

There are some limitations of this study, which future studies could overcome. First, this study is based on annual reports for the period from 2014 to 2017, while many other sources may have been used by respective companies as data sources. Further, the study was limited to the manufacturing sector of Sri Lanka while future researchers can expand this sample so as to cover all the sectors under the Colombo Stock Exchange. Another future research direction worth pursuing is to search for views, opinions and motives relating to sustainability reporting disclosures.

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THE IMPACT OF CORPORATE GOVERNANCE CHARACTERISTICS OF THE FORWARD-LOOKING DISCLOSURES IN INTEGRATED REPORTS OF BANK, FINANCE AND INSURANCE SECTOR COMPANIES IN SRI LANKA

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Abstract

This paper examines the extent of forward looking disclosures (FLD) in integrated reporting (IR) and the impact of corporate governance characteristics on the extent of FLD. This study relates to the Bank, Finance and Insurance (BFI) Sector in Sri Lanka over three consecutive years from 2015 to 2017. This sector has the highest number of companies that have prepared integrated reports among the companies listed on the Colombo Stock Exchange (CSE). The study used structured content analysis based on a disclosure index developed on the International Integrated Reporting Framework (IIRF) to investigate FLDs provided by these companies in integrated reports. The study finds that these companies provide less FLDs in relation to the content elements of IIRF. However, these disclosures have shown an increasing trend over time. This study further show that corporate governance characteristics -board size, board expertise, independence of audit committee, and audit committee meetings- have positively impacted on the extent of FLDs in these companies and board independence is negatively associated with FLDs. At present, there is a dearth of research on FLD practices in IRs in general and particularly in the developing countries. Hence, this research study contributes to the current literature on FLDs in IR in a developing country context. The findings of the study also provides insights for policy makers and practitioners with regard to FLD practices in companies that prepare integrated reports and the need to establish specific guidelines in this respect.

Key words: Corporate Governance, Forward-Looking Disclosure, Integrated Reports, Structured Content Analysis.

1 INTRODUCTION

Public listed companies are required to publish Annual Reports consisting of financial statements, that reveal the financial situation of an organization, and corporate governance reports that reveal the level of corporate governance practices (Garcia-Sanchez et al., 2013). However, companies voluntarily publish corporate sustainability, social and environmental reports as a form of non-financial information disclosure to improve the transparency and accountability of disclosures (Oliveira et al., 2010). Though many disclosures are provided, the absence of a single report leads to information confusion and diffusion for stakeholders (Ioana & Adriana 2014). Hence, the provision of a single report combining both financial and non-financial information has been identified as a solution to this issue (Cheng et al., 2014). This led to the introduction of integrated reports by the International Integrated

Reporting Council (IIRC) as distinct reports, which combine both financial and non-financial information focusing on the value creation of a business (IIRC 2013). According to Brown and Dillard (2014), integrated reporting (IR) has become a new reporting paradigm, which provides a comprehensive view of an entity's information that links both financial and non-financial aspects unlike traditional financial reports.

The type of information published in annual corporate reports can be described as 'backward-looking information' or 'forward-looking information' (Hussainey 2004). Backward-looking information consists of past financial records as a form of financial statements and related disclosures (Aljifri & Hussainey 2007). On the other hand, future-oriented, prospective and forecasted information is referred to as forward-looking information (Alkhatib, 2014). All stakeholders including shareholders expect future forecasts because their decisions have to be taken within a dynamic economic environment, and backward-looking historical financial information does not fulfill their requirements sufficiently (Menicucci, 2013). As a result, forward-looking information, comprising future forecasted information on both financial and non-financial disclosures has become more important for all stakeholders (Bravo 2016; Aljifri & Hussainey 2007). Thus, the uncertainty about an entity can be mitigated by the strategic selection of information to be disclosed in corporate reports (Aljifri & Hussainey 2007). However, in spite of companies publishing integrated reports, there is a dearth of studies on the provision of FLDs in IR and the determinants of FLD.

In this context, this paper examines the nature and extent of forward-looking disclosures (FLD) in IR and the impact of corporate governance characteristics on the provision of such information. Hence, the research questions addressed in the study are two-fold: (a) what is the nature and extent of FLD in integrated reports published by companies and (b) do the corporate governance characteristics of companies impact on the level of FLD provided in integrated reports. This study was carried out in the companies listed in the Bank, Finance and Insurance (BFI) Sector of the Colombo Stock Exchange (CSE) during the three-year period from 2015 to 2017.

Theoretically, the study addresses the research gap that exists in the FLDs in integrated reports from a developing country perspective. Practically, the study provides insights for policy makers and practitioners into the nature and extent of FLD in integrated reports and the implications of governance practices of companies on the extent of FLD in IR.

The rest of the paper is organized as follows: Section two reviews the existing literature, and Section three discusses the methodology of the study. Section four analyses and discusses the research findings. Finally, Section five presents the conclusions of the study.

2 LITERATURE REVIEW

This section reviews the prior literature dealing with the main themes of the study.

2.1 Forward-Looking Disclosures (FLDs)

The current literature examines the factors that have influenced FLDs using the signaling theory (Spence 1973) and agency theory (Jensen & Meckling 1976). The two theories are closely related to the determinants of the level of FLDs (Elzahar & Hussainey 2012). The agency theory explains the relationship between the shareholders (principals) and the managers (agents). Shareholders delegate responsibilities to professional managers, who understand the business and manage the assets of the company in order to fulfill their objectives (Jensen & Meckling 1976). However, this has led to information asymmetry between shareholders and managers, as the latter have access to all company specific internal information, which the former does not have. The agency theory further explains that voluntary disclosures can be used as a mechanism to mitigate information asymmetry and provide more future-oriented information to reduce agency costs (Hassanein & Hussainey 2015). Therefore, most public listed companies tend to publish FLDs in their annual reports to reduce information asymmetry and agency costs in order to attract and retain investors in the organization.

The other theoretical basis behind the determinants of the level of FLD is the signaling theory. It explains the uncertainty and risks associated with the labour market. From the perspective of signaling theory, the disclosure of future forecasted information acts as a signal to the capital market. According to this theory, FLD performs the role of mitigating information asymmetry and reducing unnecessary costs incurred in improving corporate value (Gallego-Álvarez et al., 2011). The signaling theory proposes that managers should try to enhance the level of disclosures of company-specific information in their annual reports to provide signals to their potential investors and other users (Elzahar & Hussainey 2012).

Prior studies have found that organizations tend to provide FLDs as qualitative information rather than quantitative information (Kent & Ung 2003). This is to avoid the possible litigation costs that could arise from the provision of wrong future predictions and negative impacts that it could cause on a company's competitive position (Clarkson et al., 1994). There are a number of studies that attempt to explain what motivates companies to voluntarily disclose additional information. In this respect, Healy and Palepu (2001) and Walker (1997) provide comprehensive reviews in the literature.

However, different views have been presented in prior studies on the disclosure of FLDs in annual reports. In this respect, Kieso and Weygandt (1995) argue that the lack of FLD can lead investors to make their forecasts based on inaccurate information from other sources. They also argue that the economic environment is too turbulent to rely solely on historical information. Some studies have argued that information asymmetry between stakeholders and managers will be mitigated by the provision of FLDs in published annual reports, which in turn reduce the external financing cost of companies (Bujaki et al., 1999). These arguments provide an impetus for the voluntary disclosure of capital market transactions (Healy & Palepu 2001).

On the other hand, some researchers refer to the negative implications of the provision of FLDs. It has been argued that due to the uncertainty associated with the future, it is difficult to make accurate predictions. In addition, companies can be leveraged by their reaction to the level of their forecasts (Kasznik 1999). Companies also show a reluctance to disclose FLDs due to the possible litigation costs in relation to predictions (Uyar & Kilic, 2012) owing to the inability of the legal system to distinguish between uncertainty and error caused by forecasting. FLDs could also negatively impact on the competitive position of companies as per the proprietary cost hypothesis (Healy & Palepu, 2001; Uyar & Kilic, 2012).

The findings and arguments put forward in prior studies highlight that the provision of FLDs have become an important discussion point in the annual reports of companies. The next section considers this dimension in the context of IR.

2.2 Integrated Reporting

Integrated reporting (IR) entails a new and innovative approach to current corporate reporting practice. It is now increasingly used in many countries in accordance with the International Integrated Reporting Framework (IIRF) issued by the International Integrated Reporting Council (IIRC). This has resulted in developing integrated reports to overcome the problem of providing information in different strands of reporting (Gray, 2010; IRCSA 2011). According to IIRC (2013), the integrated report, the output of IR, provides concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, leads to the creation of value in the short, medium and long term.

IIRC recommends that financial and non-financial information should not be presented as isolated reports but as a single report reflecting an integrated approach comprising both financial and non-financial information to ensure sustainable returns by managing various types of capital such as financial, manufactured, intellectual, social/relationship, human and natural (Solomon & Maroun 2012; IIRC 2013). Considering the interconnections between these different types of 'stock of capital' (IIRC para. 2.11), the strategies and the business model should be clearly communicated among all stakeholders allowing them to influence and make changes to the operations, systems, processes and procedures of the organization, which ensure an enhancement of the sustainable growth in the long run (Adams et al., 2016; de Villiers et al., 2016).

IIRF has introduced a set of guiding principles and content elements to guide those preparing corporate report to ensure effective IR practices (IIRC 2013). In comparison with conventional financial statements, integrated reports are more forward-looking, stakeholder-oriented, and framed in accordance with strategic objectives and the business model of organizations. It is required to provide an explanation of the economic, social and environmental variables, which incorporate the risk affecting the sustainability of the business model (Stubbs & Higgins, 2014; Raemaekers et al., 2016). This approach enables an entity to provide both positive and negative information to the stakeholders, which is accurate, relevant, reliable and material and free from any misleading and ambiguous facts (IIRC 2013). This is founded upon a well-established corporate governance system. Campbell (2006) states that when there are coercive and normative pressures from a well-established and governed legal system, companies would ensure stakeholder protection, act responsibly and be accountable for their behavior.

The empirical studies on IR indicate the importance of FLD in integrated reports and the extent to which such disclosures are impacted by several factors. Among these factors, corporate governance is recognized as an important variable, as discussed in the next section.

2.3 Corporate Governance

Corporate governance (CG) is "the system by which companies are directed and controlled" (Cadbury, 1992, p.14). There is a high probability of voluntary provision of FLD from the firms, which have a significant adoption of corporate governance practices (Hossain et al., 2005; Karamanou & Vafeas 2005).Thus, many studies have investigated the relationship between corporate governance characteristics and the level of FLD (O' sullivan et al., 2008).

Aljifri & Hussainey (2007), who investigated the determinants of FLD in annual reports of companies in the United Arab Emirates, find that profitability, debt ratio, auditor size, sector type and the firm size have a significant impact on the level of FLD. Further, Akhtaruddin et al., (2009) report that voluntary disclosures are positively associated with board size and the proportion of independent non-executive directors on the board, and the family control and the ratio of audit committee members to the number of board members are negatively related with the disclosure of voluntary information.

Furthermore, Kent and Ung (2003) investigated the impact of external financing, competition, earnings volatility, auditor quality and firm size as control variables on FLD of Australian firms. The firm finds that only earning volatility and firm size have a significant influence on FLD. Most studies have identified board size, proportion of independent non-executive directors and firm size as the determining factors of FLD (Alkhatib 2014, Uyar & Kilic, 2012, Kılıç & Kuzey, 2018, Abeywardana & Panditharathna, 2016).

Further, several prior studies (Abed, 2014, Uyar & Kilic, 2012; Aljifri & Hussainey, 2007) identify board size, board independence, board gender diversity, board expertise, board meetings, audit committee size, independence of audit committee, expertise in audit committee and number of audit committee meetings as the corporate governance variables that have a high impact on the provision of FLD.

The methodology used in the study in the context of the extant literature is discussed next.

3 RESEARCH METHODOLOGY

This section outlines the research approach, the selected sample, the data collected, the conceptual framework and operationalization of the variables and analytical strategies of the study.

3.1 Research Approach

The quantitative approach has been followed since this study investigates the relationship between the selected corporate governance characteristics and the level of FLD. Furthermore, most prior research studies (Al-Najjar & Abed 2014, Uyar & Kilic2012, Aljifri & Hussainey2007) have adopted a similar quantitative approach to investigate the relationship between the corporate governance characteristics and the level of FLD.

3.2 Population and Sample

The population and sample of the study are the same as all 22 companies of BFI Sector (Refer Annexure 01) that prepare integrated reports for three consecutive years from 2015 to 2017 have been selected.

3.3 Conceptual Framework and Hypotheses of the Study

Figure 1 presents the conceptual framework of the study based on the literature review. It depicts the expected relationship between the selected corporate governance characteristics and the level of FLD.

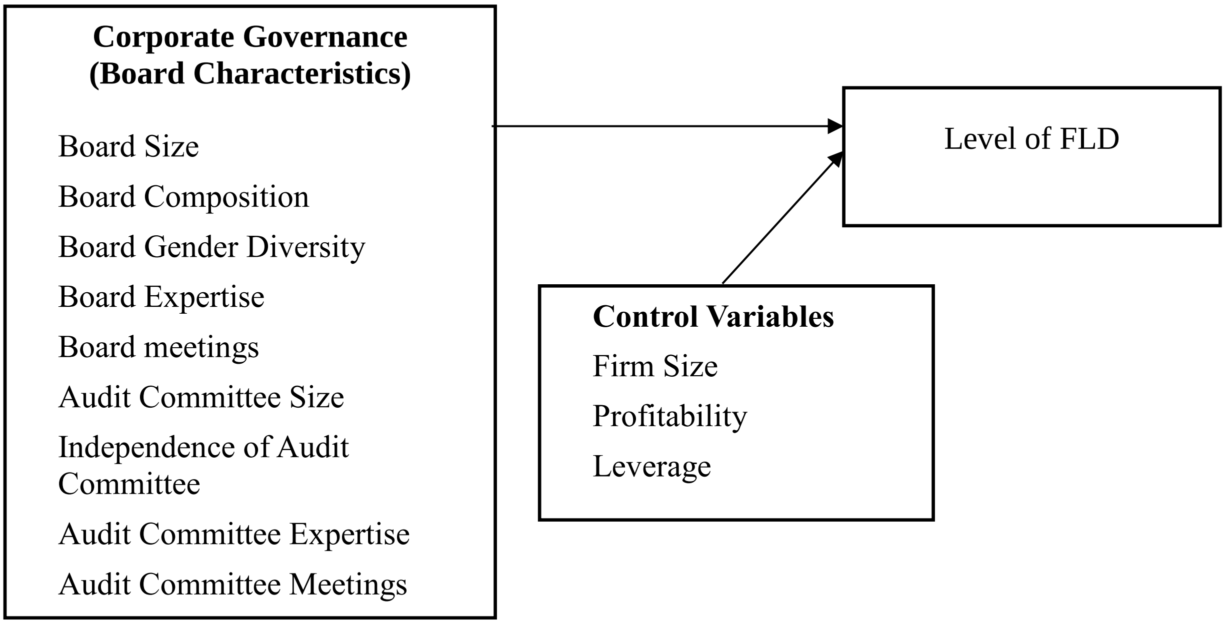

Figure 1: Conceptual Diagram
Source: Constructed by Authors

3.4 Hypotheses

Based on the conceptual framework of the study, the following hypotheses were derived.

H_1: There is a positive association between board size and the level of forward-looking disclosures.
H_2: There is a positive association between board independence and the level of forward-looking disclosures.
H_3: There is a positive association between board gender diversity and the level of forward-looking disclosures.
H_4: There is a positive association between board expertise and the level of forward-looking disclosures.
H_5: There is a positive association between board meetings and the level of forward-looking disclosures.
H_6: There is a positive association between audit committee size and the level of forward-looking disclosures.
H_7: There is a positive association between the independence of the audit committee and the level of forward-looking disclosures.
H_8: There is a positive association between the expertise in the audit committee and the level of forward-looking disclosures.
H_9: There is a positive association between audit committee meetings and the level of forward-looking disclosures.

3.5 Operationalization

Table 1 presents the operationalization of the dependent, independent and control variables.

Table 1: Operationalization of Variables

Concept	Variable	Working Definition	Measurement	Related Studies
Dependent Variables				
Forward-looking disclosure	Total forward-looking disclosure (FLDI)	Forward-looking information can be classified as qualitative and quantitative for firm i and period t.	The proportion of disclosed items to the total items in the index for firm *i* period *t*.	Menicucci and Paolucci (2017)
Independent Variables				
Corporate Governance	Board size (BSIZE)	Total number of executive and non-executive board members in the board of directors consider as the board size.	Total number of directors of the board of the firm i period t.	Muchemwa, Padia and Callaghan (2016)
	Board composition (BINDP)	The total independent directors as a percentage of total number of directors in the board.	The proportion of non-executive directors to total number of directors in the board in firm *i* period *t*.	Oconnel and Cramer (2010)
	Board gender diversity (GENDIV)	The differentiation between board members in terms of several characteristics such as gender, ethnicity, age, behaviors, educational qualifications, learning styles, expertise knowledge and skills. Here it is considered in terms of gender.	The proportion of female directors to total number of directors in the board in firm *i* period *t*.	Erhardt, Werbel and Shrader(2003)

	Board Expertise (BEXP)	Number of members with financial or/and accounting qualifications for firm i and period t.	The proportion of board expertise to total number of directors in the board in firm *i* period *t*.	Ujunwa (2012)
	Board Meetings (BODM)	Number of board meetings held during the period t of the firm i	No. of board meetings held during the period in firm *i* period *t*.	Hoque, Islam and Azam (2013)
	Audit Committee size (AUDCSIZE)	Number of members in the audit committee for firm i and period t.	Number of audit committee members for firm *i* period *t*.	Xie, Davidson and DaDalt (2003)
	Audit Committee Independence (INDPAC)	Number of independent non- executive directors on the Audit Committee for firm i and period t.	The proportion of non-executive directors to total number of directors in the audit committee in firm *i* period *t*.	Klein (2002)
	Audit Committee Expertise (AUDCEXP)	Number of members with Finance or/and Accounting qualifications in the audit committee for firm i and period t.	The proportion of board expertise to total number of directors in the audit committee for firm *i* period *t*.	Abbott et al. 2004
	Audit Committee Meetings (AUDCM)	Number of audit committee meetings held during the period *t* of the firm *i*	No. of audit committee meetings held during the period for firm *i* period *t*.	Davidson and DaDalt (2003)
Control Variables				
	Firm size (FSIZE)	Firm Size is the size of a particular firm in terms of total assets for a particular period.	The natural logarithm of total assets at the beginning of the year for firm *i* period *t*.	Hidayat and Utma (2016)
	Return on assets (ROA)	The net income earnings for the	Net Income / Total Assets (t-1)	Hidayat and Utma (2016)

		current period as a percentage of total assets utilized.		
	Leverage (LEV)	Leverage is the total liabilities scaled by total assets at the beginning of the year.	Total liabilities (t-1) / Total Assets (t-1)	Oconnel and Cramer(2010)

Source: Constructed by Authors

To identify the nature and extent of FLDs in the integrated reports of sample companies, a FLD index (Refer Appendix 2) was adopted based on the study of Menicucci and Paolucci (2017). Accordingly, the FLD index covers six content elements of IIRF - Organizational Overview and External Environment (ORG), Governance (GOV), Business Model (BUS), Risks and Opportunities (RISK), Strategy and Resource Allocation (STR), and Performance (PERF), ignoring two content elements because 'Outlook' element by its nature reflects future information and 'Basis of Preparation' always represents historical data. Under these six areas, 27 information categories were identified. The integrated reports of sample companies were evaluated under each category by counting the related sentences on FLD. Thereafter, an FLD score for each content element of the index was calculated for sample companies for the three consecutive years based on the natural logarithm of the sentence count.

3.6 Analytical Strategies

In the examination of the first objective of the study (assessing the nature and extent of FLD), descriptive statistics including measures of central tendencies and dispersions were calculated. In the achievement of the second objective (examining the relationship between corporate governance characteristics and level of FLD), correlation, multivariate linear regression and panel regression analyses (including the Hausman test for identification of random and fixed effects) were done. Further, regression diagnostics such as normality, linearity, heteroscedasticity and multicollinearity analyses were performed. The regression model used in the study is as follows:

Research Model

$$FLDI = \beta_0 + \beta_1 BSIZE + \beta_2 BINDP + \beta_3 GENDIV + \beta_4 BEXP + \beta_5 BODM + \beta_6 AUDCSIZE + \beta_7 INDPAC + \beta_8 AUDCEXP + \beta_9 AUDCM + \beta_{10} FSIZE + \beta_{11} ROA + \beta_{12} LEV + \varepsilon$$

The next section provides the findings and discussion of the study.

4 FINDINGS AND DISCUSSION

This section presents the findings of the study and the resulting discussion.

4.1 Descriptive Statistics

The descriptive statistics of FLD presented in Table 2 indicate that the mean score of all content elements is fairly low indicating a low level of FLD in integrated reports. Of the six content elements of the FLD index, the highest level of FLD was witnessed under 'Risks and Opportunities'. However, its standard deviation was the second highest, indicating a greater degree of variability of FLD scores of individual companies. This was followed by content elements – 'Performance', 'Strategy and Resource Allocation', 'Organizational Overview and External Environment' and 'Governance' in terms of mean scores. The highest standard deviation was reported for ''Strategy and Resource Allocation', which indicates a higher degree of variability of individual company scores. The mean score of FLD of the 'Business Model' was the lowest among the six content elements but with a low standard deviation, which indicates that all companies have not provided much FLD in this respect. The peculiar characteristic is that in the case of all content variables, the reported minimum score is 0, which indicates that some companies have not provided any FLD.

The descriptive statistics of corporate governance characteristics are presented in Table 3. The mean value of BSIZE indicates that on average that there are nine directors on the boards of BFI Sector companies that prepare integrated reports. The mean value of board commission 0.820 (82%) indicates that the majority of directors of boards of these companies are represented by independent non-executive directors, which is much higher than in Kilic & Kuzey (2018), where the independent non-executive directors is 59%.The mean value of gender diversity is 14.71%, which indicates less participation of female directors on the boards. The board comprised on average 4 to 5 directors with accounting and finance expertise and on average 14 board meetings were held during the period under consideration. It is important to note that the standard deviation of board meetings was comparatively high compared to the relatively low scores for the same for other variables.

The descriptive statistics on the characteristics of the audit committee provided in Table 3 presents that on average 3 to 4 directors (AUDCSIZE) were present in the audit committee of these companies with on average two directors with accounting and financial proficiency (AUDCEXP) on the audit committee. Further, on average 9 meetings of audit committee (AUDCM) have been held in these companies during this period. However, its standard deviation was comparatively higher when considering the low scores of the same for other variables.

The mean values of firm size (natural logarithm) and ROA are 8.91 and 0.049 respectively. The mean score of leverage of IR adopters is measured through the ratio of total liabilities to total assets which is 0.85 indicating the fact that the assets of these companies are financed mainly through the deposits of customers.

Table 2: Descriptive Statistics of Level of FLD

FLD Disclosure Criteria [a]	N	Mean	Mean%	Std. Deviation	Minimum	Maximum
Organizational Overview and External Environment (ORG)	66	2.2424	10.83	2.2740	0.0000	14.0000
Governance (GOV)	66	1.9848	9.59	1.7051	0.0000	9.0000
Business Model (BUS)	66	1.3030	6.30	1.6452	0.0000	8.0000
Risks and Opportunities (RISK)	66	5.4848	26.50	3.6342	0.0000	18.0000
Strategy and Resource Allocation (STR)	66	4.8030	23.21	3.8279	0.0000	18.0000
Performance (PERF)	66	4.8787	23.57	2.9898	0.0000	13.0000
Forward-looking Disclosure Index (FLDI)[b]	66	1.2434	100	0.2551	0.0000	1.6720

*See Annexure 3 for the sub-criteria for the main dimensions of FLDI included.

[b] These variables were winsorized at 5% due to the presence of outliers.

Source: Constructed by Authors

Table 3: Descriptive Statistics of Corporate Governance Characteristics and Control Variables

Variable [a]	N	Mean	Std. Deviation	Minimum	Maximum
Board Size (BSIZE)	66	9.318	2.185	4.000	13.000
Board Composition (BINDP)[b]	66	0.820	0.170	0.500	1.000
Board Gender Diversity (GENDIV)	66	0.147	0.123	0.000	0.444
Board Expertise (BEXP)	66	4.773	1.787	3.000	9.000
Board Meetings (BODM)[b]	66	13.909	3.937	6.000	22.000
Audit Committee Size (AUDCSIZE)[b]	66	3.530	0.915	2.000	5.000
Audit Committee Independence (INDPAC)[b]	66	2.712	0.799	2.000	4.000
Audit Committee Expertise (AUDCEXP)	66	2.318	1.025	1.000	4.000
Audit Committee Meetings (AUDCM)	66	9.455	4.084	0.000	19.000
Firm Size (FSIZE)	66	8.913	1.312	6.758	10.851
Profitability (ROA)[b]	66	0.039	0.049	0.006	0.207
Leverage (LEV)[b]	66	0.851	0.079	0.661	0.928

[a] Definitions of the variables are indicated in Table 1.

[b] These variables were winsorized at 5% due to the presence of outliers.

Source: Constructed by Authors

Table 4: Correlation Analysis

Variables [a]	FLDI	BSIZE	BINDP	GENDIV	BEXP	BODM	AUDCSIZE	INDPAC	AUDCEXP	AUDCM	FSIZE	ROA
BSIZE	.196**											
BINDP	-.165**	.024										
GENDIV	.081	.431***	-.137									
BEXP	.191**	.637***	.103	.067								
BODM	-.297**	.023	.127	.025	-.120							
AUDCSIZE	.141	.472***	.429***	.058	.229	.132						
INDPAC	.356***	.272**	.163	.042	.071	.108	.700***					
AUDCEXP	.153	.545***	.170	.149	.586***	-.282**	.610***	.389***				
AUDCM	-.260**	.196	-.172	.347***	.149	.316***	-.061	.068	.108			
FSIZE	-.329***	-.040	-.274**	-.156	.087	.242**	-.232*	-.117	-.024	.291**		
ROA	.132*	-.151	.127	.273**	.024	-.315***	-.169	-.158	-.078	-.256**	-.332***	
LEV	-.161*	.212	-.121	.194	.108	.183	.032	.218*	.199*	.488***	.253**	-.240

[a] See Table 1 for the definitions of the variables.

*p<0.1 **p<0.05; ***p<0.01

Source: Constructed by Authors

4.2 Relationship between FLD and Corporate Governance Variables

4.2.1 Correlation Analysis

Table 4 depicts the results of Pearson's bivariate correlation, which indicates that corporate governance characteristics have a significant systematic relationship with the level of FLD. This analysis indicates that board size, board expertise and independence of the audit committee have a significant positive relationship with the level of FLD at a significance level (p<0.05). On the other hand, board independence, the number of board meetings and of audit committee meetings show a significant negative relationship with the level of FLD (at least, at a p<0.05 level). The results confirm that no collinearity problem exists between the independent variables since multicollinearity can be considered a problem only when the correlation coefficients are above 0.80 (Kennedy, 2008). Furthermore, the size and expertise of the audit committee show no significant systematic relationship between the level of FLD at any of the significance levels (p>0.05)

4.2.2 Linear Regression

Table 5 represents the multivariate OLS regression analysis of the FLD determinants of integrated report providers of the BFI sector. The R2 value indicates that 45.6 per cent of the variation of the level of FLD could be explained using the selected corporate governance mechanisms. Further, the significance of the F-test is below 1% (0.07%), which signifies that the overall model is valid.

The evaluated outcomes shown in Table 5 indicate a positive association between the level of FLD and the corporate governance characteristics -size of board of directors and board expertise. This analysis shows that the board characteristics other than gender diversity and board meetings show a significant relationship with the level of FLD. Among these, a systematic significant (p<0.01) positive relationship is observed only between the size of board of directors and board expertise, and the level of FLD. When considering the audit committee characteristics, the independence of the audit committee and audit committee meetings are significantly positively associated with FLD (p<0.01 and p<0.05). Other audit committee variables display no significant association with the level of FLD. All three control variables show a significant association with the level of FLD.

Based on this linear regression analysis, it is found that board size, board expertise, independence of audit committee, and audit committee meetings have shown a systematic positive association with the level of FLD. Hence, the results indicate that Hypotheses 1, 4, 7 and 9 of the study are accepted and that these findings are consistent with a number of prior studies (Aljifri & Hussainey 2007, Abed et al., 2011). Further, firm size depicts a significant positive impact on the level of FLD.

Table 5: Linear Regression Analysis

Variables [a]	Coef.	t	Collinearity Statistics Tolerance	VIF
Constant	3.320	872.18		
BSIZE	0.008***	2.73	.267	3.744
BINDP	-0.003**	-2.11	.624	1.601
GENDIV	0.002	0.7	.411	2.431
BEXP	0.000**	1.72	.320	3.127
BODM	0.000	-0.78	.482	2.074
AUDCSIZE	-0.001	-0.98	.179	5.592
INDPAC	0.001***	3.07	.424	2.360
AUDCEXP	0.000	-0.44	.252	3.967
AUDCM	0.000**	-2	.519	1.926
FSIZE	0.000***	-2.29	.645	1.549
ROA	0.008*	1.34	.519	1.928
LEV	-0.004*	-1	.642	1.557
F- Value		3.56		
Sig. of F- value		0.0007		
R^2		0.4561		
N		66		

[a] These variables are defined in Table 1

*p<0.1 **p<0.05; ***p<0.01

Source: Constructed by Authors

4.2.3 Panel Regression

The panel regression outcomes presented in Table 6 are consistent with the results of both the correlation analysis and the linear regression[7] analysis. Table 6 indicates that board size and board expertise depict a significant (p<0.05) positive association with the level of FLD. On the other hand, the independence of the board represents a significant (p<0.05) but negative association with the level of FLD. Further, the independence of the audit committee and audit committee meetings show a significant (p<0.01) positive relationship with the level of FLD. However, all other corporate governance characteristics are not systematically related with the level of FLD. Additionally, firm size represents a significant (p<0.01) positive relationship with FLD.

These findings are consistent with the results of Elzahar and Hussainey (2012), Uyar and Kilic (2012) and Al-Najjar and Abed (2014), who also failed to find a significant effect of board independence on the level of FLD. This insignificant association could result from the effectiveness of independent directors being dependent on the institutional systems and business cultures in which a company operates (Kakabadse et al., 2010).

[7] Fixed effect model was used based on the Hausman test

Table 6: Panel Regression Analysis

Variables	Co efficient	Z
BSIZE	0.000***	0.23
BINDP	-0.003***	-2.09
GENDIV	0.002	0.87
BEXP	0.000**	1.77
BODM	0.000	-0.94
AUDCSIZE	-0.001	-1.05
INDPAC	0.001***	3.28
AUDCEXP	0.000	-0.45
AUDCM	0.000**	-2.17
FSIZE	0.000***	-2.23
ROA	0.003*	-0.46
LEV	-0.004*	-1.17
Constant	3.321	898.98
Prob > chi2	0.000	
R^2	0.4552	
N	22	

[a] Definitions of these variables are indicated under Table 1.
*p<0.10; **p<0.05; ***p<0.01
Source: Constructed by Authors

Based on these findings, the conclusions made are presented in the next section.

5 SUMMARY & CONCLUSION

This study examined the nature and extent of FLD in integrated reports of BFI Sector companies and the effect of corporate governance characteristics on the level of FLD reported by these companies during the period 2015 to 2017.The study examined the extent of FLDs in integrated reports using a disclosure index developed based on prior literature on the subject. Thereafter, the relationship between the corporate governance characteristics and the level of FLD in integrated reports was examined using correlation and regression (both OLS and panel) analyses. In these analyses, the corporate governance characteristics considered were board size, board independence, board gender diversity, board expertise, board meetings, size of audit committee, audit committee independence, expertise in audit committee and audit committee meetings. The study considered firm size, ROA and leverage as the control variables.

The study finds that most FLDs are limited and qualitative in nature and most disclosures relate to the 'Risks and Opportunities' of these companies. On the other hand, the least amount of FLD is witnessed in relation to the business model. Further, the FLD relating to 'Organization Overview and External Environment and Governance' is also limited. The study also finds that the degree of FLD fluctuates significantly among the companies that produce integrated reports in this sector.

It was found in the study that board size, board expertise, independence of the audit committee, audit committee meetings and size of the firm have a positive and significant effect on the degree of FLD. On the other hand, board independence has a significant but negative impact on the degree of FLD. This indicates that some corporate governance characteristics play a significant role in the provision of FLD in integrated reports.

The findings of the study have several important implications. Theoretically, the study extends the discussion as to the nature and extent of FLD in integrated reports and show how corporate governance variables impact on FLD in a developing country context –Sri Lanka. Practically, this study shows policy makers and practitioners the types and degree of FLD provided in integrated reports. As there are no specific guidelines as to the disclosure of FLD in IR, policy makers can draw insights to develop a framework or guidance to facilitate the companies in this respect. In the absence of any established guidelines or rules related to the provision of FLD, the disclosures relating to forward-looking statements, profit targets and risk exposure are solely determined by the management of an organization as for their preferences (O'Sullivan et al., 2008). Further, due to the flexibility, type and the nature of the forward-looking information published in the annual reports, it is difficult to provide an assurance as to these disclosures, which in turn leads investors and financial analysts to rely on unregulated and unaudited [foretasted?] information in their decision making process (Schleicher &Walker, 2010). In this context, practitioners can identify how the companies have responded to the need to provide FLD in integrated reports and the improvements required in this respect.

This study has several limitations. Firstly it selected a few but prominent corporate governance characteristics to assess the impact of corporate governance on the level of FLD. However, these characteristics can be extended further in future studies in assessing the relationship between corporate governance and the level of FLD. Secondly, the study focused only on one sector of CSE. This study can be extended to cover a larger sample of companies in future studies.

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Appendices

Appendix 1: Sample

22 Bank Finance and Insurance sector companies that have published integrated reports continuously during the period 2015-2017:

- Commercial Bank
- DFCC Bank PLC
- Hatton National Bank PLC
- Housing Development Finance Corporation Bank of Sri Lanka
- National Development Bank PLC
- Nations Trust Bank PLC
- Sampath Bank PLC
- Sanasa Development Bank PLC
- Seylan Bank PLC
- Union Bank Of Colombo PLC
- Alliance Finance Company PLC
- Arpico Finance Company PLC
- Citizens Development Business Finance PLC
- LB Finance PLC
- Mercantile Investments and Finance PLC
- Merchant Bank of Sri Lanka & Finance PLC
- People's Leasing & Finance PLC
- Softlogic Finance PLC
- HNB Assurance PLC
- People's Insurance PLC
- Softlogic Life Insurance PLC
- Union Assurance PLC

Appendix 2: Items of FLD Index

Categories of information	
Organizational overview and external environment (ORG)	1. The organization's culture, ethics and values
	2. The organization's ownership and operating structure
	3. The organization's principal activities and markets
	4. The organization's competitive landscape and market positioning
	5. The organization's position within the value chain
	6. Significant factors affecting the external environment and the organization's response
Governance (GOV)	7. The organization's leadership structure including skills and diversity
	8. Specific processes used to make strategic decisions and to establish and monitor the culture of the organization
	9. Particular actions charged with governance to influence and monitor the strategic direction of the organization and its approach to risk management
	10. The relationship between culture, ethics and values of key stakeholders and capital
	11. Remuneration and incentives
Business model (BUS)	12. Key inputs
	13. Key business activities
	14. Key outputs
	15. Key outcomes
Risks and opportunities (RISK)	16. Specific external source of risks and opportunities
	17. Specific internal source of risks and opportunities
	18. The organization's assessment of the likelihood that a risk or opportunity will come to fruition and the magnitude of its effect if it does
	19. The specific steps being taken to mitigate or manage key risks or to create value from key opportunities
Strategy and resource allocation (STR)	20. The organization's short, medium and long term strategic objectives
	21. The strategies to achieve strategic objectives
	22. The resource allocation plans to implement the strategy
	23. The linkage between the organization's strategy and resource allocation plans
	24. What differentiates the organization to give it competitive advantage and enable it to create value
Performance (PERF)	25. The organization's effects on the capitals
	26. The state of key stakeholder relationship and how the organization responds to key stakeholder's legitimate needs and interests
	27. The linkage between current performance and the organization's outlook

Source: Menicucci and Paolucci (2017)

TRENDS IN CLIMATE RISK DISCLOSURES IN THE INSURANCE COMPANIES OF SRI LANKA

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Abstract

Climate patterns are changing, and the magnitude and cost of damage resulting therefrom are rising. The vagaries of nature have created a series of negative influences on the economy, society and the environment, for example, economic development, health and earth slips. This study focuses on insurance companies which depend solely on investments to pay damages including those caused by unpredictable climatic conditions such as droughts and floods. Such risks may have a negative impact not only on insurers' investment profitability but also on their assets and liabilities. Insurance companies, particularly in developing countries such as Sri Lanka, may have ignored or not paid adequate attention so far to the consequences of climate risks and to report them to a wider range of stakeholders. The existing literature suggests that Climate Risk Disclosures (CRD) is necessary in the public interest, particularly for different stakeholder groups. More specifically, this study examines the trends in CRD of Sri Lankan insurance companies listed in the Colombo Stock Exchange (CSE). Its objectives are to investigate the CRD disclosed by the listed Sri Lankan insurance companies under the themes of Climate Risk Governance, Enterprise Wide Risk Management, Climate Change Modelling and Analytics, Stakeholder Engagement and Internal Greenhouse Gas Emission. Following the content analysis, data was gathered from the annual reports published by eight insurance companies listed on the CSE between 2012 and 2018. For this purpose, the above five themes were identified based on the Ceres' Scoring Framework formulated by the National Association of Insurance Commissioners (NAIC) CRD survey in 2016. A qualitative research approach to the thematic analysis was used to achieve the objectives of the study. A marginal increase was found in the CRD related to climate risk governance, enterprise wide risk management and internal greenhouse gas emission over the last seven years while stakeholder engagement revealed a marginal decrease and a lack in disclosing CRD on climate change modelling.

Key words: Climate Risk Disclosures, Insurance Companies, Developing Countries, Sri Lanka, Thematic Analysis

1 INTRODUCTION

The Intergovernmental Panel on Climate Change (IPCC, 2014) reported that the human influence on climate change or human-induced climate change is burgeoning and is univocal. The panel argued that global warming was one of the greatest challenges to overcome. Specifically, in the Asian continent there is an increased risk of damage caused by floods and drought to infrastructure, livelihoods and settlements (IPCC, 2014). Thus, changes in climate patterns are recognized as the most significant risk nowadays (Mills, 2009).

Hahn et al. (2015) reported extreme cases at present within the societal and scientific context of climate change that often impacts on companies. According to their explanation, climate change attracts significant attention from political and public parties, and is thus considered as a practical issue that stakeholders are interested in. Many other researchers too have argued that climate change has now become not only an urgent environmental issue but also one that directly affects the economy and society. For example, earth slips have unpredictable effects on economic development and health (Hahn et al., 2015 and Dey et al., 2017).

The report of Eckstein et al. (2017), which introduced the Global Climate Risk Index– 2016, ranked Sri Lanka as the forty-eighth most affected country with an average score of 59.33 between 1997 and 2016. Further, the same index calculated for 2016 (only) ranked Sri Lanka as the fourth most affected country with a Climate Risk Index score of 11.50.

Dey et al. (2017) claimed that the major contributors to climate change were business organizations and thus it is their responsibility to be more accountable for counter actions against the climate change. Moreover, Herweijer et al. (2009) emphasized that insurance companies have a vital role to play in respect of climate change. On the one hand, they are required to manage the risks from climate change by reducing the impact of climate change and minimizing its risks. On the other hand, climate change may provide opportunities (e.g., innovative products, more businesses) through which companies can seize and maximize their profits.

Some researchers have conducted their studies on climate change in the global context. The areas covered are the extent to which countries are affected by climate change, the companies' response to climate change, for example, innovative insurance policies and enterprise risk management, and CRD (e.g., Mills, 2009; Eckstein et al., 2017). Further, there are many studies conducted on CRD in developed countries such as the United States, Canada, China, Australia and South Africa (Coleman, 2003; Doran and Quinn, 2009;McFarland, 2009; Cotter et al., 2011; Berthelot and Robert, 2011 and Yang and Farley, 2016). These studies discuss interesting findings on the nature and extent of CRD, sectoral trends in CRD, regulatory requirements for CRD, and standardization of CRD.

However, only a few studies on CRD have been conducted in developing countries (e.g., Bangladesh) on the nature and the extent of CRD (see Belal et al., 2015 and Dey et al., 2017). Thus, there is a need for more studies on CRD and its determinants, specifically in the context of a developing country. Given its high degree of exposure to climate change as noted above, Sri Lanka provides a unique background for examining this phenomenon in relation to insurance companies. No previous CRD studies have been conducted on the insurance sector of Sri Lanka in spite of the effects of climate change on underwriting and claim exposure and insurers' investment profitability and financial stability.

Insurance companies, particularly in developing countries such as Sri Lanka, tend to ignore or do not appear to have paid adequate attention so far to the consequences of climate risk and to reporting them to a wider range of stakeholders. This backdrop provides an appropriate context in which to undertake the current study. This paper, therefore, aims to examine the CRD trends in Sri Lankan insurance companies listed in the Colombo Stock Exchange (CSE). Its objectives are to investigate CRD disclosures of the Sri Lankan insurance companies listed in the CSE under the themes of Governance, Enterprise Wide Risk Management, Climate Change Modelling and Analytics, Stakeholder Engagement, and Internal Greenhouse Gas Emission.

This type of study has the potential to make a contribution theoretically as well as practically. For instance, it may provide more evidence of the trends of CRD within a developing country context. Further, the findings of this study may encourage insurance companies to make more disclosures on the risks of climate change risk to meet stakeholder expectations, for example, statistics on Greenhouse Gas (GHG) emissions. Many studies have discussed these emissions as a factor that affects climate risk (Doran and Quinn, 2009; Cotter et al., 2011; Yang and Farley, 2016 and Dey et al., 2017). Moreover, Hahn et al. (2015) have noted that companies can benefit more by disclosing their GHG emissions as they found a positive relationship between environmental disclosure and corporate performance.

The rest of the paper is structured as follows. Section two introduces the literature used to conceptualize the study. Section three outlines the methodology used and the results and discussion are presented in the penultimate section, while the conclusions are provided in the final section.

2 LITERATURE REVIEW

This section conceptualizes the research problem as a basis for the empirical investigation. Dey et al., (2017) discuss four types of studies in the existing literature on climate change, namely, empirical studies on disclosure, conceptual/theoretical/normative studies, studies specially conducted for practitioners to provide guidelines, and literature reviews. First, this section identifies the motives for business decision making in relation to climate change and then discusses the role of CRD. The final section explains the analytical framework used in this study to assess CRD.

2.1 Climate Change

The literature survey reveals four motives for incorporating climate change in the business decision making process (Wittneben and Kiyar, 2009). The first motive is that climate is considered an economic factor of business strategy, particularly to meet political requirements (i.e., political reasons). The second is climate change risks and opportunities should be integrated in core financial operations since companies experience economic losses owing to natural disasters (i.e., economic advantages). The third motive is that because of the public concern for the environment, business leaders are required to address the issues of climate change (i.e., public relations). Finally, it is argued that climate change may generate financial gains through innovations that capitalize on climate change opportunities (i.e., introducing new goods and methods).Thus, Wittneben and Kiyar (2009) argue that climate change-related risks and opportunities should be integrated into the core financial operations, particularly in financial institutions such as insurance companies as they may incur economic losses due to natural disasters.

2.2 Climate Change Risk Disclosures

Many scholars have reported that annual reports, in which climate change is discussed under corporate social and environmental disclosures, are used by managers to legitimize their operations (e.g., Gray et al., 1995; Brown and Deegan, 1998; Kolk, 2004).

Insurance companies manage stakeholder engagement by encouraging them to reduce climate risk. For instance, Doran and Quinn (2009) found that 93 percent of the U.S. investors consider climate change-related risks when making investment decisions. They further reveal that the level of materiality of the climate risk depends on the industry within which companies operate. However, in 2008, only less than 10 percent of companies in the financial sector (particularly, insurance companies) made disclosures on climate risk. This is because they may have identified climate change as a serious strategic threat and decided not to disclose. Also, the executives of such companies tend to believe that CRD is more likely to impact on shareholder value. Thus, Doran and Quinn (2009) suggested that providing standardized guidance for disclosing climate change risk is urgently needed to improve the CRD rate and quality. However, Mills (2009) claimed that with the focus on climate change increasing, the insurance companies' attention to CRD to satisfy stakeholder demand has also been increasing.

2.3 Analytical Framework

Several national and global organizations have developed frameworks (e.g., Global Framework for Climate Risk Disclosure, Ceres' Scoring Framework) to standardize CRD. The Global Framework for Climate Risk Disclosure encourages reporting well standardized CRD to help investors to analyze and compare companies. This framework mainly focuses on emissions, strategic analysis of climate risk and emissions management, assessment of physical risk of climate change, and analysis of regulatory risks.

The Ceres' Scoring Framework was introduced by the National Association of Insurance Commissioners (NAIC), which is a state regulator dealing with CRD specifically in the insurance sector. For example, it has outlined some of the major themes of CRD related to insurance companies. NAIC uses the Ceres' Scoring Framework to conduct periodical CRD surveys to evaluate the quality and comprehensiveness of CRD in insurance companies. It identified five themes related to CRD, namely, Climate Risk Governance, Enterprise Wide Risk Management, Climate Change Modelling and Analytics, Stakeholder Engagement and Internal Greenhouse Gas Emissions.

McDaniels et al. (2017) found that the Ceres' Scoring Framework ensured sustainable risk performance by insurers and examined the effects of climate change on insurance underwriting practice, investment decisions and required disclosures. Further, Thistlethwaite and Wood (2018) state that the framework assesses insurers' efforts to deal with climate change risks because it is specifically designed for the insurance industry. They argued that the use of this framework facilitated comparing the quality and quantity of disclosures globally. Finally, the framework facilitates decision making among a wide variety of stakeholders (Messervy, 2016). Given its comprehensiveness, international applicability and stakeholder orientation, this study employs the Ceres' Scoring Framework to examine the trends in CRD of the listed Sri Lankan insurance companies.

3 RESEARCH DESIGN

A review of the accounting literature on methodological themes reveals different classifications of methodologies or approaches to accounting research (e.g., normative and positive research, rational accounting theory, critical accounting theory and ethnographic or interpretive research, qualitative and quantitative research). Regardless of the methodology adopted, the quality of the research study depends largely on how it is designed. The research design consists of the research approach and methodology, data collection and analysis, and reporting (Humphrey and Lee, 2004). This section first explains the research approach used in the study and later describes the methods adopted for data collection and the procedure adopted for organizing the data for analysis.

3.1 Research Approach

This study follows a qualitative research methodology to examine the trends of CRD in the Sri Lankan insurance companies under Governance, Enterprise Wide Risk Management, Climate Change Modelling & Analytics, Stakeholder Engagement and Internal Greenhouse Gas Emission. Maxwell (2005) clearly distinguishes between qualitative and quantitative approaches to research: qualitative studies examine *"how x plays a role in causing y"* as opposed to quantitative studies, which test *"whether variance in x causes variance in y"*. This study investigates how CRD in the listed insurance companies in Sri Lanka impacts on the decision making of users (i.e., stakeholders) of financial statements. Thus, the study requires a content analysis of such disclosures as it is difficult to develop a linear relationship between the phenomena.

3.2 Population and Sample

The population of the study was all the listed Sri Lankan Insurance Companies in the financial years from 2012 to 2018 (10 companies in total). The selected sample consisted of eight companies, which represent 80 per cent of the population. The reason for this sample selection was that they are the only companies that existed during the entire period of the study. Pseudo names are used such as 'Company 01' to 'Company 08' to conceal the company's identity.

3.3 Data Collection and Analysis

Data was gathered from the annual reports of the sample companies over the seven years from 2012 to 2018. Although Sri Lankan insurance companies disclose climate risk not only in their annual reports but also on company websites and in sustainability reports (see Jariya, 2015), annual reports were used in this research mainly because all the insurance companies seem to use their annual reports as the means of CRD while most users tend to use annual reports as a basis of decision making. The Annual Report is a statutory and mandatory report prepared by all listed companies consistently (Gray et al., 1995). Prior researchers also used annual reports for data collection as they are used by managers to make voluntary disclosures as a means of corporate communication (Gray et al., 1995; Brown and Deegan, 1998 and Kolk, 2004).

According to Dey et al. (2017), empirical studies on corporate disclosures employ mainly two methods, namely, content analysis and opinion surveys to analyze data. This study uses a content analysis, more specifically a thematic analysis, one of the sub sections of the content analysis, to investigate CRD trends in listed Sri Lankan insurance companies.

Using the Ceres' Scoring Framework as the analytical framework, this study identified five themes of CRD as stated above (i.e., Climate Risk Governance, Enterprise Wide Risk Management, Climate Change Modelling and Analytics, Stakeholder Engagement and Internal Greenhouse Gas Emission). These themes were identified on the basis of the content analysis of the annual reports to assess the CRD trends in Sri Lankan insurance companies.

Sri Lankan insurance companies tend to disclose climate change risks under different headings in their annual reports. This study, therefore, was not limited to one particular section of the annual report but used the whole report the content analysis. Many previous studies also suggest that climate change risk can be discussed in the annual reports under different headings. For instance, some scholars argue that CRD should be discussed under governance as the responsibility of executive level managers (Mill, 2009; Berthelot and Robert, 2011; Cotter et al., 2011). Berthelot and Robert (2011) argue that CRD determines the quality of corporate governance. Dey et al. (2017) state that climate change risks are required for incorporating risk management of the organization. According to Mill (2009), climate change is considered a significant risk by the companies.

In sum, this study carried out the thematic analysis under content analysis by measuring CRD as the number of disclosures in the annual reports under the five sub themes identified for empirical investigation.

4 RESULTS AND DISCUSSION

This section reports the results of the thematic analysis carried out under the five themes and discusses the CRD trends in the Sri Lankan insurance companies.

4.1 Climate Risk Governance

The thematic analysis revealed that out of eight insurance companies five companies disclose climate risk governance (CRG) during a specified period. These companies tend to disclose CRG according to four criteria, namely, Environmental Policy Statement (EPS), Partnership with National Initiatives (PNI), Partnership with International Initiatives (PII) and Senior Executive Level in setting goals and objectives (SEL).

Company 01 and Company 05 mainly disclosed Environmental Policy Statement (EPS) aspects of Climate Risk Governance (CRG). For instance, Company 05 specifically disclosed climate risk in its environmental policy standards. For instance, its annual report stated that

> "*Environmental priorities are to reduce the impact of its operations on climate change and to conserve the environment by monitoring and reporting on the environmental impact of its operations, services and in these efforts to strive to include our customers and business partners where relevant and to the extent possible.*"

This statement implies that the company has assumed direct responsibility for its impact on climate change.

However, it is observed that some companies do not explicitly discuss climate change disclosures but such information is implicitly indicated in their environmental policy statements. For example, Company 03 stated

> "*Leave the world better than you found it. Take no more than you need. Try not to harm life or the environment and make amends if you do is an integral part of our concept of environmental protection. Therefore, the following steps have been taken:………………paper conservation and green building*".

Thus, it appears that their policy indirectly contributes to minimizing environmental impact and consequently the threat of climate change. This result is consistent with previous research conducted by Carroll et al. (2009).

Further, it was revealed that only one company (i.e., Company 06) had developed a ‘Partnership with National Initiatives’ (PNI), and made disclosures under Climate Risk Governance with a view to minimizing climate risk. This company indicated that they developed their fifth strategy of ‘social and environmental responsibility’, whereby the company “*continue to work with the Sri Lanka Climate Fund to minimize the corporate’s carbon footprint*” as one of their key concerns. The company sets the target as “Carbon footprint intensity per employee: one tonne”. It also treats these initiatives as a competitive advantage.

Furthermore, the research on Partnership with International Initiatives (PII) revealed that only two companies made P11 disclosures whereas the majority of companies do not make such disclosures. Company 03 stated “*We are in agreement with the Principles of Sustainable Insurance (PSI) which is an initiative of the United Nations Environment Programme Finance Initiative, published in 2012*”. Also, this company developed four principles based on the partnership, of which the climate change issue is embedded in their decision-making.

Finally, the involvement of senior executives in mitigating climate risk was also observed in the disclosures related to climate risk governance. It is important to note that the majority of the companies do not disclose senior management involvement. Of the three companies which disclose senior management involvement, Company 06 stated that

> “*Working towards an integrated approach to value creation, it is of significance to champion environmental stewardship to support and address growing concerns on fast depleting renewable energy sources to climate change and global warming. Although as an insurer our operational impact on the environment is not extensive, we are conscious to do our part and thus we have adopted environmental sustainability as part of our corporate strategy*”.

Accordingly, Company 6 formed a Corporate Sustainability Committee of senior executive managers to monitor the above aspects. It also disclosed that, with the introduction of sustainable development goals, it formulated climate action goals, and determined action to mitigate climate change and global warming.

Figure 01 shows that from 2012 to 2018, there was an increase in the types of different disclosures related to Climate Risk Governance. In the meantime, it is evident that after introducing sustainable development goals, the annual reports of insurance companies also incorporated climate change in their corporate strategies. In addition, the analysis of each type of disclosure separately shows that all but Partnership with International Initiatives (PII) types of disclosure related to risk governance have marginally increased over the period.

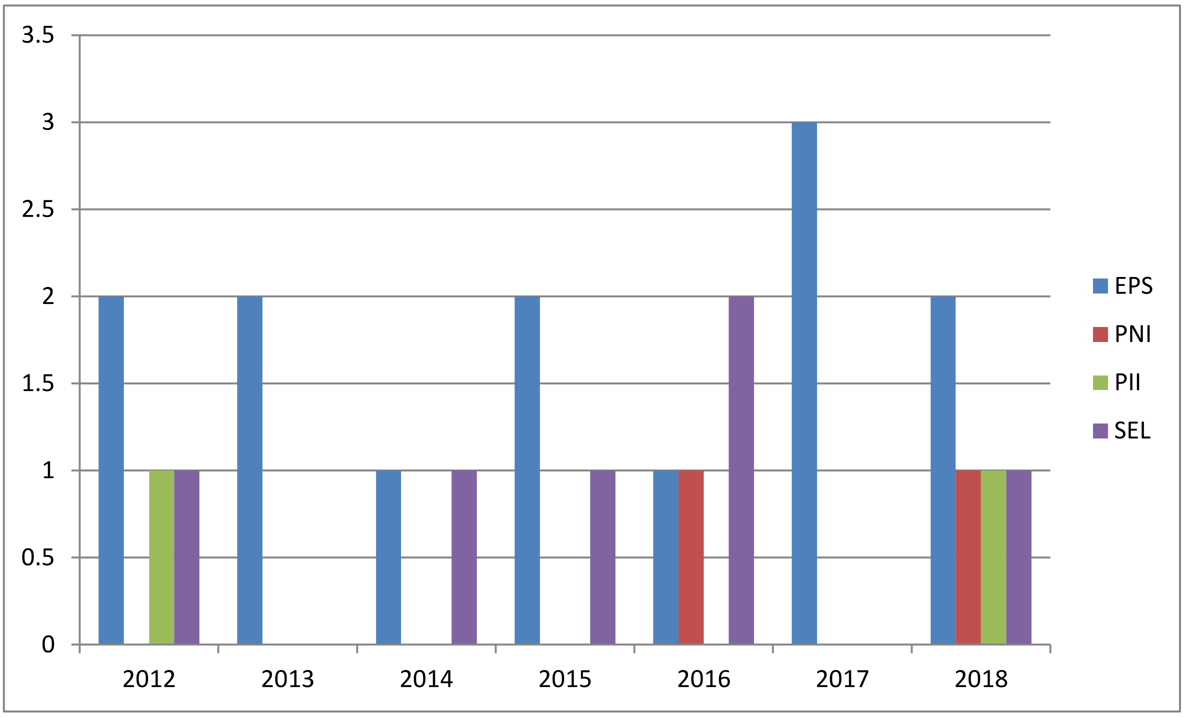

Figure 1: Disclosure of Climate Risk Governance
Source: Constructed by Authors

The lack of disclosures relating to the involvement of senior executives in mitigating climate risk is also evident in the studies conducted in the developed world. For instance, Cotter et al. (2011) found that only 4 % of the annual reports of the 300 Australian companies incorporated climate risk in their corporate governance disclosures in 2008. Further, the study elaborated on the reasons for the lack of disclosures, namely, impropriety and uncertainty in identifying and quantifying risk. Moreover, Berthelot and Robert (2011) conducted a study in Canada of oil and gas firms and found that only 23 out of 64 companies made disclosures about an environmental committee which also discussed climate risk.

4.2 Enterprise-wide Climate Risk Management

Enterprise-wide climate risk management focuses on whether climate risk is incorporated in managing the risks of insurance companies. It was observed that companies included and disclosed climate risk under different risk components. The thematic analysis showed that companies mainly disclose enterprise-wide climate risk management under Environmental Risk (ER), Underwriting Risk (UR), Climate Change Risk (CCR), Concentration Risk (CR), Reinsurance Arrangements (RA), and Product Design Risk (PDR). It is interesting to note that almost all the selected insurance companies have discussed climate risk under risk management while three companies out of eight have disclosed climate risk under ER.

Insurance companies treat emissions as a major cause of climate change. For instance, Company 06 defined their environmental risk as "*actual or potential adverse impacts on operations and product responsibility with respect to emissions, waste and resource depletion*". Further, in 2018, this company expended more on such disclosures by including initiatives to mitigate ER, for example, the appointment of a sustainability committee and carbon footprint initiative. In addition, Company 07 disclosed that it maintains Environmental and Social Risk Policy which led to developing an Environmental and Social

Risk Assessment Model. This company also assessed and disclosed the risks and opportunities resulting from climate change.

Only a few companies (two out of eight) discussed climate change under their Underwriting Risk (UR). For example, Company 04 defined UR as

> "*the risk of accepting insurance business that carries an unacceptably high exposure to the risk of claims and accepting risks at rates that do not contain an adequate risk premium. Underwriting risk could also arise due to a lack of understanding regarding changes in the environment such as the effect of climate change due to global warming*".

In addition, Company 04 disclosed climate change as the most significant risk in the general contract. The company also increased the comprehensiveness of the disclosures across the period of the study. However, in general a decreasing tendency to disclose climate change was evident under UR as companies started recognizing climate risk separately.

The thematic analysis also examined whether the companies made disclosures specifically using the term Climate Change Risk (CCR). Company 02 stated, "*We develop and build capacity and capability in new phenomenon such as climate and cyber risks, as the nation positions itself for ambitious growth*". This is a sign that the insurance companies have begun to prioritize CCR. Moreover, the company has treated this as an opportunity as it introduced a micro insurance scheme to exploit the opportunities generated by climate change. Further, it is interesting to note that Company 04 specifically disclosed about climate risk as well as their responses thereto. Furthermore, in respect of risk assessment, Company 05 disclosed that

> "*Climate change will continue to increase frequency and severity of such weather related natural disasters rising sea levels in the wake of melting ice caps, regional water shortages and flooding with adverse consequences for human health, fauna and flora*".

Company 05 also mentioned that there was no specific risk related to climate change which may directly affect its business in the short run. However, in their 2012 annual report, the company disclosed that there would be an impact caused by erratic weather patterns due to global warming in the long run. The extent of disclosure further expanded. For example, "*graphically identified the key risks and climate risk was considered as a material risk where the impact is high and the likelihood is medium*". The company also disclosed that "*geographical information system maps local weather patterns and assesses its insurance risk*". Further, the company highlighted the difficulty in obtaining re-insurance risk as a consequence of increased claims.

Only one company disclosed climate risk under Concentration Risk (CR), that is, "*the risk which arises from climate changes and natural disasters*". Re-insurance Arrangements (RA) were also used to disclose climate risk specifically by Company 03, which indicated that the company considered climate change in assessing their risks and relevant insurance arrangements to mitigate risk. Similarly, Product Design Risk (PDR) is defined by Company 06 as

"Product designs of the portfolio may be outdated due to changes in the climate leading to natural disasters, behavioral trends of people due to changing life styles and steady escalation of costs in respect of spare parts in the industry".

Figure 02 indicates that, from 2012 to 2018, there had been an increase in the types of different disclosures related to Enterprise-wide Risk Management. It is important to note that, before 2015, the companies disclosed several types of risks together, but after 2015, there has been growing concern to assess climate change risk separately. In addition, the analysis of each type of disclosures separately shows that, except UR, other risks, such as ER and CC, show a positive trend.

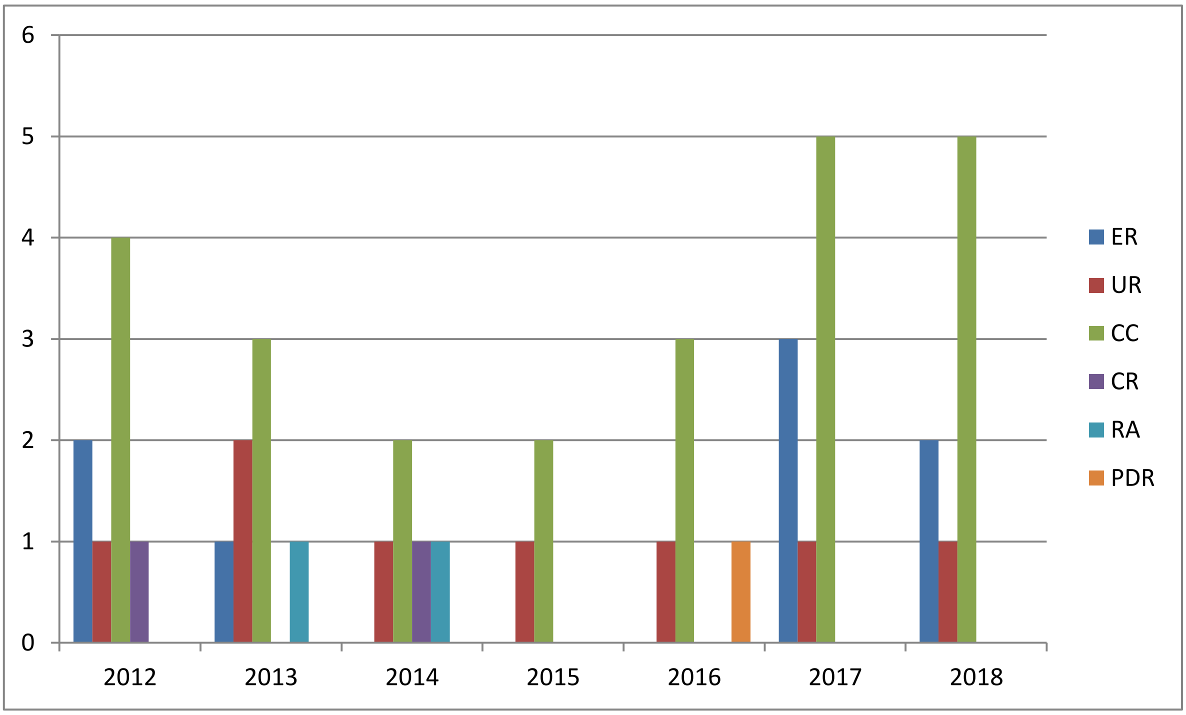

Figure 2: Enterprise Wide Climate Risk Management
Source: Constructed by Authors

Overall, the results of this study are different from those of previous studies carried out in different contexts. For example, Cotter et al. (2011) found that none of the Australian companies assessed the physical risks associated with climate change in their sustainability reports, and only a minimum number of firms disclosed about regulatory risks.

4.3 Climate Change Modelling & Analytics

Companies are expected to describe how they manage climate change risks through the use of computer modelling. The study found that only one company (Company 05) disclosed the use computer modelling to assess climate change. In 2012, this company disclosed that

"The Company has identified that climate change could adversely affect our business as a result of increased claims due to adverse weather conditions and has proactively launched and incorporated

> *"Flood Mapping" and "Landslide Mapping" to its underwriting process. This will facilitate prudent underwriting and managing large, unforeseen claims. The use of the flood mapping technology developed by in-house IT team enables the mapping of flood-prone areas and the assessment of risk in each area, thus enabling the company to have a mixed basket of risk."*

4.4 Stakeholder Engagement

Stakeholder engagement refers to the steps that the company has taken to encourage stakeholders to reduce climate change losses. The thematic analysis found five items disclosed by insurance companies in this regard, namely, Enhance Customer Awareness (ECA), Enhance Public Awareness (EPA), Enhance Employee Awareness (EEA), Stakeholder Expectations (SE), and Shareholder Engagement (SHE). Of the eight companies, four companies disclosed that they made arrangements to make customers aware of climate change. For instance, in 2012, Company 01 disclosed that

> "*Workshops to minimize pollution Regional workshops were held for selected customers on how best to maintain motor vehicles to help reduce environmental pollution enhance fuel efficiency and reduce carbon emission. This was part of the company's strategy of enhancing customer's awareness on environmental issues and best practices*".

Further, Company 04 explained that the introduction of "Eco Insurance" motivated customers to use eco-friendly hybrid products. Furthermore, it mentioned that it enhanced public awareness of the need to reduce climate risk. For instance, in 2012, the company reported, "*We also endeavour to enhance awareness amongst the general public regarding the vital need to preserve our environs*".

Four of the selected companies also disclosed that they enhanced awareness among employees. For instance, they disclosed the ways in which the company educates their staff and new recruits on implementing eco-friendly practices. Moreover, Company 04 disclosed that enhancing employee awareness about reducing e carbon emissions was a means to reduce climate risk.

Company 05 disclosed an overall stakeholder expectation of global warming, which is termed 'stakeholder expectations. In addition, some disclosures addressed shareholders' involvement in reducing climate risk. For example, Company 03 stated:

> "*the conservation of valuable resources thereby reducing our carbon footprint, we have restricted the print version of this Report only to those of our shareholders who have requested for it in writing. To all other shareholders we have sent this Report on a CD-ROM*".

Figure 03 indicates that, from 2012 to 2018, there has been a decrease in the types of different disclosures related to stakeholder engagement in reducing climate risk. For instance, before 2014, the companies had disclosed several types of disclosure, but after 2014, there has been a decrease in stakeholder engagement-related disclosures. Moreover, the analysis of each type of disclosures separately also shows a declining trend.

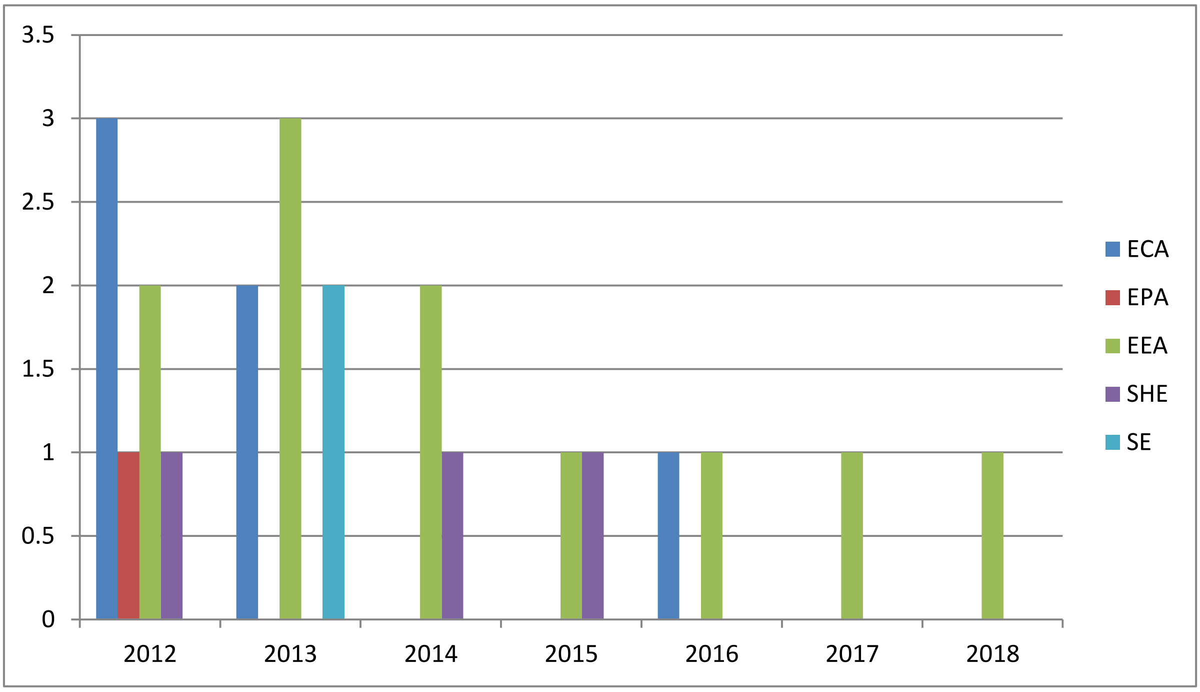

Figure 3: Stakeholder Engagement
Source: Constructed by Authors

4.5 Internal Greenhouse Gas Management

This dimension reveals whether insurance companies make disclosures on assessing and reducing emissions. The thematic analysis revealed four related items: Managing Carbon Emissions (MCE), Initiatives to Minimize Carbon Footprint (IMCFP), Assessing the Carbon Footprint (ACF), and Monitoring the Carbon Footprint (MCFP).

With regard to Managing Carbon Emissions (MCE), seven out of the eight companies had made disclosures on carbon emissions. Company 05 stated that

> "*Our enterprise has a relatively minimal direct impact on the environment, due to the nature of our business; for one, due to the comparatively lower consumption of natural resources for our direct activities, and secondly due to the low Carbon footprint of our business activities*".

Further, Initiatives to Minimize Carbon Footprint (IMCFP) are disclosed by almost all the companies. For example, Company 01 stated that they minimized carbon footprint in three stages: the sphere of control (reduce operational efficiency through carbon management program), the sphere of influence (encourage sustainable choices) and the sphere of working with external parties to reach consensus). Company 03 mainly focused on establishing eco-buildings while Company 04 relied on initiatives such as Green IT and reducing energy consumption. Further, Company 05 and Company 06 organized environmental campaigns to establish the concept of "Think Green".

Companies are required to estimate their carbon footprint and make disclosures under Assess Carbon Footprint (ACF). For instance, Company 07 disclosed their carbon footprint as follows:

> "*According to the analysis, the net carbon footprint of [Company 07] for the year 2013 is 334.991 tCO2e/year. Scope 1 emissions 14.93 tCO2e/year, Scope 2 emissions of 140.6tCO2e/year and the Scope 3 emissions 179.386 tCO2e/ year. Reporting Scope 3 emissions is optional as for the revised GHG protocol. But to get a more understanding about those emissions, major emission categories reported under scope 3 was reported*".

All in all, it was noticed that the majority of the companies made disclosures on ACF.

Under the theme of Monitor Carbon Footprint (MCFP), different companies have partnerships with different authorities to monitor the carbon footprint. For example, Company 07 indicated that

> "*Monitoring and follow up Carbon footprint Sri Lanka Carbon Fund (SLCF) undertook the carbon footprint analysis and audit for the Company in January 2014. The Greenhouse Gas (GHG) Accounting Protocol of the World Business Council for Sustainable Development (WBCSD), and IPCC Guidelines were used as a guide for this analysis*".

Figure 04 shows that, from 2012 to 2018, there had been an increase in the types of different disclosures related to greenhouse gas emission management. For example, before 2015, the companies disclosed only a few types of disclosures, whereas after 2015, there has been increased concern about carbon footprint- related disclosures in the annual reports. In addition, the analysis of each type of disclosure separately also exhibited an increasing trend over the past seven years.

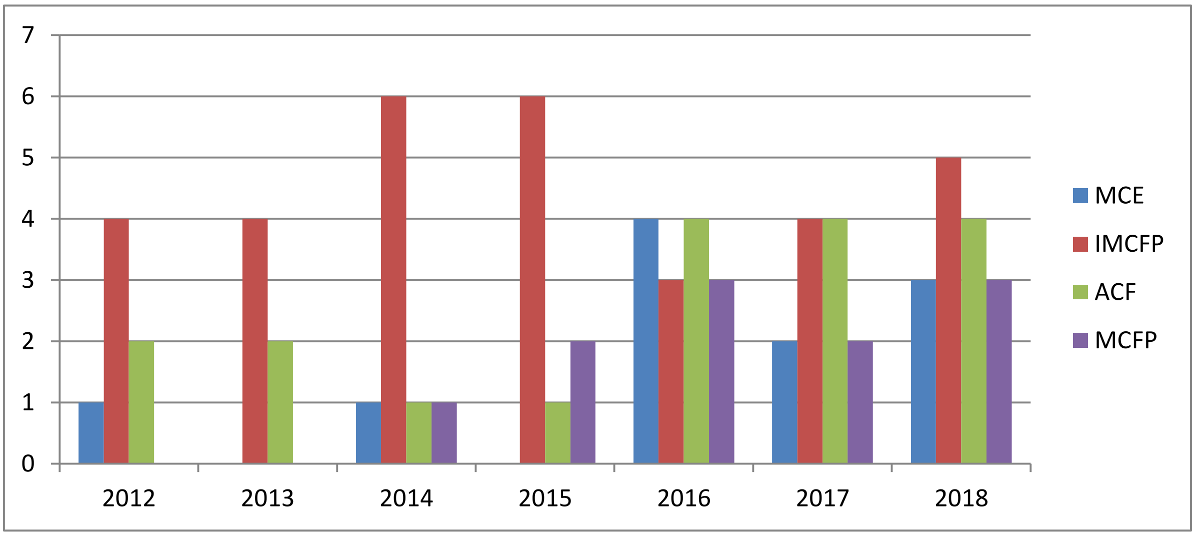

Figure 4: Internal Greenhouse Gas Management
Source: Source: Constructed by Authors

These finding are consistent with those of previous studies. For instance, the finding those Sri Lankan insurance companies discussed more widely the issue of greenhouse gas emissions including initiating, assessing, monitoring carbon footprint is the same as that of Cotter et al. (2011), who revealed that Australian companies made more disclosures on greenhouse gas emissions, and revealed greenhouse gas reduction targets and performance towards these targets.

5 CONCLUSION

The primary purpose of this study was to conduct an empirical investigation into the trends in CRD of the listed Sri Lankan insurance companies. The study contributes to the existing literature by identifying the trends with respect to each CRD theme identified based on the Ceres' Scoring Framework developed by the National Association of Insurance Commissioners (NAIC) for CRD survey in 2016. Overall, the analysis revealed that all the selected listed insurance companies report under at least one theme on risks associated with climate change.

More specifically, this study reveals that public listed insurance companies in Sri Lanka make disclosures on Climate Risk Governance mainly under four themes, namely, Environmental Policy Statement (EPS), Partnership with National Initiatives (PNI), Partnership with International Initiatives (PII) and Senior Executive Level incorporated climate change in setting goals and objectives (SEL). Over the seven-year period there has been an increasing trend towards disclosing climate risk from a governance point of view. Except PII, all the other variables indicate an increasing trend.

The thematic analysis of the second theme of Enterprise Wide Climate Risk Management indicates that insurance companies incorporated climate risk in the company's risk management. The findings suggest that different companies disclosed climate risk under different types of risks such as Environmental Risk (ER), Underwriting Risk (UR), Climate change Risk (CCR), Concentration Risk (CR), Reinsurance Arrangements (RA) and Product Design Risk (PDR). The majority of companies made disclosures under ER, UR and CCR rather than under CR, RA and PDR. Further, the study also found an increased interest in climate risk after 2015 although it was reported under different types of risk. The introduction of sustainable development goals may be a reason for this increasing trend. Finally, a decreasing trend in disclosing CRD was noticed under UR, as opposed to ER and CCR which showed an increasing trend.

The third theme recommended by NAIC was to evaluate the extent to which computer modelling was used in assessing climate change risk. It was revealed that only one company disclosed such information during 2012 and 2013, and then stopped. Therefore, it can be concluded that insurance companies in Sri Lanka rarely disclosed the use of computer modelling to determine climate change risk.

The fourth theme of the study was Stakeholder Engagement. The study used Enhance Customer Awareness (ECA), Enhance Public Awareness (EPA), Enhance Employee Awareness (EEA), Stakeholder Expectations (SE) and Shareholder Engagement (SHE) as sub themes. Overall, the study found a decreasing trend in stakeholder engagement disclosures of climate change risk.

Finally, Internal Greenhouse Gas Management was assessed under four sub themes, namely, Managing Carbon Emissions (MCE), Initiatives to Minimize Carbon Footprint (IMCFP), Assess Carbon Footprint (ACF) and Monitor Carbon Footprint (MCFP). It was found that insurance companies had begun making disclosures on the above sub themes since 2015, particularly more disclosures on emissions. Overall, the study revealed an increasing trend in all the subthemes under this category over the study period.

In sum, there has been a marginal increase in CRD related to Risk Governance, Enterprise Wide Risk Management, and Internal Greenhouse Gas Management by the insurance companies over the last seven years. In contrast, Stakeholder Engagement displays a marginal decrease while the companies lag behind in CRD-based computer modelling.

The study analyzed only the qualitative aspects of the disclosures based on the themes recommended by the National Association of Insurance Commissioners (NAIC) CRD survey in 2016. Future research may be conducted by combining both qualitative and quantitative aspects. Also, the study measured environmental disclosures using the 2012-2018 annual reports of the insurance companies. The annual report may not be the one and only disclosure medium used by companies (Cowan & Gardena, 2005), and therefore, future research may be undertaken by collecting evidence from different corporate reports. Finally, the present research focused only on identifying the themes and sub themes of disclosures, but their depth was not analyzed as it requires quantification.

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THE LEVEL OF USAGE AND IMPORTANCE OF FRAUD DETECTION AND PREVENTION TECHNIQUES USED IN SRI LANKAN BANKING AND FINANCE INSTITUTIONS: PERCEPTIONS OF INTERNAL AND EXTERNAL AUDITORS

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Abstract

In view of the contemporary significance and dearth of studies in the extant literature, the main objectives of this study are to identify the level of use and importance of fraud detection and prevention techniques and software-based techniques; identify the types of fraud of the highest occurrence; and discern the differences in the perceptions of internal and external auditors towards the level of use and importance of fraud detection and prevention techniques and software-based techniques used in Sri Lankan banking and finance institutions. A quantitative research approach was deemed appropriate and primary data was collected via a self-administered structured questionnaire. The population of the study consisted of internal auditors working in the internal audit department of banking and finance institutions and external auditors of supervisory and above levels and also engaged in audits of banking and finance institutions in Sri Lanka. The sample of the study consisted of internal and external auditors. According to the main findings, the mean ranking results indicated that frauds of the highest occurrence were cheque frauds, improper disclosure, and improper asset valuation. The main findings also indicated a discrepancy between the level of use and importance of certain fraud detection and prevention techniques and software-based techniques. Moreover, the findings indicated a difference in the perceptions of internal and external auditors except in the use of software-based techniques. The findings of this study are expected to have significant policy implications for policymakers and practitioners in terms of promoting certain important fraud detection and prevention techniques.

Key words: Fraud Detection and Prevention Techniques, Banking and Finance Institutions, Internal and External Auditors

1 INTRODUCTION

Schilit and Perler (2010) define accounting frauds as omissions or manipulations of financial statements (not showing the true financial position of the company) to deceive another party (e.g., stakeholders, government, etc.) for implicit or explicit personal gain. Bolton and Hand (2002) referred fraud prevention as the steps that can be taken to prevent fraud before it takes place while identifying fraud as soon as a fraud takes place is detection of frauds. Different studies have discovered different techniques to prevent and detect frauds and they have presented mixed evidence. Moreover, as far as the researchers identified, there is a dearth of studies on the level of use and of the importance of fraud detection and prevention techniques in Sri Lankan banking and finance institutions.

This study has three objectives pertaining to the Sri Lankan banking and finance institutions: first, to identify the types of fraud with the highest occurrence; second, to examine the level of use and level of importance of fraud detection and prevention techniques and software-based fraud detection and prevention techniques; and third, to investigate whether a difference in perceptions exists between auditors towards the level of use and the level of importance of fraud detection and prevention techniques and software-based fraud detection and prevention techniques.

This study expects to fill the gap caused by the dearth of studies in this area and to conclude on the mixed evidence presented by previous studies. Further, the findings of this study are expected to have significant policy implications for policymakers and practitioners in terms of promoting certain important fraud detection and prevention techniques and identifying frauds of the highest occurrence.

A literature survey follows in Section 2 and the methodology of the study such as the research approach, population, sample size, data collection methods and the data analysis method are discussed in Section 3. Section 4 elaborates on the findings of the study and Section 5 provides the conclusion, summary, limitations, implications and future research directions.

2 THEORETICAL FOUNDATION AND LITERATURE REVIEW

This section reviews and summarizes the previous studies with their key terms, previous knowledge and the empirical gap in the research area.

2.1 Definition of Concepts

Accounting fraud

Fraud is defined as "deliberate deceit planned and executed with the intent to deprive another of property or rights, directly or indirectly, regardless of whether the perpetrator benefits from his or her actions" (KPMG, 2009). According to Schilit and Perler (2010), in some instances, fraudsters overstate or understate the assets, liabilities, income or expenses in order to mislead stakeholders. Thus, the firm's true financial position is not shown. Hall (2011) defined fraud as, intentional deception, misappropriation of assets of the company, or misrepresentation of financial data of the company to gain benefits for the perpetrator. Moreover, in accounting, fraud can be known as defalcation, white-collar crime, embezzlement, and irregularities (Hall, 2011). However, according to prior studies fraud has been defined in many ways. But as far as the researcher identified, in a nutshell, fraud can be defined as intentional act or omission to deceive someone to gain personal benefits while the organization suffers from a loss.

2.2 Theories on Frauds

Fraud triangle and Fraud diamond theory

According to Kassem (2016), Donald Cressey identified three factors which lead people to commit fraud. They are perceived financial need, opportunity and rationalization. Almost all pressure includes financial need or nonfinancial needs such as the need of reporting financial performances better than the actual performances, being unhappy with work or to challenge to beat the system. Further, these pressures need not to be real pressures. Individual pressures such as addiction to gambling can also create fraud (Albrecht et al., 2006). Lister (2007) defined pressure as “the source of heat for the fire”. Secondly, perceived opportunity can include factors like a weak board of directors, lack of internal controls (Albrecht et al., 2006). Lister (2007) identified the opportunity as “the fuel that keeps the fire going”. Finally, every fraudster rationalizes their acts. Managers can rationalize the fraud by giving thoughts like, “We had to keep the stock price up,” “This is for the betterment of the company,” etc. (Albrecht et al., 2006). Lister (2007) defined rationalization as “the oxygen that keeps the fire burning”.

According to Omar and Din (2010) in 2004 Wolfe and Hermanson introduced a new dimension to the fraud triangle which is ability to commit frauds and renamed the fraud triangle as fraud diamond. Personal characteristics of a fraudster are depicted by the ability (Rasha & Andrew, 2012).

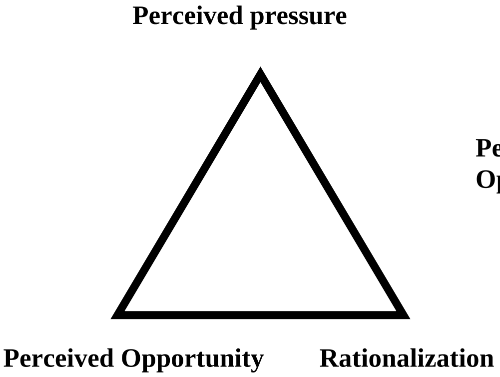

Figure 1: Fraud Triangle
Source : Cressey (1973)

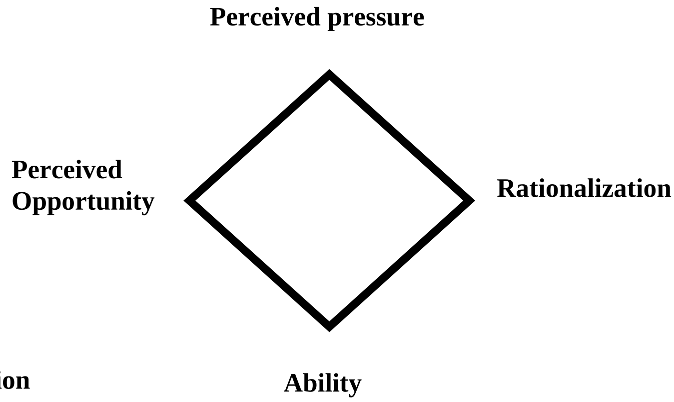

Figure 2: Fraud Diamond
Source : Wolfe &Hermanson (2004)

Agency Theory

An agency relationship is “a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.” (Jensen & Meckling, 1976). According to Mohamed and Schachler (2015), directors and managers are responsible for the financial statements issued to shareholders. These financial statements should be free from fraud. If there are frauds in the financial statements or in the organization, the agency relationship between the directors, managers and the stakeholders breaks down (Mohamed & Schachler, 2015). Secondly, according to Jans et al. (2010), there can be agency relationships between managers (Principal) and employees (Agent). There can be agency problems between these two due to frauds done by each party.

2.3 Empirical Studies on Types of Frauds

According to PwC (2015), there are five types of economic crimes in Australia: asset misappropriation, procurement fraud, bribery and corruption, human resources fraud and accounting fraud. However, Jans et al. (2010) state there are only two types of fraud, namely, internal frauds and external frauds. If the perpetrator is an internal person it is considered as an internal fraud while if the perpetrator is an external person, it is considered as an external fraud. However, a combination of internal and external frauds can also occur (Jans et al., 2010). Furthermore, Bologna and Lindquist (1995) state that there are two types of fraud: transactional fraud and statement fraud. Statement frauds are misstatements of figures in financial statements while transactional frauds are stealing or embezzlement of organizational assets (Bologna and Lindquist, 1995). According to studies done by KPMG (2013) in Malaysian organizations, there are nine fraud categories: theft of physical assets, theft of incoming funds, theft of outgoing funds, theft of intangibles, corruption, e-commerce and computer-based frauds, financial reporting frauds, consumer-related frauds, and supply chain frauds. However, even though there are many categories according to prior studies, any fraud can be identified under each category identified above. For instance, if an employee steals cash from the company, this fraud falls under internal fraud, transactional fraud or asset misappropriation fraud. Likewise, any fraud can be categorized accordingly under the above-mentioned categories.

2.4 Empirical Studies on Level of Use and Importance of Fraud Detection and Prevention Techniques and Software-Based Techniques

According to Othman et al. (2015), frequently used fraud detection and prevention techniques in the public sector are, password protection, firewalls, virus protection, discovery sampling, and continuous auditing. Moreover, organizations rarely use whistle-blowing policy, fraud hotlines, and forensic accountants despite their high importance (Othman et al., 2015). A survey on fraud prevention mechanisms of Malaysian Government organizations on the effectiveness of existing fraud detection and prevention methods indicated that external audits of financial statements and management reviews of internal controls were of higher importance in preventing frauds than internal and operational audits, internal control reviews and fraud examination departments (Omar et al., 2012). However, Jofre and Gerlach (2018) stated that analyzing financial accounting ratios can be used as a significant fraud detection technique because there are differences in ratios in fraudulent and non-fraudulent companies which can be clearly identified.

Research done by Association of Certified Fraud Examiners (ACFE, 2018) in government organizations revealed that over 45% of frauds are discovered via tips and complaints which have been identified as the most effective way of detecting and preventing frauds. Further, information received by employees is considered a valuable source. Apart from tips, government organizations use internal audits, management reviews, external audits, etc. to detect frauds (ACFE, 2018). Furthermore, studies done by Othman et al. (2015) on Accountants' perception in the Malaysian public sector fraud detection procedures, carrying internal audits, sound internal controls, and effective audit committees were classified as the most important techniques. However, they indicate that according to the accountants, using whistle blowing policies and fraud hotlines is not effective since there are fewer rules to protect whistleblowers (Othman et al., 2015). However, according to Gupta and Singh (2012), using the decision trees method to detect accounting frauds is more effective because it has classified 95% of all fraudulent cases correctly including 98% of non-fraudulent firms and 86% of fraudulent firms.

Thus, it was evident that previous studies had presented mixed evidence on the use and importance of fraud detection and prevention techniques and software-based techniques.

2.5 Perception Differences of Internal and External Auditors Towards the Level of Usage and Importance of Fraud Detection and Prevention Techniques

According to Wilfred et al. (1981), both internal and external auditors believe that managers and auditors are hugely responsible for preventing and detecting fraud. Further, auditors believe that having a strong internal auditing department and access to accounting records and documentation can help to prevent and detect fraud in an organization (Wilfred et al., 1981). According to the survey done by Othman et al. (2015), internal auditors hold the view that the most commonly used fraud detection and prevention methods in the public sector are operational audits, increased role of audit committees, internal control review and improvement, cash reviews, fraud reporting policy and staff rotation policy.

However, as far as the researcher identified there are no differences in the perceptions of auditors towards the fraud detection and prevention techniques while most importantly there's a dearth of studies done in this area.

2.6 Theoretical Gap

As observed by the researchers, after reviewing the previous literature, there is a dearth of studies done on fraud detection and prevention techniques and their use and the level of importance in Sri Lankan banking and finance institutions. Further, according to previous studies described above, different researches have presented mixed evidences of these research area. Thus, these are identified as gaps that needs to be addressed. It is important to understand the techniques used by organizations to prevent and detect fraud in order to reduce losses and company collapses resulting from fraud.

3 RESEARCH METHODS

This section discusses the research approach, population and study sample, data collection and data analysis strategies used by the researcher. This research uses a positivistic paradigm and quantitative research approach since the research aims to identify the level of occurrence, level of usage and importance and perception difference between auditors. Similar studies done by Bierstaker (2006) on the accountants' perceptions of fraud detection and prevention methods, by Kassem (2016) on detecting financial reporting frauds and by Othman et al. (2015) on fraud detection and prevention techniques used in the Malaysian public sector, etc. have also followed the same approach in their studies.

The population of this study is the internal and external auditors of banking and finance institutions. Internal auditors would be the auditors who work in the internal audit department of banking and finance institutions while external auditors would be the auditors who are in the supervisory level and above and involved with audits in banking and finance institutions. Since a sampling frame is absent for the research, the convenience sampling technique which is a non-probability sampling technique is used to decide on the sample of 100 internal and 100 external auditors. Primary data is collected through a questionnaire distributed among the sample.

3.1 Questionnaire Development

In order to collect primary data for the research purpose, a questionnaire was developed, which is based on a comprehensive literature survey including previous similar studies (Bierstaker et al., 2006). The questionnaire consisted of close-ended, multiple-choice and Likert-scale questions. Further, the questionnaire was examined by a group of experts to ensure its face validity and a pilot survey was carried by distributing the questionnaire among a small group of auditors and then refined before the final version was formulated.

At the beginning of the questionnaire, respondents were told that their confidentiality and anonymity would be protected so they could provide answers to the questionnaire honestly and uninhibitedly. It consisted of five parts as follows:

Part 1 - Demographics
Part 2 - Fraud questions
Part 3 - Prevention and detection techniques of frauds
Part 4 - Software-based prevention and detection techniques of frauds
Part 5 - Types of frauds

Part 1 comprised the demographic variables to gather information about the sample. Part 2 included two multiple-choice questions Part 3 and 4 comprised of Likert-scale questions on the level of usage and level of importance of fraud detection and prevention techniques and software-based fraud detection and prevention techniques. Finally, Part 5 consisted of Likert-scale questions on the level of occurrence of different types of frauds.

3.2 Data Analysis Strategies

The data collected from auditors was tested and assessed using the SPSS (Statistical Package for the Social Science) software. The collected data was screened and cleaned before subjecting it testing and analyzing. The first objective of identifying the types of frauds with the highest occurrence and the second objective of measuring the level of use and the level of importance of fraud detection and prevention techniques and software-based fraud detection and prevention techniques used, the mean along with mean ranking and one sample *t*-test (to test whether there is a significant difference between the mean values compared to the neutral value 3) were used. Finally, to identify whether there was a perception difference between internal and external auditors towards the level of usage and level of importance, an independent sample *t*-test was carried on.

4 FINDINGS AND DISCUSSION

This section discusses the statistics on demographic factors, descriptive statistics along with information on the mean ranking and one-sample t-test and independent sample t-test.

4.1 Demographic Analysis

The questionnaire was distributed among 100 internal and 100 external auditors. Altogether 130 individuals responded to the questionnaire, out of which, 57.7% were internal auditors and 42.3% were external auditors.

As shown in Table 1, 67.7% of respondents were males and 32.3% were females. Of 75 internal auditors, 66.7% were males and of 55 external auditors, 69.1% were males. In other words, the majority of respondents were males. More than 70% of the respondents in the internal audit group were below 40 years of age while 20% of internal auditors were in the range of 41-50 years and only 6.7% of internal auditors were in the range of 51-60 years. Further, all the respondents of the external audit group were below 40 years and there were no respondents above 41 years in the external audit category. Of 57.7% of internal auditors, 24% were from the state sector while 76% were from the private sector banking and finance institutions. Further, out of the external auditors, 61.8% were from the Big three audit firms while 38.2% were from other audit firms.

The majority of internal auditors and external auditors (40% and 76.4%, respectively) hold a first degree and 32% of internal auditors hold a MBA or MSc. while 18.7% of internal auditors hold a Certificate/Diploma. 10.9% of external auditors have completed only GCE Advanced Levels, 10.9% of external auditors hold a Certificate/Diploma and only 1.8% have completed a post-graduate diploma. The majority (29.3%) of internal auditors do not have any professional qualifications while the majority (41.8%) of external auditors are qualified in Chartered Accountants. 18.7% of internal auditors are qualified Chartered Accountants. 16% of internal auditors have completed IBSL (Institute of Bankers of Sri Lanka) qualification while 10.7% of internal auditors have completed the CIMA (Chartered Institute of Management Accountants) qualification and 9.1% of external auditors have completed the AAT qualification.

Among the respondents, more than 70% of internal auditors and more than 85% of external auditors have experience of less than 10 years. Only 8% of internal auditors have experience of more than 20 years and no respondents have experience of more than 15 years in the external audit category.

Table 1: Descriptive Statistics: Demographic Factors

Variable	Categories	Internal Auditor		External	Auditor	Overall	
		N	%	N	%	N	%
Gender	Male	50	66.7	38	69.1	88	67.7
	Female	25	33.3	17	30.9	42	32.3
	Total	**75**	**100**	**55**	**100**	**130**	**100**
Age	20-30 years	19	25.3	47	85.5	66	50.8
	31-40 years	36	48.0	8	14.5	44	33.8
	41-50 years	15	20.0	0	0.0	15	11.5
	51-60 years	5	6.7	0	0.0	5	3.8
	Total	**75**	**100**	**55**	**100**	**130**	**100**
State/ Private Sector	State Sector	18	24.0	-	-	18	24
	Private Sector	57	76.0	-	-	57	76
	Total	**75**	**100**	-	-	**75**	**100**
Big Three/ Other	Big three	-	-	34	61.8	34	61.8
	Other	-	-	21	38.2	21	38.2
	Total	-	-	**55**	**100**	**55**	**100**
Education	GCE Advanced Level	4	5.3	6	10.9	10	7.7
	Certificate/Diploma	14	18.7	6	10.9	20	15.4
	First Degree	30	40.0	42	76.4	72	55.4
	Post Graduate Diploma	3	4.0	1	1.8	4	3.1
	MBA/M.Sc	24	32.0	0	0.0	24	18.5
	Total	**75**	**100**	**55**	**100**	**130**	**100**

Professional Qualifications	CA Sri Lanka	14	18.7	23	41.8	37	28.5
	CIMA	8	10.7	2	3.6	10	7.7
	ACCA	0	0.0	4	7.3	4	3.1
	CMA	2	2.7	0	0.0	2	1.5
	AAT	5	6.7	5	9.1	10	7.7
	IBSL	12	16.0	1	1.8	13	10
	CA & ACCA	1	1.3	2	3.6	3	2.3
	CA & CMA	1	1.3	2	3.6	3	2.3
	CA & FIB	1	1.3	0.0	0.0	1	0.8
	CPM	1	1.3	0.0	0.0	1	0.8
	CMA & AAT	1	1.3	2	3.6	3	2.3
	DISAC	2	2.7	0.0	0.0	2	1.5
	CA & ATT	1	1.3	0.0	0.0	1	0.8
	CA & IBSL	3	4.0	1	1.8	4	3.1
	AIB	1	1.3	0.0	0.0	1	0.8
	CA & CIMA	0	0.0	3	5.5	3	2.3
	None	22	29.3	10	18.2	32	24.6
	Total	**75**	**100**	**55**	**100**	**130**	**100**
Years of Experience	1-5 years	33	44.0	41	74.5	74	56.9
	5-10 years	22	29.3	7	12.7	29	22.3
	10-15 years	11	14.7	7	12.7	18	13.8
	15-20 years	3	4.0	0	0.0	3	2.3
	Above 20 years	6	8.0	0	0.0	6	4.6
	Total	**75**	**100**	**55**	**100**	**130**	**100**

Source: Constructed by Authors

4.2 Frauds with the Highest Occurrence

The first objective of the research was to identify the types of frauds with the highest occurrence in banking and finance institutions in Sri Lanka. Table 2 shows the descriptive statistics and one sample t-test findings relating to the occurrence of different types of frauds. Mean values are based on the Likert scale type of questions used in the questionnaire. The one sample t-test showed the p-value of some types of frauds to be less than 5% (0.05) or less than 1% (0.01) (significant difference between the mid-value of 3 and the mean values are indicated, where **p<.01 and *p<.05).

According to external auditors, the most frequently experienced type of fraud in banking and finance institutions are improper disclosures, recording a mean of 3.85. Further, improper assets valuation (3.71), improper timing differences (3.65), improper revenue recognition (3.62) and asset misappropriation (3.44) ranked 2nd, 3rd, 4th and 5th most frequently experienced frauds. According to them, the least experienced frauds are human resources fraud (2.58), theft of intellectual property (2.60), embezzlement (2.65), supply chain frauds (2.80) and e-commerce and computer-based frauds (2.84). All the above mentioned highest experienced types of frauds are statistically significant compared to the neutral value of 3 while only human resource frauds, theft of intellectual property and embezzlement are statistically significant compared to the neutral value of 3 out of the least experienced frauds.

Table 2: Descriptive Statistics and One Sample t-test– Types of Frauds

	Type of fraud	Internal Auditors			External Auditors			Overall		
		Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank
1.	Cheque frauds	3.27^{*}	1.155	1	3.33^{*}	1.123	6	3.29^{**}	1.137	1
2.	Improper disclosure	2.76^{*}	0.913	4	3.85^{**}	0.951	1	3.22^{*}	1.073	2
3.	Improper assets valuation	2.68^{**}	0.774	8	3.71^{**}	0.875	2	3.12	0.962	3
4.	Asset misappropriation	2.75	1.187	6	3.44^{**}	1.102	5	3.04	1.197	4
5.	Conflicts of interest	2.84	1.014	2	3.27	1.113	7	3.02	1.074	5
6.	Improper revenue recognition	2.55^{**}	1.069	9	3.62^{**}	0.952	4	3.00	1.148	6
7.	Improper timing difference (cut-off)	2.44^{**}	0.990	11	3.65^{**}	1.004	3	2.95	1.160	7
8.	Consumer related frauds	2.81	1.062	3	2.93	0.920	12	2.86	1.002	8
9.	E-commerce and computer based frauds	2.76	1.113	4	2.84	1.085	15	2.79^{*}	1.098	9
10.	Procurement fraud	2.69^{*}	1.052	7	2.91	1.127	13	2.78^{*}	1.085	10
11.	Conceal expenses	2.44^{**}	0.948	11	3.20	0.911	9	2.76^{**}	1.002	11
12.	Conceal liabilities	2.44^{**}	0.889	11	3.18	0.945	10	2.75^{**}	0.981	12
13.	Concealment of material facts	2.40^{**}	1.078	14	3.13	1.001	11	2.71^{**}	1.103	13
14.	Financial statement fraud	2.17^{**}	1.107	17	3.25	1.142	8	2.63^{**}	1.240	14
15.	Bribery and corruption	2.36^{**}	1.074	15	2.89	1.272	14	2.58^{**}	1.186	15
16.	Embezzlement	2.49^{**}	1.032	10	2.65^{*}	1.022	17	2.56^{**}	1.027	16
17.	Supply chain frauds	2.29^{**}	1.088	16	2.80	0.911	16	2.51^{**}	1.044	17
18.	Theft of intellectual properties	2.15^{**}	1.009	18	2.6^{**}	0.955	18	2.34^{**}	1.008	18
19.	Human resources fraud (Ghost employee schemes, Falsify wages scheme, etc.)	2.11^{**}	1.122	19	2.58^{**}	0.994	19	2.31^{**}	1.092	19

Based on the one sample t-test performed, the significant difference between the test value of 3 and the mean values are indicated, where $^{**}p<.01$ and $^{*}p<.05$

Source: Constructed by Authors

When it comes to overall ranking, cheque frauds were ranked as the most commonly experienced fraud with a mean of 3.29 while improper disclosure (3.22), improper assets valuation (3.12), asset misappropriation (3.04) and conflicts of interest (3.02) were ranked in the 2nd to 5th places. Moreover, of these frauds only cheque frauds and improper disclosure frauds have been recorded as statistically significantly different compared to neutral value three. Human resources fraud, theft of intellectual property, supply chain frauds, embezzlement, bribery and corruption and financial statement fraud are the least commonly experienced types of frauds according to the auditors. All these least commonly experienced frauds are statistically significant compared to neutral value three.

4.3 Expectation of Fraud Increase in Future

According to Table 3, 76% of internal auditors and 76.4% of external auditors believe that frauds will increase in the future in Sri Lankan baking and financial institutions. Overall, 76.2% of respondents expect fraud to increase in these institutions in the future.

Table 3: Descriptive Analysis – Expectation of Increases in Frauds in the Future

Expect to increase frauds?	**Internal Auditor**		**External Auditor**		**Overall**	
	N	**%**	**N**	**%**	**N**	**%**
Yes	57	76.0	42	76.4	99	76.2
No	18	24.0	13	23.6	31	23.8
Total	**75**	**100.0**	**55**	**100.0**	**130**	**100.0**

Source: Constructed by Authors

According to Table 4, 52% of internal auditors stated that their organizations had been victims of fraud and 38.7% of internal auditors stated that their organizations had not been victims of fraud while 9.3% stated that they were not aware of the fact that a fraud had taken place. According to external auditors, only 32.7% stated that the banking and finance institutions they audited had become victims of fraud while 47.3% stated that their organizations had not been victims of fraud and 20% stated that they were not aware of such fraud. According to overall results, 43.8%, 42.3% and 13.8% stated that their organizations had been victims of frauds, not been a victim of frauds and were not aware, respectively.

Table 4: Descriptive Analysis - Has the Company been a Victim of Fraud?

Victim of frauds	**Internal Auditor**		**External Auditor**		**Overall**	
	N	**%**	**N**	**%**	**N**	**%**
Yes	39	52.0	18	32.7	57	43.8
No	29	38.7	26	47.3	55	42.3
Don't Know	7	9.3	11	20.0	18	13.8
Total	**75**	**100.0**	**55**	**100.0**	**130**	**100.0**

Source: Constructed by Authors

4.4 Level of Use of Fraud Detection and Prevention Techniques

Table 5 gives a descriptive analysis of results and one sample *t*-test results on the level of use of fraud detection and prevention techniques for objective two. The test value considered in the one sample *t*-test is 3.

According to the internal auditors, the most frequently used fraud detection and prevention technique is to have internal control review and improvements, which record a mean of 4.35 while operational audits (4.32), bank reconciliation (4.21), corporate code of conduct/ethics policy (4.17), and increased role of audit committee (3.99) ranked 2nd 3rd, 4th and 5th respectively for the highest use. According to the internal auditors, the least commonly used fraud detection and prevention techniques are the use of an ethics officer (2.59), forensic accountants (2.63), employee counselling programs (2.71), fraud hotlines (2.88) and fraud prevention and detection training (3.12). All the five most frequently used techniques by internal auditors are statistically significantly higher compared to the neutral value of 3 while apart from fraud prevention and detection training, all the other least commonly used techniques are also statistically significantly different compared to the neutral value 3.

According to the external auditors, the most commonly used techniques are internal control review and improvement, bank reconciliations and conducting external audits which have a mean value of 4.33 while the use of corporate code of conduct/ethics policy (4.27) and the increased role of audit committees (4.13) were ranked in the 4th and 5th places. However, according to external auditors, the least commonly used fraud detection and prevention techniques are: use of forensic accountants (2.40), use of fraud hotlines (3.11), fraud detection and prevention training (3.15), employee counselling programs (3.15) and fraud vulnerability reviews (3.29). All the most commonly used techniques by external auditors are statistically significantly different compared to the neutral value 3. Of the least commonly used techniques by external auditors, the use of an ethics officer and the use of a forensic accountant can be identified as statistically significantly different techniques compared to the neutral value 3.

However, according to the overall results too the most commonly used type of technique is having an internal control review and improvements (4.34), while bank reconciliations (4.26), corporate code of conduct/ethics policy (4.22), conducting external audits (4.12), and conducting operational audits (4.11) ranked 2nd, 3rd, 4th, and 5th, in the overall list of the highest use. The use of a forensic accountant (2.53), employee counseling programs (2.89), an ethics officer (2.90), fraud hotline (2.98) and fraud detection and prevention training (3.13) ranked as the least commonly used techniques. All the most commonly used techniques by auditors are statistically significantly different compared to the neutral value of 3, while only the use of forensic accountants is statistically significantly different compared to the neutral value of 3 of the least commonly used techniques.

Table 5: Descriptive Statistics and One Sample t-test - Level of Usage of Fraud Detection and Prevention Techniques

	Fraud Detection and Prevention Technique	Internal Auditors			External Auditors			Overall		
		Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank
1.	Internal control review and improvement	4.35^{**}	0.744	1	4.33^{**}	0.61	1	4.34^{**}	.688	1
2.	Bank reconciliations	4.21^{**}	0.89	3	4.33^{**}	0.695	1	4.26^{**}	.812	2
3.	Corporate code of conduct/ethics policy	4.17^{**}	0.906	4	4.27^{**}	0.679	4	4.22^{**}	.816	3
4.	External audits	3.96^{**}	0.992	7	4.33^{**}	.944	1	4.12^{**}	.985	4
5.	Operational audits	4.32^{**}	.738	2	3.82^{**}	0.925	8	4.11^{**}	.856	5
6.	Increased role of audit committee	3.99^{**}	0.78	5	4.13^{**}	.668	5	4.05^{**}	.735	6
7.	Cash reviews	3.96^{**}	0.845	7	4.02^{**}	.805	6	3.98^{**}	.826	7
8.	Fraud auditing	3.91^{**}	0.932	9	3.51^{**}	1.069	15	3.74^{**}	1.008	8
9.	Whistle-blowing policy	3.99^{**}	.830	5	3.38^{**}	1.009	17	3.73^{**}	.955	9
10.	Increased attention of senior management	3.57^{**}	0.857	12	3.87^{**}	.640	7	3.70^{**}	.784	10
11.	Inventory observation	3.60^{**}	1.065	11	3.69^{**}	1.034	9	3.64^{**}	1.049	11
12.	Fraud reporting policy	3.76^{**}	1.137	10	3.42^{**}	1.049	16	3.62^{**}	1.109	12
13.	Reference checks on employees	3.49^{**}	0.891	14	3.55^{**}	0.857	13	3.52^{**}	.874	13
14.	Staff rotation policy	3.43^{**}	1.042	15	3.56^{**}	1.050	12	3.48^{**}	1.044	14
15.	Security department	3.35^{**}	1.046	17	3.65^{**}	1.092	10	3.48^{**}	1.073	14
16.	Fraud vulnerability reviews	3.53^{**}	1.004	13	3.29	1.133	21	3.43^{**}	1.063	16
17.	Surveillance of electronic correspondence	3.35^{**}	0.862	17	3.55^{**}	1.068	13	3.43^{**}	.956	16
18.	Ethics training	3.27^{*}	0.977	19	3.65^{**}	1.075	10	3.43^{**}	1.034	16
19.	Surveillance equipment	3.40^{**}	.973	16	3.36^{**}	.930	18	3.38^{**}	.951	19
20.	Analysis of red flags	3.19	1.087	20	3.35^{*}	1.022	19	3.25^{**}	1.059	20
21.	Fraud prevention and detection training	3.12	0.9	21	3.15	1.145	22	3.13	1.007	21
22.	Fraud hotline	2.88	1.115	22	3.11	1.083	24	2.98	1.103	22
23.	Ethics officer	2.59^{**}	1.079	25	3.33^{*}	1.001	20	2.90	1.106	23
24.	Employee counseling programs	2.71^{*}	1.024	23	3.15	1.096	22	2.89	1.073	24
25.	Organizational use of forensic accountants	2.63^{**}	1.037	24	2.40^{**}	1.047	25	2.53^{**}	1.043	25

Based on the one sample t-test performed the significant difference between the test value of 3 and the mean values are indicated, where $^{**}p<.01$ and $^{*}p<.05$

Source: Constructed by Authors

4.5 Level of Importance of Fraud Detection and Prevention Techniques

Table 6 shows the results of the descriptive analysis and one sample t-test results for the level of importance of fraud detection and prevention techniques used in banking and finance companies in Sri Lanka. All these techniques are statistically significantly different compared to neutral value 3, at the $p<0.01$ level under the one-sample t-test.

According to Table 6, internal auditors believe that the use of internal control review and improvement (4.76) is the most important technique while the use of a corporate code of conduct/ethics policy (4.67), fraud auditing (4.63), whistle-blowing policy (4.59) and fraud reporting policy (4.55) ranked 2nd, 3rd, 4th, and 5th ,of the most important techniques. The use of an ethics officer (3.55), employee counselling programs (3.85), security department (4.01), fraud hotline (4.01), analysis of red flags (4.07) and ethics training (4.07) are the least important techniques according to the rankings.

External auditors also ranked internal control review and improvement (4.62) as the most important technique and the corporate code of conduct/ethics policy (4.58) as the 2nd most important technique. They ranked whistle-blowing policy (4.49) and the increased role of audit committee (4.49) as the 3rd most important technique and finally, fraud reporting policy (4.45) as the 5th most important technique. According to them, employee counselling programs (3.82), the use of an ethics officer (3.89), reference check on employees (3.95), the use of security departments (4.00), and a staff rotation policy (4.02) are the least important techniques compared to others in the list. It should be note that even though these techniques are ranked the least important according to mean ranking, all these techniques have a mean exceeding 3.80.

According to the overall ranking, internal control review and improvement (4.70), corporate code of conduct/ethics policy (4.63), whistle-blowing policy (4.55), fraud auditing (4.53) and fraud reporting policy (4.51) ranked the 1st to 5th most important techniques, respectively, while use of an ethics officer (3.69), employee counselling programs (3.84), security department (4.01), reference checks on employees (4.07) and fraud hotline (4.08) obtained the lowest rankings in the list. However, all these techniques have a mean above 3.

Table 6: Descriptive Statistics and One Sample t-test - Level of Importance of Fraud Detection and Prevention Techniques

	Fraud Detection and Prevention Technique	Internal Auditors			External Auditors			Overall		
		Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank
1.	Internal control review and improvement	4.76^{**}	0.516	1	4.62^{**}	0.593	1	4.70^{**}	0.552	1
2.	Corporate code of conduct/ethics policy	4.67^{**}	0.6	2	4.58^{**}	0.599	2	4.63^{**}	0.599	2
3.	Whistle-blowing policy	4.59^{**}	0.68	4	4.49^{**}	0.663	3	4.55^{**}	0.672	3
4.	Fraud auditing	4.63^{**}	0.540	3	4.40^{**}	0.627	8	4.53^{**}	0.587	4
5.	Fraud reporting policy	4.55^{**}	0.703	5	4.45^{**}	0.689	5	4.51^{**}	0.696	5
6.	Increased role of audit committee	4.48^{**}	0.685	7	4.49^{**}	0.717	3	4.48^{**}	0.696	6
7.	Bank reconciliations	4.51^{**}	0.795	6	4.44^{**}	0.714	6	4.48^{**}	0.760	6
8.	Increased attention of senior management	4.44^{**}	0.663	10	4.35^{**}	0.615	12	4.40^{**}	0.642	8
9.	Fraud prevention and detection training	4.32^{**}	0.72	12	4.42^{**}	0.686	7	4.36^{**}	0.704	9
10.	Fraud vulnerability reviews	4.48^{**}	0.723	7	4.20^{**}	0.869	14	4.36^{**}	0.797	9
11.	Cash reviews	4.27^{**}	0.859	14	4.40^{**}	0.735	8	4.32^{**}	0.809	11
12.	Operational Audits	4.47^{**}	0.741	9	4.11^{**}	0.854	19	4.32^{**}	0.807	11
13.	External audits	4.17^{**}	1.032	16	4.38^{**}	0.913	11	4.26^{**}	0.985	13
14.	Surveillance of electronic correspondence	4.29^{**}	0.835	13	4.20^{**}	0.803	14	4.25^{**}	0.819	14
15.	Surveillance equipment	4.24^{**}	0.654	15	4.25^{**}	0.700	13	4.25^{**}	0.671	14
16.	Staff rotation policy	4.35^{**}	0.762	11	4.02^{**}	0.828	21	4.21^{**}	0.804	16
17.	Ethics training	4.07^{**}	0.844	20	4.40^{**}	0.564	8	4.21^{**}	0.754	16
18.	Organizational use of forensic accountants	4.11^{**}	0.746	18	4.15^{**}	0.891	17	4.12^{**}	0.807	18
19.	Inventory observation	4.15^{**}	0.940	17	4.09^{**}	1.005	20	4.12^{**}	0.965	18
20.	Analysis of red flags	4.07^{**}	0.859	20	4.13^{**}	0.840	18	4.09^{**}	0.849	20
21.	Fraud hotline	4.01^{**}	0.908	22	4.16^{**}	0.938	16	4.08^{**}	0.920	21
22.	Reference checks on employees	4.16^{**}	0.839	18	3.95^{**}	0.78	23	4.07^{**}	0.818	22
23.	Security department	4.01^{**}	0.937	22	4.00^{**}	0.962	22	4.01^{**}	0.944	23
24.	Employee counseling programs	3.85^{**}	0.833	24	3.82^{**}	1.002	25	3.84^{**}	0.905	24
25.	Ethics Officer	3.55^{**}	0.934	25	3.89^{**}	0.916	24	3.69^{**}	0.939	25

Based on the one sample t-test performed, the significant difference between the test value of 3 and the mean values are indicated, where $^{**}p<.01$ and $^{*}p<.05$.

Source: Constructed by Authors

4.6 Comparison between Level of Use and Importance of Fraud Detection and Prevention Techniques

Based on the results of the preceding sections, according to the auditors, based on the mean ranking, even though reference check on employees, operational audits, cash reviews, bank reconciliations, and external audits have a comparatively lower level of importance, it is noted that their level of use is comparatively high. However, techniques such as fraud auditing, fraud reporting policy, fraud vulnerability reviews, whistle-blowing policy, organizational use of forensic accountants and fraud prevention and detection training have a lower level of use despite their higher effectiveness.

4.7 Level of Use of Software-Based Fraud Detection and Prevention Techniques

Table 7 gives the descriptive statistics and one sample t-test results for the level of use of software-based fraud detection and prevention techniques used in Sri Lankan banking and finance companies. The test value considered in the one sample t-test is 3.
According to the internal auditors, the most frequently used software-based technique is password protection (4.51). Use of firewall (4.44), virus protection (4.37), continuous auditing (4.07) and financial ratios (3.87) were ranked at 2nd, 3rd, 4th and 5th places. According to them, the least frequently used techniques are logistic regression (1.91), Benford's law (2.04), Bayesian network (2.05), hybrid decision support systems (2.07), decision trees (2.32) and discriminant analysis (2.32).

According to the external auditors, the most frequently used techniques are password protection (4.64), use of firewall (4.51), virus protection (4.31), financial ratios (4.11) and continuous auditing (3.93), ranking them at 1st to 5th places, respectively. External auditors ranked Bayesian network (1.93), logistic regression (1.95), hybrid decision support systems (2.09), Benford's law (2.16), Decision trees (2.18) and Discriminant analysis (2.18) as the least frequently used techniques.

Therefore, according to the overall ranking, the most frequently used software-based technique is password protection (4.56). Use of firewall (4.47), virus protection (4.35), continuous auditing (4.01) and financial ratios (3.97) were ranked at 2nd, 3rd, 4th and 5th places. Logistic regression (1.92), Bayesian network (2.00), hybrid decision support systems (2.08), Benford's law (2.09), decision trees (2.26) and discriminant analysis (2.26) were ranked as the least frequently used techniques.

All these least commonly and most commonly used techniques according to internal auditors, external auditors and overall results are statistically significant compared to the neutral value 3 at $p<0.01$ level under the one-sample t-test.

Table 7: Descriptive Statistics and One Sample t-test - Level of Use of Software-based Fraud Detection and Prevention Techniques

	Software based techniques	Internal Auditors			External Auditors			Overall		
		Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank	Mean	Std. Deviation	Mean rank
1	Password protection	4.51^{**}	0.778	1	4.64^{**}	0.704	1	4.56^{**}	0.747	1
2	Firewalls	4.44^{**}	0.889	2	4.51^{**}	0.663	2	4.47^{**}	0.799	2
3	Virus protection	4.37^{**}	0.802	3	4.31^{**}	0.791	3	4.35^{**}	0.794	3
4	Continuous auditing	4.07^{**}	0.811	4	3.93^{**}	0.836	5	4.01^{**}	0.821	4
5	Financial ratios	3.87^{**}	0.777	5	4.11^{**}	0.685	4	3.97^{**}	0.746	5
6	Digital analysis	3.35^{**}	0.923	6	3.53^{**}	1.052	6	3.42^{**}	0.979	6
7	Discovery sampling	3.03	1.090	8	3.25	0.966	7	3.12	1.042	7
8	Data mining	3.17	0.978	7	3.02	1.027	8	3.11	0.998	8
9	Neural Networks	2.61^{*}	1.384	9	2.44^{**}	1.167	9	2.54^{**}	1.295	9
10	Discriminant Analysis	2.32^{**}	1.199	10	2.18^{**}	0.884	10	2.26^{**}	1.075	10
11	Decision Trees	2.32^{**}	1.176	10	2.18^{**}	0.884	10	2.26^{**}	1.061	10
12	Benford's law	2.04^{**}	0.992	14	2.16^{**}	1.032	12	2.09^{**}	1.007	12
13	Hybrid Decision Support System	2.07^{**}	1.082	12	2.09^{**}	0.928	13	2.08^{**}	1.016	13
14	Bayesian Networks	2.05^{**}	1.102	13	1.93^{**}	0.742	15	2.00^{**}	0.964	14
15	Logistic Regression	1.91^{**}	0.989	15	1.95^{**}	0.780	14	1.92^{**}	0.903	15

Based on the one sample t-test performed, the significant difference between the test value of 3 and the mean values is indicated, where $^{**}p<.01$ and $^{*}p<.05$

Source: Constructed by Authors

4.8 Level of Importance of Software-Based Fraud Detection and Prevention Techniques

Table 8 shows the descriptive statistics and one sample t-test results for the level of importance of software-based fraud detection and prevention techniques.

According to the internal auditors, the most important technique is continuous auditing (4.52) with ranking data mining (4.47) in 2nd place, digital analysis (4.44) in 3rd, neural networks (4.29) 4th and discovery sampling (4.28) in 5th place. Internal auditors ranked password protection (2.80), firewalls (3.25), virus protection (3.32), financial ratios (3.56) and Benford’s law (3.80) as the least important techniques. All the above mentioned most important and least important techniques are statistically significantly different compared to the neutral value 3 based on the one sample t-test.

However, according to the external auditors, data analysis (4.49) is the most important technique while data mining (4.47), continuous auditing (4.25), discovery sampling (4.25) and hybrid decision support system (3.98) were ranked 2nd, 3rd, 4th and 5th, respectively. Further, all these most important techniques are statistically significantly different compared to the neutral value three. According to the external auditors, the least important techniques are password protection (2.96), virus protection (2.98), financial ratios (3.47), firewall (3.60) and logistic regression (3.71). Apart from virus protection and password protection other least important techniques are statistically significantly different compared to the neutral value three.

The overall results are also quite similar to the separate rankings of internal and external auditors. However, according to the overall ranking, data mining (4.47) is the most important technique while digital analysis (4.46), continuous auditing (4.41), discovery sampling (4.27) and neural networks (4.14) ranked from 2nd to 5th places respectively. Password protection (2.87), virus protection (3.18), firewall (3.40), financial ratios (3.52) and logistic regression (3.78) were ranked as the least important techniques in the overall results. Further, all these techniques listed above as the most and least important according to overall results are statistically significantly different compared to neutral value 3 under the one sample t-test.

Table 8: Descriptive Statistics and One Sample t-test - Level of Importance of Software based Fraud Detection and Prevention Techniques

		Internal Auditors			**External Auditors**			**Total**		
	Software based techniques	**Mean**	**Std. Deviation**	**Mean rank**	**Mean**	**Std. Deviation**	**Mean rank**	**Mean**	**Std. Deviation**	**Mean rank**
1	Data mining	4.47^{**}	0.528	2	4.47^{**}	0.573	2	4.47^{**}	0.545	1
2	Digital analysis	4.44^{**}	0.663	3	4.49^{**}	0.54	1	4.46^{**}	0.612	2
3	Continuous auditing	4.52^{**}	0.665	1	4.25^{**}	0.7	3	4.41^{**}	0.690	3
4	Discovery sampling	4.28^{**}	0.727	5	4.25^{**}	0.552	4	4.27^{**}	0.656	4
5	Neural Networks	4.29^{**}	0.712	4	3.93^{**}	0.813	7	4.14^{**}	0.775	5
6	Discriminant Analysis	4.12^{**}	0.592	6	3.93^{**}	0.69	7	4.04^{**}	0.64	6
7	Decision Trees	4.00^{**}	0.805	7	3.93^{**}	0.69	7	3.97^{**}	0.757	7
8	Hybrid Decision Support System	3.88^{**}	0.788	9	3.98^{**}	0.68	5	3.92^{**}	0.743	8
9	Bayesian Networks	3.93^{**}	0.777	8	3.82^{**}	0.748	10	3.88^{**}	0.764	9
10	Benford's law	3.80^{**}	0.838	11	3.98^{**}	0.757	6	3.88^{**}	0.807	9
11	Logistic Regression	3.83^{**}	0.828	10	3.71^{**}	0.712	11	3.78^{**}	0.780	11
12	Financial ratios	3.56^{**}	0.826	12	3.47^{**}	0.879	13	3.52^{**}	0.846	12
13	Firewalls	3.25^{*}	0.988	14	3.60^{**}	0.955	12	3.40^{**}	0.985	13
14	Virus protection	3.32^{**}	0.64	13	2.98	0.782	14	3.18^{**}	0.720	14
15	Password protection	2.80^{*}	0.697	15	2.96	0.693	15	2.87^{*}	0.698	15

Based on the one sample t-test performed the significantly different between the test value of 3 and the mean values are indicated, where $^{**}p<.01$ and $^{*}p<.05$

Source: Constructed by Authors

4.9 Comparison between Level of Use and Importance of Software-Based Fraud Detection and Prevention Techniques

Based on the results of the preceding sections, techniques such as discovery sampling, data mining, digital analysis, neural networks, discriminant analysis, decision trees, Bayesian networks, logistic regression, hybrid decision support system and Benford's law have a lower level of use despite their higher level of importance while techniques such as financial ratios, virus protection, password protection and firewalls have a higher level of use regardless of their comparatively lower level of importance.

4.10 Perception Difference between External and Internal Auditors on Level of Use and Level of Importance of Fraud Detection and Prevention Techniques

The independent sample *t*-test results (not tabulated) for objective three indicate a significant perception difference between the internal and external auditors in terms of level of use of techniques such as ethics officer (mean difference: 0.7406), whistle blowing policy (mean difference: 0.6048), operational audits (mean difference: 0.5018), employee counselling programs (mean difference: 0.4387), fraud auditing (mean difference: 0.3976), ethics training (mean difference: 0.3878), and external audits (mean difference: 0.3673). Furthermore, the results (not tabulated) also initiate that there's a significant perception difference between the internal and external auditors in terms of level of importance of techniques such as operational audits (mean difference: 0.3576), ethics officer (mean difference: 0.3442), ethics training (mean difference: 0.3333), staff rotation policy (mean difference: 0.3285) and fraud auditing (mean difference: 0.2267).

In conclusion, the findings indicate that there is a perception difference between the auditors on the level of use and importance of the above mentioned techniques.

4.11 Perception Difference between Internal and External Auditors on Level of Usage and Level of Importance of Software-Based Fraud Detection and Prevention Techniques

According to the independent sample *t*-test results (not tabulated) for also objective three, there is no significant difference between the internal and external auditors in the perceptions of level of use of software-based fraud detection and prevention techniques. However, in terms of the level of importance there's a significant perception difference between the internal and external auditors in techniques such as neural networks (mean difference: 0.3661), firewalls (mean difference: 0.3467), virus protection (mean difference: 0.3382) and continuous auditing (mean difference: 0.2655).

In conclusion, based on the results, there is a perception difference between the internal and external auditors on the level of importance of the above mentioned techniques and there is no perception difference between auditors in terms of level of use of software-based techniques.

4.12 Discussion

The research objectives stated in Section 1 were achieved by analyzing the gathered data from 130 respondents (including 75 internal and 55 external auditors). The first objective of the research was to identify the types of frauds with the highest occurrence. According to the mean rankings of internal auditors, cheque frauds, conflicts of interests, consumer-related frauds, improper disclosures and e-commerce and computer-based frauds are the five frauds with the highest occurrence. However, according to external auditors, improper disclosures, improper assets valuation, improper timing differences, improper revenue recognition, and asset misappropriation are the five frauds with the highest occurrence. Overall, the results indicated cheque frauds, improper disclosure, improper asset valuation, asset misappropriation and conflicts of interest as the five most frequently experienced frauds in banking and finance institutions, ranking them in the 1st, 2nd, 3rd 4th and 5th places respectively. However, according to a survey done by KPMG (2013), 67% of frauds were theft of outgoing funds while 34% of frauds were theft of incoming funds. Further, according to ACFE (2018), 88% of frauds in government organizations relate to asset misappropriation and 6% of frauds to financial statements.

The survey results of this study also indicate that 43.8% of the respondents have been victims of frauds while a survey done by KPMG (2013) representing Malaysian listed companies discovered 48% of respondents to be victims of frauds. These figures show similar results.

Objective two of the research was to identify the level of use and level of importance of fraud detection and prevention techniques in banking and finance institutions. According to the mean ranking results of the survey, internal auditors indicated most frequently used fraud detection and prevention techniques as internal control review and improvements, operational audits, bank reconciliation, corporate code of conduct/ethics policy and increased role of audit committee, while external auditors stated the most frequently used techniques to be internal control review and improvement, bank reconciliations, external audits, corporate code of conduct/ethics policy and increased role of audit committee. However, according to the overall results, the most frequently used fraud detection and prevention techniques are internal control review and improvements, bank reconciliations, corporate code of conduct/ethics policy, external audits and operational audits with 1st, 2nd, 3rd, 4th, and 5th, respectively. However, previous studies done by PwC (2011) on global economies identified the segregation of duties among staff members, fraud policy statements, fraud risk assessment, fraud control plans, procedures and guidelines, fraud awareness programs and training in ethics as the most frequently used techniques by organizations. According to research done by ACFE (2018), techniques such as the use of internal auditors, external audits, and management reviews are frequently used by government organizations.

According to the survey, the most important techniques ranked by internal auditors are internal control review and improvements, corporate code of conduct/ethics policy, fraud auditing, whistle-blowing policy and fraud reporting policy. Techniques such as internal control review and improvement, corporate code of conduct/ethics policy, whistle-blowing policy, and bank reconciliations are ranked as the most important techniques by external auditors. However, according to the overall results, internal control review and improvement, corporate code of conduct/ethics policy, whistle-blowing policy, fraud auditing and fraud reporting policy are the five most important fraud detection and prevention techniques. Othman et al. (2015) also identified whistle-blowing policy and having strong internal controls as the most important detection and prevention technique. However, apart from these techniques, fraud hotlines, use of forensic accountants and effective audit committees were identified as the most effective techniques (Othman et al., 2015). Haron et al. (2014) considered the use of a forensic accountant as the most effective fraud detection and prevention technique. However, the research results show that the use of forensic accountants had a mean of 4.12, which shows it as an important technique even though it is placed 18th in the list.

Objective two of the research also sought to identify the level of usage and level of importance of *software-based* fraud detection and prevention techniques. According to research results, the most frequently used software-based techniques, according to internal auditors, are password protection, firewall, virus protection, continuous auditing and financial ratios ranking from 1 to 5 respectively while external auditors also identified password protection, firewall, virus protection, financial ratios, and continuous auditing as the techniques with the highest usage with ranking from 1 to 5 respectively. However, overall, password protection, firewalls, virus protection, continuous auditing and use of financial ratios were also ranked as the most used techniques with rankings of 1 to 5, respectively. Othman et al. (2015) also stated these techniques had the highest use in the public sector. However, according to Zhou and Kapoor (2010), techniques like regression, decision trees, neural networks, and Bayesian networks are frequently used techniques in organizations even though they are not used widely in Sri Lanka.

According to the results of internal auditors, the five most important techniques identified are continuous auditing, data mining, digital analysis, neural networks, and discovery sampling while the five most important techniques identified by external auditors are data analysis, data mining, continuous auditing, discovery sampling, and hybrid decision support systems. Similarly, according to the overall results, the five most important techniques identified are data mining, digital analysis, continuous auditing, discovery sampling and neural networks with ranks from 1 to 5 respectively. Previous studies done by Zhou and Kapoor (2010), Kassem (2016), Gupta and Singh (2012), etc. also identified these techniques as the most effective software-based techniques in detecting and preventing frauds.

Objective three of the research sought to identify whether there’s a perception difference between the internal and external auditors on the level of use and importance of fraud detection and prevention techniques used. According to survey results, there was a perception difference between the internal and external auditors towards the level of use of certain fraud detection and prevention techniques. They are use of an ethics officer, whistle blowing policy, operational audits, employee counselling programs, fraud auditing, ethics training and external audits. Further, in terms of level of importance there was a perception difference between the internal and external auditors for techniques such as operational audits, ethics officer, ethics training, staff rotation policy, and fraud auditing. Furthermore, objective 3 of the research was also meant to identify whether there’s a perception difference between internal and external auditors on level of use and importance of software-based fraud detection and prevention techniques used. In terms of level of use, there was no perception difference between the internal and external auditors on the software-based fraud detection and prevention techniques used. However, in terms of the level of importance, there was a perception difference between the auditors in for techniques such as neural networks, firewalls, virus protection and continuous auditing. Previous studies done by Wilfred et al. (1981) and Othmana et al. (2015) did not identify a difference between internal and external auditors on the level of use and level of importance of fraud detection and prevention techniques and software-based techniques. But, according to the analysis of this study, there are some instances where there's a perception difference between the auditors. However, there are not enough extant studies done on the perception differences between auditors.

5 CONCLUSION

Considering the contemporary significance of the subject matter and dearth of studies on it in the extant literature, the first objective of identifying different types of frauds with the highest occurrence in the Sri Lankan banking and finance companies was achieved with a descriptive analysis and one sample t-test. According to the main findings, it was concluded that fraud of the highest frequency were cheque fraud, improper disclosure, improper asset valuation, and asset misappropriation while frauds of the least frequency were financial statement fraud, bribery and corruption, embezzlement, supply chain frauds, theft of intellectual property and human resources fraud. Organizations and policymakers could take steps to detect and prevent these frauds with the highest occurrence and be mindful of them.

Second objective of identifying fraud detection and prevention techniques and software-based techniques with highest use and importance was also achieved with a descriptive analysis and one sample *t*-test. According to the overall results, the most used fraud detection and prevention techniques were internal control review and improvements, bank reconciliations, corporate code of conduct/ethics policy, conducting external audits, and conducting operational audits. On the other hand, the most important fraud detection and prevention techniques were internal control review and improvement, corporate code of conduct/ethics policy, whistle-blowing policy, fraud auditing and fraud reporting policy. Moreover, the findings indicated that the most used software-based techniques were, password protection, use of firewall, virus protection, continuous auditing and financial ratios. However, the most important software-based techniques were, data mining, digital analysis, continuous auditing, discovery sampling and neural networks. Accordingly, the findings indicate that there is a difference between the importance and use of fraud detection and prevention techniques and software-based techniques. In terms of policy implications, with the use of these important techniques, organizations can prevent frauds, reduce the damage caused by frauds and detect frauds easily. Further, as noted in the findings since there are techniques with a higher level of use but lower importance, organizations can reduce the use of them in order to reduce the costs. Furthermore, the findings could guide the organizations, practitioners, regulators and policymakers to identify the most important fraud detection and prevention techniques and encourage others to use them more.

In order to identify the perception differences between the internal and external auditors on the level of use and level of importance under objective three of this study, an independent sample *t*-test was performed and according to the main findings on the use of fraud detection and prevention techniques, there was a significant perception difference between the internal and external auditors on the level of use of an ethics officer, whistle blowing policy, operational audits, employee counselling programs, and fraud auditing. Further, in terms of the level of importance, there was a significant difference between internal and external auditors' perception on techniques such as virus protection, firewall, neural networks, continuous auditing and discriminant analysis. Furthermore, the main findings indicated that in terms of software-based techniques, there was no perception difference between the internal and external auditors. However, in terms of the level of importance, there was a significant perception difference in techniques such as virus protection, firewall, neural networks, continuous auditing, and discriminant analysis between the internal and external auditors.

As identified in Section 2 there's a dearth of studies done on fraud detection and prevention techniques and their level of use and the level of importance in Sri Lankan banking and finance institutions. Further, according to previous studies, different researchers have given different perceptions or mixed evidence on the effectiveness of these techniques. Therefore, this study helps to meet the dearth of studies in this area as well as help resolve the mixed evidence presented in previous studies.

There are certain limitations in this study. Firstly, its findings could be mainly applicable to Sri Lankan banking and finance institutions. Therefore, future researchers can expand the research to new sectors as well as to other countries. Secondly, the population of the research covers only internal and external auditors. But managers, accountants, executives, and other staff members might also have an understanding on the types of fraud and most important fraud detection and prevention techniques used in banking and finance institutions. However, the reason for selecting only auditors was because they are the group with a direct knowledge of fraud detection and prevention techniques and types of frauds. Future studies could consider other stakeholders as well.

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