Integrated thinking, earnings manipulation and value creation: Malaysian empirical evidence

Nor Farizal Mohammed and Nor Aqilah Sutainim
Accounting Research Institute, Universiti Teknologi MARA, Shah Alam, Malaysia
Md. Shafiqul Islam
Department of Business Administration, East West University, Dhaka, Bangladesh, and
Norhayati Mohamed
Accounting Research Institute, Universiti Teknologi MARA, Shah Alam, Malaysia

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Abstract

Purpose – Prior literature proposes that integrated reporting (IR) drives integrated thinking (IT), enabling an organisation to create value for stakeholders in both quantitative (economic performance) and qualitative manners (beyond financially-oriented information). Fraud triangle theory also predicts that earnings manipulation may also affect the creation of value. Thus, this study seeks to provide empirical evidence on the relationship between IT, earnings manipulation and value creation.

Design/methodology/approach – This data sample comprises of 497 observations from 2014 to 2018 of the top 100 market capitalisation of Malaysian public listed companies (PLCs) in Bursa Malaysia. This study used an index score for IT variable and Beneish's *M*-score as a proxy to detect earnings manipulations and to classify the companies into non-manipulators and manipulator companies. Value creation measurements consist of four variables under shareholder's value creation and one variable represents value creation through innovation.

Findings – The findings show that IT is significantly related to value creation, whereas earnings manipulation had no significant relationship with value creation except for value creation measured using Tobin's *Q* ratio. The alarming finding is that a fraud predictor, namely earning manipulation, measured by Beneish-M, is not a predictor of whether companies are creating better or less value.

Originality/value – This study is among the early literature that provides empirical evidence of the relationship between IT and value creation. Furthermore, this paper adds to look at the association of earning manipulation and value creation.

Keywords Integrated reporting, Integrated thinking, Earnings manipulation, Value creation, Malaysia
Paper type Research paper

1. Introduction

Integrated reporting (IR) as a practice saw its inception back in 2002 when a Danish firm Novozymes published its self-declared integrated report. In 2003, Natura (a Brazilian company) and 2004 Novo Nordisk (another Danish firm) also followed the concept of IR (Gibassier *et al.*, 2019). In 2010, Johannesburg Stock Exchange (JSE) mandated the IR on an "apply or explain" basis. Then in 2013, the International Integrated Reporting Framework (<IR> framework) came into existence, and voluntarily many companies around the world accepted this new paradigm in corporate reporting. Due to its wide acceptance worldwide, many academicians, policymakers and investors took an in-depth look into its prospect as a sustainable value creation mechanism (De Villiers *et al.*, 2014).

Since the initial launch of IR in South Africa in 2009, this new reporting concept has been celebrated and accepted globally (IoDSA, 2016). The latest innovation of IR breaks the silo

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and drives integrated thinking (IT) by connecting stewardship and corporate governance. Moreover, regarding recent crises and corporate failures, the management of an organisation is no longer able to work in a silo. IR tells a business's story by integrating financial statements, management communication, corporate governance, environmental, social governance and corporate communication. IR focuses beyond financial factors. Instead, IR emphasises non-financial data and intangible assets, namely, intellectual capital, human resource, social relationship, reputation and natural capital (Demirel and Erol, 2016). Nevertheless, IR is not meant to be an amalgamation and a set of sequences of those elements (Eccles and Krzus, 2010).

Prior literature contends that IR drives IT in an organisation (Farneti *et al.*, 2019). IT is believed to create value for the stakeholders, strategize the future and deliver its accountability. However, those statements from prior literature are mostly in normative form, and empirical evidence to prove the positive relationship between IR, IT and companies' value creation remains lacking (De Villiers *et al.*, 2017). In response to the call from De Villiers *et al.* (2017), recent papers have started to investigate the benefits of IR empirically. For example, IR is found to be providing incrementally valuable information to the capital market exceeding the existing reporting requirement (Zhou *et al.*, 2017), the quality of IR is relevant to the market valuation and the negative effect is mitigated by the quality of the reports (Landau *et al.*, 2020), firms with high IR practices are related to the lower levels of agency costs (Obeng *et al.*, 2020); and IR quality is discovered to be negatively associated with the cost of equity, suggesting the quality of IR is emphasised as an innovative form of corporate reporting that can reduce the firms' cost of capital, which is of paramount importance to the investors (Vitolla *et al.*, 2020). However, most of the studies conducted the empirical research using South African and international data. There have been still lacking the research on the benefits of IR focussing in one country setting and within the context of developing countries like Malaysia. The examination of the issue in the developing countries is useful as they strive for sophisticated and global capital markets, thus requiring public confidence.

To improve the reporting environment in Malaysia, the Securities Commission of Malaysia has established a task force in the 2011 Corporate Governance Blueprint to look into the development of IR as a future reporting to disclose non-financial information effectively. In the study of Mähönen (2020), the author highlighted two countries that adopt <IR> framework as part of corporate governance, they are South Africa and Malaysia. According to Mähönen (2020), the most relevant usage of IR in corporate governance is in the South African Corporate Governance Codes, the Kings Report and Malaysia incorporates IR in the revised of Malaysian Code of Corporate Governance (MCCG) 2017. The difference is, IR is required under "apply or explain" requirement in the South Africa codes while the application is encouraged in the MCCG 2017. The MCCG 2017 has urged large listed companies with a market capitalisation of at least RM2 billion to adopt the <IR> framework (Securities Commission Malaysia, 2017). The highlight of Malaysia in comparison to South Africa in Mähönen (2020) prompts the significance of Malaysian market to be investigated further with regard to the benefits of IR. The adoption of IR is voluntary in Malaysia, yet it is already included as part of corporate governance codes. Indeed, IR is claimed to be a robust reporting regime where it blends integrity, transparency and accountability. With that robust reporting regime, IR is potentially able to curb earnings manipulation activities, thereby creating value for the stakeholders. In that case, earnings manipulation is also examined in this current study to see whether it has any value creation role. Therefore, the purpose of this paper is to examine the link between IT, earnings manipulation and value creation empirically.

Earnings manipulation is an action to window dress the financial statements mainly earnings that are used to show a good impression in the eye of the public, especially investors and the analysts of stock (Beneish, 1999; Lizi'nska and Czapiewski, 2018; Maccarthy, 2017; Soderstrom *et al.*, 2017). This behaviour is unacceptable, considering that a financial statement is a tool in the corporate governance mechanism. Arguably, effective corporate governance is

related to organisational value creation (Lizi'nska and Czapiewski, 2018). Therefore, this study posits that earnings manipulation is associated with companies' value creation. The research on earning manipulation has attracted considerable research interest since the wake of accounting fraud scandals and the passage of Sarbanes Oxley 2002 (SOX). The practice of earnings manipulation has gone across globally, including the developing country such as in Malaysia. Recent accounting issues spotted in media involving many high-profile organisations in Malaysia, such as the crisis of Felda Global Venture Holdings, the high profile case of 1MDB and the calamity of Tabung Haji, prompted this research to examine the issue of earnings manipulation in Malaysia. The innovation of IR attempts to deliver transparency and accountability to the stakeholders. By breaking the silos of various factors, such as financial statements, management communication, corporate governance, environmental, social governance and corporate communication, IT is translated into IR. With the practice of IT, earnings manipulation might be able to be curbed. Since IR drives IT, this paper posits that IT is positively related to value creation, whereas earnings manipulation is significantly associated with value creation. This present study utilises the stakeholder theory and fraud triangle theory to predict the relationship between IT, earning manipulation and value creation.

This paper's essential contribution to the literature is to provide empirical evidence on the relationship between IT and value creation in supporting the contention of prior literature that IR provides significant benefits to the stakeholders. Recently, Wahl *et al.* (2020) identified two streams of IR research, where the first stream sheds light on different factors and firm-specific characteristics that increase the voluntary adoption of IR. The second stream looks into the benefit provided to the providers of financial capital by the IR. Many of these studies look at the aspect of reducing cost of equity as the benefit of IR, while this study look at other aspects of value creation. This research is different from those two IR research streams as it focuses on IT and its relationship with value creation, which is an inevitable part of the <IR> framework. Moreover, this study also considered the effect of earnings manipulation on value creation because financial reporting as part of financial capital in the <IR> framework can significantly affect the long-term value (Adams, 2017). To the best of the author's knowledge, this IT analysis with a particular focus on earnings manipulation and value creation is the first of its kind. Furthermore, the context of this current study differs from many prior empirical studies on the benefit of IR. The context of Malaysia offers another perspective of IR adoption in the developing countries. The following section discusses literature review and hypotheses development, section 3.0 provides a research methodology for this research, section 4.0 discusses results analysis and section 5.0 concludes the study.

2. Literature review and hypotheses development

2.1 Integrated thinking (IT)

Prior studies show that IR has been a center of attention and concern of researchers and scholars, leading to in-depth investigation towards its relevance and effect to not only stakeholders and the community but also towards the environment and planet as a whole (Adhariani and De Villiers, 2019; Al-Htaybat and von Alberti-Alhtaybat, 2018; Camilleri, 2018; Farneti *et al.*, 2019). IR incorporates both financial and non-financial information in terms of its reporting disclosure. The International Integrated Reporting Council (IIRC) suggested that the financial aspect, sustainability (environment, social and governance), and the involvement of multi-capital management are the main drivers in producing a good quality of IR; thus, it adds dimensions and outlooks in creating value (Al-Htaybat and von Alberti-Alhtaybat, 2018). Early study on the benefit of IR was performed by Churet and Eccles (2014) that reported a strong association between IR and ESG quality of management. They also figured out that IR and financial performance are related in the healthcare and information technology sectors, suggesting a long-term benefit from IR adoption in these sectors. The evidence from this study opens up avenue of many other aspects of value creation to be explored with regard to IR.

With more adoption of IR over the years, recent studies have addressed the call for more empirical evidence on the claim of benefit of IR. Landau *et al.* (2020) shed light on the value relevance of IR in Europe's context using the Ohlson (1995) model. Their empirical observation concluded that IR does play a role in the equity valuation but this valuation is negative if the firm does not provide the IR with an assurance from Big 4 audit firms. Furthermore, the market value is also penalised if the IR is assured but does not follow the newest GRI standards (G3.1 or G4). Using cost-concerned school and cognitive cost theory they find IR to be more of a cost-producing element than a corporate advantage. However, they find that the negative effect of unassured IRs on the market valuation of a firm is higher than the assured IRs. Di Vaio *et al.* (2020) suggest an integrated circular plan capable of using the information to charter the company in its strategic process of creating value for employees, suppliers, institutions and regulatory concerns. They encourage this integrated circular plan to reuse the information to encourage cooperation in various departments within the firm, reduce costs and experiment with the new technologies in connecting, generating and preserving value. In this case, their results show that IR and IT opens up space to new interpretations of corporate reporting as a value enhancing management tool for the company. The benefit of IR adoption is also discovered by Muttakin *et al.* (2020) that show the debt market considers IR to be a valuable source of company information apart from the traditional financial statements hence adjusts the cost of capital accordingly. From the above, it can be seen that IR itself is focussing on value creation, undoubtedly, contributing to the economic capital markets.

Besides the adoption of IR, prior literature has also discussed on the relationship of IR and IT in the organisations. Adams (2017) suggests that to ensure the process of IR is well-directed and controlled, the organisations need to affiliate a comprehensive perspective or view at the managerial level, which is known as IT. Thus, IR is the outcome of IT, and the fact that firms need to produce IR also encourages the organisation to adopt IT in managing the firms. In other words, the way the organisation handles IT is the root that determines whether an organisation manages to create value or ruin the value that expresses the success and viability of an organisation over time. The IIRC (2013) asserts that IT is critical in directing the organisations to make a well-rounded or comprehensive action regarding value creation. IT drives organisations to act or make a holistic decision in creating value, aiding in the best interest of key stakeholders in the short, medium and long terms. This development is possible by considering the multi-capital or six capitals (financial, manufacturing, intellectual, natural, human and social capitals). In other words, the current framework suggests that IT affects the dynamic behaviour of senior management and employee or staff to work on their strategy to achieve sustainable value creation (Adams and Simnett, 2011). However, Dumay and Dai (2017) investigate the concept of IT as cultural control, arguing the difficulty and time-consuming nature of IT in penetrating or changing the existing organisational culture. It is also supported by Feng *et al.* (2017) that the understanding is scarce on how IT works, which left the stakeholder struggling with IT. The contention is further investigated by Tirado-Valencia *et al.* (2020) that studied 21 public sector organisations from the IIRC database and found that IT is not correctly reflected in the integrated reports. They have demonstrated that the contents of the report are poorly interrelated. They find an effective legal system and years of experience in the preparation of IR as two crucial factors behind IT's compelling governance aspect. These arguments prompt this study to examine the practice of IT in organisations and its benefits. As compared to the above studies that use European and international data, it is also interesting to examine the IT aspect within the context of a developing country.

A recent study suggests that IT's implementation should focus more on internal practices, which are meant to break down internal silos in avoiding redundancy in value creation (Dumay *et al.*, 2019). The reason for this finding is that IT is often referred to as a practice that

enhances internal decision-making, reduces legal risk, and promotes corporate transparency and accountability that enhances the organisational viability and sustainability in current and non-current situations (De Villiers *et al.*, 2016). IT is critical in all levels or processes of IR which acts not only as a base or pillar of an exemplary IR, but it is also an outcome of IR which is later, it is used as a benchmark for the next phase of value creation (Dumay *et al.*, 2019). This result can also be seen in disclosing strategies, risks and opportunities, whereby IR needs IT to manage the organisation strategies linked to risks management and opportunities in a much more complex and broader view (Haller and van Staden, 2014). Additionally, Moolman *et al.* (2019) reveal that the preparation and disclosure of IR in most organisations are advanced, but it is somewhat limited in terms of strategies, risks, and opportunities, especially for disclosures of the assessment of specific risks. This limitation is that IR is expected to produce advanced risk management, which meets the organisational short and long-term vision. Furthermore, Vitolla *et al.* (2020) assessed the IR quality using the scoreboard developed by Pistoni *et al.* (2018). Background, content, form, and assurance and reliability are the four dimensions from which they measured IR quality. Firms' profitability, size, financial leverage and civil law systems are significant positive influencers in determining the IR quality as per their analysis. IR quality becomes vital for the social legitimisation of large and profitable firms, and it signals the value creation mindset of the management.

From the above review of literature, this paper posits that the demand for a new reporting regime, namely, IR, encourages IT adoption in organisations, thereby creating value for stakeholder theory. This result is that IT would help reach the ideal decisions that, in a way, change the behaviour of the capital market, which includes embedding multi-capital and as the environment, social and governance aspects into the capital markets. Thus, IT considers the interdependence of multi-capitals and sustainability in understanding how value creation is made over time (Kaya *et al.*, 2016). Prior literature proposes that IT creates value. However, according to De Villiers *et al.* (2017), the contention is normative and empirical evidence of the two elements' association is lacking. De Villiers *et al.* (2017) call for additional research to prove such a suggestion. Although there have been recent studies, attempting to address the call of De Villiers *et al.* (2017), most of the studies use South African and international data. Building upon these literature, this research aims to add knowledge to the current literature by examining the developing market that attempts to adopt the developed market reporting regime.

IT is a measurement that remains a concern for businesses because IT captures both financial and non-financial aspects (Venter *et al.*, 2016). Research on the proper measurement for IT of which is usually done through content analysis in terms of IR disclosures is scarce (Moolman *et al.*, 2019) . In recent research by Serafeim (2015), Venter *et al.* (2016) and Busco *et al.* (2019), they applied "corporate governance: vision and strategy" (CGVS) data item of ASSET4 in Thomson Reuters Datastream as a proxy for IT, which refers to integrated strategy. They argue that it is aligned with the IIRC framework (2013) in defining IT, which focuses on the commitment towards its vision and strategy on integrating economic, social and environmental dimensions into day-to-day decision-making processes. Busco *et al.* (2019) use Thomson Reuters ASSET4 in examining the determinants of the company's level of integration. A more recent study by Malafronte and Pereira (2020) endeavors to develop a proxy for quantifying the concept of IT using principal component analysis. Following Busco *et al.* (2019), they screen ASSET4 database to form an index representing IT in the firm or two separate forms of current practices and future aspirations of IT within the firm. The above reviews indicate that Thomson Reuters Asset4 score is a reliable measure of IT. This present study measures IT using "corporate governance: vision and strategy" (CGVS) data item of ASSET4 in Thomson Reuters database, following Serafeim (2015), Venter *et al.* (2016) and Busco *et al.* (2019).

2.2 Earnings manipulation

Adams (2017) has conceptualised the IT process by suggesting that financial reporting affects value creation. Earnings manipulation is part of the financial reporting process. It is an intentional act by the management to manipulate or exploit the financial statements or earnings through figures or policy modification to portray an excellent financial performance for a particular period (Ahmed and Naima, 2016; Bisogno and De Luca, 2015). Earnings manipulation is conducted by managers to capture stakeholders' interests towards the organisation, thereby affecting their decision-making. The reason for this practice is that management targets to attract and maintain both potential and existing investors by showing a good financial report. Given that earnings manipulation is part of the financial reporting process, this paper suggests that it is related to value creation. Earning manipulation can be manifested in several ways. Examples include loosening up the credit terms to increase or accelerate income and by having high closing inventories through overproduction to reduce the cost of goods sold; frequently, the managers may intentionally ignore the research and development projects (Chariri and Basundra, 2017). Prior studies assert that earnings manipulation involves modification in forecasting the organisations' discretionary accruals (Dechow and Sloan, 1991). Thus, earnings manipulation can be performed by lessening liabilities, inflating inventory value, altering cash inflow and outflow transactions, accelerating revenues, depleting expenses and timing the debt collection (Dimitrijevic, 2015).

Owing to the pressure to keep pace with the current standard of economic growth, managers face the pressure to perform well, align with the other competitors within the industry and maintain a good position. Thus, managers tend to window dress or manipulate their earnings to achieve or even surpass analysts' expectations of what earnings value should be given in a certain period, to comply with the debt covenant and to portray a higher or smooth growth of earnings (PricewaterhouseCoopers, 2016). When an organisation fails to meet the analysts' target, their stock might be downgraded, indirectly affecting the organisations, which lose the opportunity to connect with a possible capital venture due to having adverse past events or reputation. Another reason to commit earnings manipulation is access to a low-cost external financing (Dechow *et al.*, 1996). Manipulator organisations are usually associated with non-segregated duties within a management line (Dechow *et al.*, 1996). For example, a member of the Board of Directors who acts as a chief executive officer (CEO), blatantly dominates the audit committee, limiting access to the external block holder. Their involvement is mainly by timing accruals transactions in which the managers' discretions and judgement move hand-in-hand in applying the accounting policy or method related to the accounts of depreciation, receivables and payables (Ali, 2007).

Several prior studies use the Beneish model as an early detection tool for earnings manipulation (Ahmed and Naima, 2016; Beneish, 1999; Dimitrijevic, 2015; Kamal *et al.*, 2016). Sometimes, the model is simultaneously used to measure stock returns and red flags to detect potential fraud (Beneish *et al.*, 2013). A value of *M*-score in the Beineish model is higher than −2.22, and it reveals that the company is likely to be a manipulator and then, and a is lower than −2.22, it indicates that it is a non-manipulator company (Beneish, 1999). Following prior studies, the present study uses the Beneish model as a predictor for earnings manipulators.

2.3 Value creation

In a resource-constrained world, value creation involves adding value not only to organisations but to the community and planet as a whole, meaning that organisations need to look at how they make products and services and how they use of resources occurs to create value holistically (Del Baldo, 2017). Primarily, an organisation's goal is to create high value to attract investors into the business (Hall, 2018). Value creation is synonymous with

the culture of placing it as a ticket to signal excellent performance. Thus, an organisation's value creation can be measured in different forms, which is very subjective to interpret. Previously, stakeholders assumed that value creation could be explained through financially oriented methods like return on the asset as the main intention for shareholders' wealth. However, to use those measures alone can no longer be relevant to point out real value creation in the long-term without aiding or ignoring the element of sustainability or non-financial aspect (IIRC, 2013). As the technology evolves through time, the value creation can now be measured both in financial and non-financial measures (Kaya *et al.*, 2016). Hence, IR is essential for a company to convey the real circumstances and create value for organisations.

The measurement for value creation is often different from the industry's purpose or outlook (Hall, 2013, 2018). Shareholder value creation is suitable to express economic outcomes or financial performance. According to Hall (2018), five shareholder value creation measures were mostly examined or used in past studies. They are return on capital employed divided by the cost of equity, market value added (MVA) (Hall, 2013, 2018; Tripathi *et al.*, 2019), a market-adjusted stock return (Hall, 2013, 2018), the market-to-book ratio (Hall, 2018) and Tobin's *Q* ratio (Chang and Jo, 2019; Hall, 2018). As eloquently stated by Hall (2018), his study found that the most suitable measures in expressing shareholder value creation are Tobin's *Q* ratio, MVA, and the market-to-book ratio (MTB). Thus, this present study applies those measurements of value creation by following Hall (2018).

In terms of sustainability or beyond financially-oriented output, the value can be interpreted through productivity or innovation as well as brand value (Darus *et al.*, 2016). This interpretation is that the fundamental nature of value creation itself is that value created or added when there is a movement of a possible increase in productivity or performance of business occurs due to the innovation (Moran and Ghoshal, 1999). Kalafut and Low (2001) measured value creation using a value creation index to measure intangible value, representing its performance. The index includes innovation, quality, customer relations, management capabilities, alliances, technology, brand value, employee relations, and environmental and community issues. Following Darus *et al.* (2016), innovation is used as another measurement of value creation.

2.4 Integrated thinking, earnings manipulation and value creation hypotheses development

Stakeholder theory and fraud triangle theory underpin the current study. Stakeholder theory remarks the organisations' accountability to act in the best interest of stakeholders, which primarily works around the decision-making to improve and analyse the organisation's value creation (Beske *et al.*, 2019). The connection of various elements in <IR> framework implies the reporting regime that concerns the need of various stakeholders. IT helps to enrich accountability in creating value for the broad base of capital in financially and non-financially oriented ways (Kaya *et al.*, 2016). Given that IT centralises critical resources and stakeholders to interpret the value creation by using a multi-capital management approach, IT is viewed as a progression, an extension or evolution of stakeholder theory (Al-Htaybat and von Alberti-Alhtaybat, 2018). At present, organisations are urged to fulfil various stakeholders' needs to ensure its sustainability (Adam, 2017). Thus, this underpinning theory is suitable to address the relationship between IT and value creation, indicating that IR helps to enhance the value creation of organisations in parallel with the recommendation of IIRC (2013) as an organisation faces the challenges to be sustained in the competitive business world.

The role of IR in creating value is supported by recent prior studies on the benefits of IR. For example, Grassmann (2020) analysed 8,992 firm-year observations from the ASSET4 database to figure out the moderating effect of IR on the association between social and environmental expenditures and firm value. He concludes that IR moderates the *U*-shaped relationship existing between the firm value and environmental expenses. His findings reflect

the IIRC's chosen path in strengthening IT concerning financial and non-financial capitals. Salvi *et al.* (2020) extend the existing intellectual capital (IC) literature by addressing IC information analysis in the integrated reports. They ask for incorporating more discussion on intangibles when drafting the IR as in a knowledge-based economy, intangibles create long term value, which is also a central focus of IR. Similar to Vitolla *et al.* (2020), Salvi *et al.* (2020), they found that IC disclosure in an IR is negatively associated with the cost of equity. Raimo *et al.* (2020) studied human capital (HC) related information in IR and commented that HC-related disclosures increase the <IR> framework's value creation capabilities. Mähönen (2020), after critical analysis of the IR, figured out that the IIRC's <IR> framework is investor-oriented. As stated in the objective of the <IR> framework, a firm should maximise the long-term value of the shareholders, and in doing so, it should also care for the interest of other parties involved in the value creation process. To achieve such value the framework focuses on IT which can be a path to sustainable governance. Referring to earlier findings, he thinks that the <IR> framework's foremost benefit is in the underlying business model innovation (Katsikas *et al.*, 2016).

Every organisation is exposed to threats or risks to survive (Moolman *et al.*, 2019). Thus, based on the above arguments, these studies propose that IT will aid IR in disclosing information, carrying out a strategy that links with risks that simultaneously contribute to value creation. The literature seems to support the positive relationship between IT and value creation; thus, the hypotheses are formed in that direction:

H1. IT is significantly positively related to value creation.

H1a. IT is significantly positively related to MTB.

H1b. IT is significantly positively related to MVA.

H1c. IT is significantly positively related to Tobins' *Q*.

H1d. IT is significantly positively related to innovation.

Meanwhile, the fraud triangle theory, which consists of three elements, namely opportunity, rationalisation and pressure, are used to explain the relationship of earnings manipulation on an organisation's value creation and financial performance. The three elements found in the fraud triangle drive the events or series of managers in committing earnings manipulation within an organisation (Wells, 2011). For example, the managers experience the pressures from the top management to show a good financial report to beat or meet the analysts' targets, to comply and maintain the debt covenants or lending agreements and to achieve an acceptable standard of growth which in the context of having a desirable upwards slope of earnings (PricewaterhouseCoopers, 2016). Subsequently, the manipulations affect the value creation of an organisation. Initially, earnings manipulation was performed by an organisation to create value in the short term. However, in the long term, the manipulations will minimise the organisation's value because it jeopardises the financial performance due to the continuous alteration and re-engineering in the financial report.

For transparency and accountability in creating value (Adams, 2017; Roman *et al.*, 2019), managers should not concentrate on managing earnings to achieve the short-term goals because it can destroy the portion of market value which can no longer be relevant to express value creation in the long-term (El-deeb and Megeid, 2015). However, the organisation tends to manipulate its earnings to attract more investments or accelerate funds, enter into debt covenants and retain existing and pull in potential customers (Sajid and Afza, 2018). Sajid and Afza (2018) contend that earnings manipulation could destroy the current and subsequent organisation value, whereby managers' opportunistic behaviour was found to be negatively moderating the well-established positive

relationship of corporate governance and organisation value. El-deeb and Megeid (2015) findings demonstrate a strong association between earning management and shareholder value creation. However, the relationship between earnings management and investor sensitivity is valid but less significant when the shareholder value creation acts as a mediator. This result is that the value was already compromised or altered; thus, it can no longer reach the investor and analyst expectations in terms of market value over time. Managers voluntarily attempt earnings manipulation to use their power indiscretion to perform financial re-engineering that delivers misleading information to portray excellent performance (Beneish *et al.*, 2013). This behaviour is known as opportunistic practices by managers (Sajid and Afza, 2018). Prior literature found that managers' opportunistic behaviour leads to manipulating earnings but has limited influence on value creation over long-term goals (Beyer *et al.*, 2018; El-deeb and Megeid, 2015; Sajid and Afza, 2018). The inconclusive directional support from the literature on the relationship between earnings manipulation and value creation leads this current research to form hypotheses without specific directions:

H2. Earnings manipulation (*M*-score) is significantly related to value creation.

H2a. *M*-score is significantly related to MTB.

H2b. *M*-score is significantly related to MVA.

H2c. *M*-score is significantly related to Tobin's *Q*.

H1d. *M*-score is significantly related to innovation.

3. Research methodology

This study applies secondary data analysis using multiple regressions to examine the relationship between IT and earnings manipulation with value creation. All variables are measured using quantitative data that can be accessed through the Thomson Reuters Eikon database. The 2018 top 100 market capitalisation of Malaysian public listed organisations (PLCs) is benchmarked as a sample for this study of listed companies from 2014 to 2018. IT is measured in the form of values or percentage, which is aggregated from the developed IT index score intended by the IIRC (Malafronte and Pereira, 2020; Guthrie *et al.*, 2017; Venter *et al.*, 2016; De Villiers *et al.*, 2016). The IT index score is proxied by 12 data items that are relevant to analyse IT under the cluster of Corporate Governance Vision and Strategies (CGVS) (Serafeim, 2015; Venter *et al.*, 2016; Busco *et al.*, 2019). IT is proxy consisting of four drivers and eight outcomes, as shown in Table 1. The 12 CGVS data items can be collected from the Asset-4 of Thomson Reuters Eikon database, specialising in environmental, social and governance (ESG).

Beneish's *M*-score model is used to represent earnings manipulation. This model was developed by Beneish Messod Daniel, which has eight indexes that were designed to detect or predict earnings manipulations and also worked as the screening tool by enforcement agencies (Beneish, 1999; Aris *et al.*, 2013). *M*-score model requires two years of organisations' financial data to calculate the organisations' tendency to engage in earnings manipulation (Beneish, 1999; Aris *et al.*, 2013; Shanmugam *et al.*, 2003). This model is also used to identify the manipulators and non-likely manipulator organisations with the threshold limit of −2.22 (Ahmed and Naima, 2016; Beneish, 1999; Kamal *et al.*, 2016; Özcan, 2018; Petrík, 2016). The organisation is classified as a manipulator when the score is above −2.22 and a non-likely manipulator when the score value is below the threshold limit. The formula of the Beneish *M*-score model is as follows:

Drivers (D)	
CGVSD01	Does the company have a policy for maintaining an overarching vision and strategy that integrates financial and extra-financial aspects of its business?
CGVSD02	Does the company describe the implementation of its integrated strategy through a public commitment from senior management or board member? Does the company describe the establishment of a CSR committee or team?
CGVSD03	Does the company monitor its integrated strategy through belonging to a specific sustainability index? Does the company monitor its integrated strategy by conducting external audits on its reporting?
CGVSD04	Does the company set specific objectives to be achieved on the integrated strategy?
OUTCOMES (O)	
CGVSO01	Does the company report about the challenges or opportunities linked to the integration of financial and extra-financial issues?
CGVSO02	Does the company integrate financial and extra-financial factors in the annual report's management discussion and analysis section?
CGVSO03	Is the company a signatory of the Global Compact?
CGVSO04	Does the company explain how it engages with its stakeholders?
CGVSO05	Does the company publish a separate CSR/HandS/sustainability report or publish a section in its annual report on CSR/HandS/ sustainability?
CGVSO06	Is the company's CSR report published following the GRI guidelines?
CGVSO07	Does the company's extra-financial report take into account the global activities of the company?
CGVSO08	Does the company have an external auditor of its CSR/HandS/ sustainability report?

Table 1.
IT index score by Venter *et al.* (2016)

$$M = -4.84 + 0.92*\text{DSRI} + 0.528*\text{GMI} + 0.404*\text{AQI} + 0.892*\text{SGI} + 0.115*\text{DEPI} - 0.172*\text{SGAI} + 4.679*\text{TATA} - 0.327*\text{LVGI}$$

where:

M = Overall Index

DSRI = Days' sales receivable index

GMI = Gross margin index

AQI = Asset quality index

SGI = Sales growth index

DEPI = Depreciation index

SGAI = Sales, general and administrative index

TATA = Total accruals to total assets

LVGI = Leverage index

In this study, both financial and non-financial attributes are used to determine value creation. Financial attributes are proxied by three measurements: MTB, MVA and Tobins'Q ratio (Hall, 2013, 2018). Product innovation value represents non-financial attributes (Darus *et al.*, 2016; Kalafut and Low, 2001). Innovation value is used due to its significance in creating value for organizations. The current generation demanded advanced technology. Thus, the assumption is that customers have a higher interest in a highly innovative product with digital technology. This attribute indirectly helps in accommodating the efficiency of organisations' financial performance. Table 2 illustrates the value creation measurements and attributes for this study.

4. Research analysis and discussion

Based on the table below (Table 3), the number of manipulators is gradually decreased from 2014 to 2015, and it began to increase from 2016 to 2017. In the year 2018, the number of manipulators decreased, which is relevant to the current Malaysian economic condition in that year, which is already practising the current Malaysian Code on Corporate Governance 2017 ("MCCG, 2017"), which is the revised version of the previous MCCG 2012. This new MCCG acts as the control mechanism to curb any possible threats, risks or peril concerning the governance and prevention of any possible attempts on earnings manipulation. The rationale for the number of manipulators was higher in 2017 is that the MCCG 2017 was preferably newly introduced in April 2017 by the Securities Commission Malaysia, and this finding is barely ineffective or does not excessively affect the first preceding year (PricewaterhouseCoopers, 2016). Thus, it is expected to minimally effective in terms of the current regulations and enforcement of MCCG 2017 in that year.

Table 4 summarises the descriptive statistics of financial and non-financial variables within five consecutive years (2014–2018). These data show that the highest mean for non-financial measures is ITHINK (IT), meaning that out of 12 points of IT index score, most organisations tend to disclose IT in its IR at an average of 2 (Max = 11, Min = 0). Given that IR was newly implemented in Malaysia in 2014, the disclosure in terms of IT is expected to be low (Mähönen, 2020) . Meanwhile, the lowest mean is the innovation proxy for value creation (dependent variable), which is 0.41 and represents the lowest product innovation and brand value in five consecutive years of Malaysian PLCs.

In terms of financial measures, the highest mean is CFO, which shows that the value of cash flow from an operation is rather significant in the amount from 6.92 (Min) to 7.39 (Max). The amount reflects that the CFO's deviation among Malaysian PLCs within the top 100 market capitalisation is relatively acceptable. The lowest mean is Tobins' *Q*, which visualises the effect or sensitivity of the overall data analysis market is 0.33 (Max = 1.2, Min = 0).

Initially, the samples are from the top 100 market capitalisation organizations for five consecutive years, but to obtain a normal distribution of data, the dominant outliers had been removed (Field, 2013). Final data samples are reduced to 497 organisation-years. One of the continuous variables used is *M*-score, which is sensitive to creating outliers as the nature of

Description	Measurement
Market value added (MVA)	Market value–economic capital employed
Market-to-book ratio (MTB)	MTB = Ratio of market value of equity at year-end / book value of equity
Tobin's *Q* ratio	The market value of equity + Book value of interest-bearing debt to the replacement cost of fixed assets OR market value of equity + book value of debt/book value of total assets
Innovation	Evidence of new product to market. A dichotomous value "1" is assigned if a new product exists and "0" if otherwise

Table 2. Value creation measurement

Type of company based on *M*-score	Year 2014	2015	2016	2017	2018	Total
Non-likely manipulator (<−2.22)	70	71	77	70	75	363
Manipulator (>−2.22)	30	27	23	30	24	134
Total	100	98	100	100	99	497

Table 3. Classification of manipulators and non-likely manipulators organisation

Variables	Mean	Std. deviation	Median	Minimum (Min)	Maximum (Max)
Non-likely manipulator organisation					
INNOVATION	0.42	0.52	0	0	2.00
ITHINK (percentage)	21.60	27.16	0	0	84.72
ITHINK (values)	2.17	3.02	0	0	11
MSCORE	0.53	0.08	0.55	0	0.60
MTB	0.51	0.33	0.43	0	1.97
MVA	5.89	1.14	6.15	0	7.76
TOBINSQ	0.31	0.26	0.25	0	1.20
CFO	7.07	0.06	7.05	6.92	7.39
FSIZE	6.94	1.05	7.00	0	8.88
Manipulator organisation					
INNOVATION	0.37	0.56	0	0	2,00
ITHINK (percentage)	16.41	25.02	0	0	84.80
ITHINK (values)	1.59	2.79	0	0	11,00
MSCORE	0.67	0.13	0.64	0.60	1.50
MTB	0.51	0.30	0.45	0	1.55
MVA	5.65	0.96	5.99	4.16	7.65
TOBINSQ	0.38	0.26	0.30	0	1.09
CFO	7.04	0.03	7.03	6.96	7.25
FSIZE	6.69	0.61	6.75	5.28	8.16
All organisation					
INNOVATION	0.41	0.53	0	0	2,00
ITHINK (percentage)	20.20	26.67	0	0	84.80
ITHINK (values)	2.01	2.97	0	0	11.00
MSCORE	0.57	0.11	0.57	0	1.50
MTB	0.51	0.32	0.44	0	1.97
MVA	5.82	1.10	6.11	0	7.76
TOBINSQ	0.33	0.26	0.27	0	1.20
CFO	7.06	0.06	7.04	6.92	7.39
FSIZE	6.88	0.96	6.88	0	8.88

Note(s): INNOVATION; ITHINK (percentage) is IT index score in the form of percentage; ITHINK (value) is IT index score in the form of value; MSCORE is 0 for non-manipulator and 1 for manipulator log; MTB is log market to book ratio; MVA is log market value of economic, TOBINSQ is log market value of equity + Book value of interest-bearing debt to the replacement cost of fixed assets OR market value of equity + book value of debt/book value of total assets, CFO is logged total cash inflow, FSIZE is logged total assets

Table 4.
Descriptive statistics of manipulators ($N = 134$), non-likely manipulators ($N = 363$) and all organisations ($N = 497$)

the ratio's denominator is compulsive to zero and negative values. It also tends to have tremendous value invariance. Thus, those factors lead to the abnormal distribution of data due to the ratio's unique features (Buijink and Jegers, 1986; Deakin, 1976). The data is generally in distribution when skewness values are within the acceptable range of ±2.0 (Field, 2013; Maiyaki and Mokhtar, 2011), as shown in Table 5. Maiyaki and Mokhtar (2011) state that the acceptable value for kurtosis is within the range of ±10.0 for normally distributed data, whereby in the present study, all the kurtosis values in Table 5 are within ±10.0 except for organisation size and *M*-score. Data are assumed to be reasonably regular due to the minor or small differences between the actual mean and 5% trimmed mean (Pallant, 2001). Likewise, *M*-score and organisation size are considered standard because the sample is more than 200 observations. Regardless of population distribution, the more samples are used, the more favourable it is to prove data normality (Field, 2009). Thus, the parametric tests like multiple regressions and Pearson's correlation test are valid to produce results and answer the research questions in this study.

	N	Mean		5% trimmed		Skewness		Kurtosis	
	Statistic	Statistic	Std. error	mean	Std. deviation	Statistic	Std. error	Statistic	Std. error
INNOVATION	497	0.41	0.03	0.37	0.53	0.78	0.11	−0.57	0.22
ITHINK (percentage)	497	20.20	1.20	18.29	26.67	0.77	0.11	−1.06	0.22
ITHINK (values)	497	2.01	0.13	1.72	2.97	1.16	0.11	0.00	0.22
MSCORE	497	0.57	0.01	0.57	0.11	1.89	0.11	22.07	0.22
MTB	497	0.51	0.01	0.49	0.32	1.56	0.11	3.48	0.22
MVA	497	5.82	0.05	5.83	1.10	−0.53	0.11	0.20	0.22
TOBINSQ	497	0.33	0.01	0.31	0.26	1.07	0.11	0.74	0.22
CFO	497	7.06	0.00	7.06	0.06	2.30	0.11	6.60	0.22
FSIZE	497	6.88	0.04	6.91	0.96	−2.77	0.11	19.50	0.22

Note(s): All variables are defined in Table 4

Table 5.
Descriptive analysis for normality test

Table 6 depicts that innovation has a significant positive correlation with IT, MVA, CFO and organisation size. IT also has a significant positive correlation with value creation except for a proxy, Tobin's *Q*. The correlation matrix result shows that the earnings manipulation is significantly positively correlated with Tobin's *Q* but negatively correlates with CFO. Overall, all variables have low correlation based on the interpretation by Hinkle *et al.* (2003). The results indicate that the independent variables and dependent variables move in the same direction towards implementing IR as IR itself focuses on value creation. Furthermore, the independent variables and dependent variables are based on ratios that use the same inter-related predictor data like total assets, CFO and total liabilities. The correlation results for independent variables reveal no multicollinearity problem in the model. Furthermore, we have tested the tolerance and variance inflation factors (VIP), and the results reveal all the variation inflation factors (VIF) for all IV are below ten, and the tolerance (1/VIF) is above 0.1, proving to be no multicollinearity problem in all regressions (Field, 2013). Thus, we assumed no multicollinearity sign that EM and IT can predict each other exists. Hence, the regression analysis can be performed as the possibility of bias results can be prevented.

Based on Table 7, since IT (Innovation, $B = 0.73$; MTB, $B = 0.29$ MVA, $B = 0.12$ Tobin's *Q*, $B = 0.24$) and Organisation size ($B = 0.12, -0.41, 0.59, -0.55$) having *p*-values of less than 0.01, it shows the sufficiency of evidence that IT is positively associated with value creation. The results are consistent with the basis found in the past studies on IT and value creation (Adhariani and De Villiers, 2019; Moolman *et al.*, 2019; Serafeim, 2015). Thus, Hypothesis 1 is fully accepted and supported. The results support stakeholder theory's contention adopting an IR framework to enhance organisations' accountability, thereby creating value. Meanwhile, for the *M*-score, which is the proxy of earnings manipulation, there is no significant relationship with value creation except for its effects on Tobin's *Q* ($B = 0.20$), based on 1% significant level. Hence, Hypothesis 2 is partially accepted. Total cash flow has a significant positive relationship with value creation, proxied by MVA and Tobin's *Q*, where the results align with the prior studies on cash flow as one of the predictors of shareholders' value creation (Biddle *et al.*, 1997; Hall, 2018).

The results of this study also show that earnings manipulation does not contribute to value creation. These findings further strengthen the claim made by Liz'nska and Czapiewski (2018) that the opportunistic managerial behaviour, which drives the earnings manipulation, would mislead the stakeholders in value creation. Furthermore, it reduces earnings reliability to predict value creation in a longer-term goal (Al-Attar and Maali, 2017). The organisations

Table 6.
Correlation matrix

		1	2	3	4	5	6	7	8	9
1	INNOVATION	1								
2	ITHINK (percentage)	0.89**	1							
3	ITHINK (values)	0.80**	0.97**	1						
4	MSCORE	−0.02	−0.05	−0.05	1					
5	MTB	0.03	0.10*	0.14**	0.07	1				
6	MVA	0.48**	0.44**	0.38**	−0.03	0.36**	1			
7	TOBINSQ	−0.07	−0.01	0.04	0.16**	0.88**	−0.53**	1		
8	CFO	0.42**	0.44**	0.42**	−0.15**	−0.08	0.46**	−0.18**	1	
9	ORGANISATIONSIZE	0.41**	0.41**	0.36**	0.05	−0.29**	0.69*	−0.44**	0.487**	1

Note(s): All variables are defined in Table 4. **, * represent correlation significance at 1, 5 percent levels, respectively (using two-tailed tests)

Dependent variable Independent variables	Value creation Innovation	Value creation MTB	Value creation MVA	Value creation Tobin's *Q*
Model 1				
IThink (values)	0.73**	0.29**	0.12**	0.24**
M-score	0.02	0.11*	−0.03	0.20**
CFO	0.05	0.02	0.12**	0.02
Organisation size	0.12**	−0.41**	0.59**	−0.55**
N (no. of observations)	497	497	497	497
Adjusted R^2	0.65	0.16	0.50	0.27
Model 2				
IThink (percentage)	0.86**	0.27**	0.15**	0.22**
M-score	0.02	0.11*	−0.03	0.21**
CFO	0.02	0.02	0.11**	0.03
Organisation size	0.05*	−0.42**	0.57**	−0.55**
N	497	497	497	497
Adjusted R^2	0.79	0.15	0.51	0.27

Note(s): All variables are defined in Table 4. **, * represent statistical significant at 1, 5 percent levels, respectively (using two-tailed tests)

Table 7.
Multiple regression analysis

usually alter or change their transaction timing concerning earnings to signal better prospects or projects within a short period (Beyer *et al.*, 2018). This finding is evidenced by the positive association between *M*-score and Tobin's *Q* value creation, while it is not significant with other value creation measurements. Thus, the higher the modification on earnings depicted a low quality of earnings, causing analysts to downgrade their stocks (Al-Attar and Maali, 2017; Eliwa *et al.*, 2016; Ma and Ma, 2017; Srivastava, 2014). Low earnings quality reflects a poor economic performance, subsequently affecting the long-term value creation *(Biddle et al.*, 1997). Thus, earnings manipulation is not a predictor of value creation.

This paper attempts to provide empirical evidence on the relationship between IT and value creation in financial and non-financial measures. Our findings are consistent with prior literature's proposition that IR promotes IT, in delivering accountability, thereby creating value for shareholders. The shareholder value creation via MTB, MVA and Tobin's *Q* is also enhanced when IT is being adopted within the organisation, suggesting that IT can influence resources utilisation that includes environmental, social and governance, thereby affecting the dynamic or change the behaviour of capital markets (Hall, 2018; Venter *et al.*, 2016; De Villiers *et al.*, 2016). In terms of non-financial measure, which was proxied by innovation, the finding indicates that IT promotes value creation through innovation, thereby increasing productivity or efficiency (Moran and Ghoshal, 1999). The results proved that IT would help create value that can be expressed beyond economic performance (Adams, 2017; Camilleri, 2018; Katsarski, 2019; Venter *et al.*, 2016). Our results are consistent with Obeng *et al.* (2020) that found the benefit realised from IR differs between voluntary and mandatory disclosure regimes. In voluntary regimes of their 35 sample countries, firms with higher IR practices tend to have a lower level of agency costs. Stakeholder-oriented countries benefit more from IR practices than shareholder-oriented countries, which is consistent with the notion that managers in stakeholder-oriented countries view IR as an effective mechanism in reducing agency costs and corporate value creation. We also find that earnings manipulation is related to only one out of four measurements of value creation. Our results add to a flourishing stream of empirical research on the benefits of IR.

Hence, based on the results obtained, the summary of hypotheses results is as follows (see Table 8):

Hypotheses	Results
H1: IT is significantly positively related to value creation	Fully accepted
H1a: IT is significantly positively related to MTB	Accepted or supported
H1b: IT is significantly positively related to MVA	Accepted or supported
H1c: IT is significantly positively related to Tobin's *Q*	Accepted or supported
H1d: IT is significantly positively related to innovation	Accepted or supported
H2: Earnings manipulation (*M*-score) is significantly related to value creation	Partially accepted
H2a: *M*-score is significantly related to MTB.	Not accepted
H2b: *M*-score is significantly related to MVA	Not Accepted
H2c: *M*-score is significantly related to Tobin's *Q*	Accepted
H1d: *M*-score is significantly related to innovation	Not Accepted

Note(s): All variables are defined in Table 4

Table 8. Summary of hypotheses results

5. Conclusion

IR, as a concept and research agenda, has already gained massive attention worldwide. Many practical, theoretical and thought-provoking ideas sharpened this concept as a whole. With IR gaining some traction, it is a perfect time to focus on IT, an intertwined part of the <IR> framework. We undertook this research to reflect how IT creates value for Malaysian PLCs, yet we also incorporated the highly debated earnings manipulation] issue. Hence, this becomes the first study in Malaysia to incorporate three important but seemingly related IT, earnings manipulation and corporate value creation issues. In this study, we have provided sufficient empirical evidence to support IT as a valuable instrument of IR to broaden the horizon for the long-term value of the Malaysian PLCs. Furthermore, earnings manipulation is empirically tested along with the IT concept in the IR paradigm. The results discover that earnings manipulator is not a predictor for value creation.

The significance of this study can be highlighted in two contexts. First, this study provides a theoretical contribution in explaining the concept of IT using the stakeholders' theory. IR drives IT, thereby promoting strategies that connect all the stakeholders' interests, resulting in value creation in terms of financial aspects and non-financial value creation. This study supports the encouragement of the use of an IR framework in the current reporting environment. In the Malaysian context, this empirical investigation of IT, earnings manipulation and corporate value will work as evidence to the government's regulatory organs to emphasise the IT concept in the capital market. As of now, the use of IR is only said to be an encouraging corporate reporting tool but not on an "apply or explain" basis (MCCG, 2017, p. 8). If the current implementation rate of IR increases among the top 100 companies by revenue in Malaysia to a satisfactory level, the regulatory body should set IR on a mandatory or on an "apply or explain" basis. Otherwise, the perceived benefit of IT, which we have validated here, will be elusive. Second, the practical implication of this current study is the need for key stakeholders to understand IT's concept, leading to value creation. The awareness among stakeholders, especially the preparers of corporate reporting, the accountants and senior management, remain scarce in the context of Malaysian PLCs. Besides, IT's concept is considered new at the enforcement and legislation level because no specific measurements are set or standardised by the regulators and most organisations poorly embedding sustainability and economic performance in their corporate reporting. Thus, applying the multi-capital approach in making decisions and strategies to create value has considerable room for improvement in current Malaysian circumstances. In the broader global context, this paper's evidence, especially regarding IT's concept under the broader <IR> framework, will be of invaluable importance to the global audiences, regulators, standard-setters and academics. As IIRC described, IR's practice is still under the "momentum phase," and it will enter into the "global adoption phase" in early 2021; our

findings will be of great use by the global movers and shapers of corporate best practices in IT and reporting.

Thus, this research opens avenues for further research on how IT is operationalised within the organisations and examines the effect on value creation. This research can be conducted via qualitative research or quantitative survey. One of this study's limitations is IT and value creation following the measurements used in prior studies. Further studies can search for alternative measurements of IT and value creation. The concept of earnings management can also be examined on the effect of value creation. Further research can also be conducted to observe the effect of IR on long-term value creation. Indeed, this study paves an avenue for future research on IR and IT.

References

Adams, C.A. (2017), "Conceptualising the contemporary corporate value creation process", *Accounting, Auditing and Accountability Journal*, Vol. 30 No. 4, pp. 906-931, doi: 10.1108/AAAJ-04-2016-2529.

Adams, S. and Simnett, R. (2011), "Integrated reporting: an opportunity for Australia's not-for-profit sector", *Australian Accounting Review*, Vol. 21 No. 3, pp. 292-301, doi: 10.1111/j.1835-2561.2011.00143.x.

Adhariani, D. and De Villiers, C. (2019), "Integrated reporting: perspectives of corporate report preparers and other stakeholders", *Sustainability Accounting, Management and Policy Journal*, Vol. 10 No. 1, pp. 126-156, doi: 10.1108/SAMPJ-02-2018-0043.

Ahmed, T. and Naima, J. (2016), "Detection and analysis of probable earnings manipulation by firms in a developing country", *Asian Journal of Business and Accounting*, Vol. 9 No. 1, pp. 59-82.

Al-Attar, A.M. and Maali, B.M. (2017), "The effect of earnings quality on the predictbaility of accruals and cash flow models in forcasting future cash flows", *The Journal of Developing Areas*, Vol. 51 No. 2, pp. 45-58, doi: 10.1353/jda.2017.0030.

Al-Htaybat, K. and von Alberti-Alhtaybat, L. (2018), "IT leading to IR: case study insights from a global player", *Accounting, Auditing and Accountability Journal*, Vol. 31 No. 5, pp. 1435-1460, doi: 10.1108/AAAJ-08-2016-2680.

Ali, A., Chen, T.Y. and Radhakrishnan, S. (2007), "Corporate disclosures by family firms", *Journal of Accounting and Economics*, Vol. 44 Nos 1-2, pp. 238-286.

Aris, N.A., Othman, R., Maznah, S., Arif, M., Affendi, M. and Malek, A. (2013), "Fraud detection : Benford' s law vs Beneish model", *IEEE Symposium on Humanities, Science and Engineering Research*, pp. 726-731.

Beneish, M.D., Lee, C.M.C. and Nichols, D.C. (2013), "Earnings manipulation and expected returns", *Financial Analysts Journal*, Vol. 69 No. 2, pp. 57-82.

Beneish, M.D. (1999), "The detection of earnings manipulation", *Financial Analysts Journal*, Vol. 55 No. 5, pp. 24-36.

Beske, F., Haustein, E. and Lorson, P.C. (2019), "Materiality analysis in sustainability and integrated reports", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 1, pp. 162-186, doi: 10.1108/SAMPJ-12-2018-0343.

Beyer, B., Nabar, S.M. and Rapley, E.T. (2018), "Real earnings management by benchmark-beating firms : implications for future profitability", *Accounting Horizons*, Vol. 32 No. 4, pp. 59-84.

Biddle, G.C., Bowen, R.M. and Wallace, J.S. (1997), "Does EVA □ beat earnings ? Evidence on associations with stock returns and firm values", *Journal of Accounting and Economics*, Vol. 24 No. 3, pp. 301-336.

Bisogno, M. and De Luca, R. (2015), "Financial distress and earnings manipulation: evidence from Italian SMEs", *Journal of Accounting and Finance*, Vol. 4 No. 1, pp. 42-51, available at: http://www.bioinfopublication.org/jouarchive.php?opt=andjouid=BPJ0000233.

Buijink, W. and Jegers, M. (1986), "Cross-sectional distribution properties of financial ratios in Belgian manufacturing industries: aggregation effects and persistence over time", *Journal of Business Finance and Accounting*, Vol. 13 No. 3, pp. 337-363.

Busco, C., Malafronte, I., Pereira, J. and Starita, M.G. (2019), "The determinants of companies' levels of integration: does one size fit all?", *The British Accounting Review*, Vol. 51 No. 3, pp. 277-298.

Camilleri, M.A. (2018), "Theoretical insights on integrated reporting: the inclusion of non-financial capitals in corporate disclosures", *Corporate Communications: An International Journal*, Vol. 23 No. 4, doi: 10.1108/CCIJ-01-2018-0016.

Chang, S. and Jo, H. (2019), "Employee-friendly practices, product market competition, and firm value", *Journal of Business Finance and Accounting*, Vol. 46 Nos 1-2, pp. 200-224, doi: 10.1111/jbfa.12353.

Chariri, A. and Basundra, A.T. (2017), "Does IFRS convergence decrease earning manipulation ? An empirical study of Indonesia", *Advanced Science Letters*, Vol. 23 No. 8, pp. 7066-7069.

Churet, C. and Eccles, R.G. (2014), "Integrated reporting, quality of management, and financial performance", *The Journal of Applied Corporate Finance*, Vol. 26 No. 1, pp. 56-64.

Darus, F., Mad, S., Nejati, M. and Yusoff, R. (2016), "When quality matters ! CSR disclosure and value creation", *International Journal of Economics and Management*, Vol. 10 No. S2, pp. 285-302.

De Villiers, C., Rinaldi, L. and Unerman, J. (2014), "Integrated reporting: insights, gaps and an agenda for future research", *Accounting, Auditing and Accountability Journal*, Vol. 27 No. 7, pp. 1042-1067, doi: 10.1108/AAAJ-06-2014-1736.

De Villiers, C., Venter, E.R. and Hsiao, P.K. (2016), "Integrated reporting: background, measurement issues, approaches and an agenda for future research", *Accounting and Finance*, Vol. 57 No. 4, pp. 937-959.

De Villiers, C., Hsiao, P.-C.K. and Maroun, W. (2017), "Developing a conceptual model of influences around IR, new insights and directions for future research", *Meditari Accountancy Research*, Vol. 25 No. 4, pp. 450-460, doi: 10.1108/MEDAR-07-2017-0183.

Deakin, E.B. (1976), "Distributions of financial accounting ratios : some empirical evidence", *The Accounting Review*, Vol. 51 No. 1, pp. 90-96.

Dechow, P.M. and Sloan, R.G. (1991), "Executive incentives and the horizon problem: an empirical investigation", *Journal of Accounting and Economics*, Vol. 14 No. 1, pp. 51-89.

Dechow, P.M., Sloan, R.G. and Sweeney, A.P. (1996), "Causes and consequences of earnings manipulation : an analysis of firms subject to enforcement actions by the SEC", *Contemporary Accounting Research*, Vol. 13 No. 1, pp. 1-36.

Del Baldo, M. (2017), "The implementation of integrating reporting <IR> in SMEs: insights from a pioneering experience in Italy", *Meditari Accountancy Research*, Vol. 25 No. 4, pp. 505-532, doi: 10.1108/MEDAR-11-2016-0094.

Demirel, B. and Erol, I. (2016), "Investigation of integrated reporting as a new approach of corporate reporting", *International Journal of Business and Social Research*, Vol. 6 No. 10, pp. 32-46, doi: 10.18533/ijbsr.v6i10.1002.

Di Vaio, A., Syriopoulos, T., Alvino, F. and Palladino, R. (2020), "'Integrated thinking and reporting' towards sustainable business models: a concise bibliometric analysis", *Meditari Accountancy Research*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/MEDAR-12-2019-0641.

Dimitrijevic, D. (2015), "The detection and prevention of manipulations in the balance sheet and the cash flow statement", *Economic Horizons*, Vol. 17 No. 2, pp. 135-150, doi: 10.5937/ekonhor1502137D.

Dumay, J. and Dai, T. (2017), "IT as a cultural control ?", *Meditari Accountancy Research*, Vol. 25 No. 4, pp. 574-604, doi: 10.1108/MEDAR-07-2016-0067.

Dumay, J., La Torre, M., Bernardi, C. and Guthrie, J. (2019), "Integrated reporting and integrated thinking: practical challenges", in *Challenges in Managing Sustainable Business - Reporting, Taxation, Ethics and Governance*, Palgrave Macmillan, Cham.

Eccles, R.G. and Krzus, M.P. (2010), "Integrated reporting for a sustainable strategy: one report has the potential to significantly change how companies operate and investors think, shifting the focus from that of meeting short-term financial goals to developing a long-term business strategy that not only makes a commitment to corporate social responsibility, but also to a sustainable society", *Financial Executive*, Vol. 26 No. 2, pp. 28-33.

El-deeb, M.S. and Megeid, N.S.A. (2015), "Impact of earnings management on investor's sensitivity using shareholder value creation", *Dar Almantuman*, Vol. 19 No. 5, pp. 1-35.

Eliwa, Y., Haslam, J. and Abraham, S. (2016), "The association between earnings quality and the cost of equity capital : evidence from the UK", *International Review of Financial Analysis*, Vol. 48, pp. 125-139, doi: 10.1016/j.irfa.2016.09.012.

Farneti, F., Casonato, F., Montecalvo, M. and De Villiers, C. (2019), "The influence of integrated reporting and stakeholder information needs on the disclosure of social information in a state-owned enterprise", *Meditari Accountancy Research*, Vol. 27 No. 4, pp. 556-579, doi: 10.1108/MEDAR-01-2019-0436.

Feng, T., Cummings, L. and Tweedie, D. (2017), "Exploring integrated thinking in integrated reporting – an exploratory study in Australia", *Journal of Intellectual Capital*, Vol. 18 No. 2, pp. 330-353, doi: 10.1108/JIC-06-2016-0068.

Field, A. (2009), "Logistic regression", *Discovering Statistics using SPSS*, Vol. 264, p. 315.

Field, A. (2013), *Discovering Statistics Using SPSS*, 4th ed., Sage, London.

Gibassier, D., Adams, C.A. and Jérôme, T. (2019), "Integrated reporting and the capitals' diffusion", Report published by the French Accounting Standard Setter (Autorité des Normes Comptables).

Grassmann, M. (2020), "The relationship between corporate social responsibility expenditures and firm value: the moderating role of integrated reporting", *Journal of Cleaner Production*, Vol. 285, pp. 1-16, doi: 10.1016/jclepro.2020.124840.

Guthrie, J., Manes-rossi, F. and Orelli, R.L. (2017), "Integrated reporting and integrated thinking in Italian public sector organisations", *Meditari Accountancy Research*, Vol. 25 No. 4, pp. 553-573.

Hall, J.H. (2013), "Toward improved use of value creation measures in financial decision-making", *Journal of Applied Business Research*, Vol. 29 No. 4, pp. 1175-1188.

Hall, J.H. (2018), "Value creation measures : an industry-based study", *International Journal of Productivity and Performance Management*, Vol. 67 No. 2, pp. 426-444, doi: 10.1108/IJPPM-08-2016-0178.

Haller, A. and van Staden, C. (2014), "The value added statement – an appropriate instrument for integrated reporting", *Accounting, Auditing and Accountability Journal*, Vol. 27 No. 7, pp. 1190-1216, doi: 10.1108/AAAJ-04-2013-1307.

Hinkle, D.E., Wiersma, W. and Jurs, S.G. (2003), *Applied Statistics for the Behavioral Sciences*, Houghton Mifflin, Boston, MA.

IIRC (2013), *The International <IR> Framework*, International IR Council, London. doi: 10.1254/fpj.71.757.

IoDSA (2016), *King IV Report on Corporate Governance for South Africa*, Institute of Directors, Johannesburg, available at: https://c.ymcdn.com/sites/iodsa.site-ym.com/resource/collection/684B68A7-B768-465C-8214-E3A007F15A5A/IoDSA_King_IV_Report_-_WebVersion.pdf.

Kalafut, P.C. and Low, J. (2001), "The value creation index: quantifying intangible value", *Strategy and Leadership*, Vol. 29 No. 5, pp. 9-15.

Kamal, M.E.M., Salleh, M.F.M. and Ahmad, A. (2016), "Detecting financial statement fraud by Malaysian public listed companies : the reliability of the Beneish M-score model", *Jurnal Pengurusan*, Vol. 46, pp. 23-32.

Katsarski, N. (2019), "The new business thinking with integrated reporting", *19th International Multidisciplinary Scientific GeoConference SGEM2019, Ecology, Economics, Education and Legislation*, 19(July), doi: 10.5593/sgem2019/5.3/s21.108.

Katsikas, E., Rossi, F.M. and Orelli, R.L. (2016), *Towards Integrated Reporting: Accounting Change in the Public Sector*, Springer.

Kaya, C.T., Erguden, A.E. and Sayar, A.Z. (2016), "Essence of integrated reporting: a holistic framework for sustainability and value creation", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 6 No. 1, pp. 29-34, doi: 10.6007/IJARAFMS/v6-i1/1953.

Landau, A., Rochell, J., Klein, C. and Zwergel, B. (2020), "Integrated reporting of environmental, social, and governance and financial data: does the market value integrated reports?", *Business Strategy and the Environment*, Vol. 29 No. 4, pp. 1750-1763.

Lizi'nska, J. and Czapiewski, L. (2018), "Towards economic corporate sustainability in reporting : what does earnings management around equity offerings mean for long-term performance ?", *Sustainability*, Vol. 10 No. 4349, pp. 1-23, doi: 10.3390/su10124349.

Ma, S. and Ma, L. (2017), "The association of earnings quality with corporate performance: evidence from the emerging market of China", *Pacific Accounting Review*, Vol. 29 No. 3, doi: 10.1108/PAR-02-2016-0014.

Maccarthy, J. (2017), "Using Altman Z-score and Beneish M-score Models to detect financial fraud and corporate failure : a case study of Enron corporation", *International Journal of Finance and Accounting*, Vol. 6 No. 6, pp. 159-166, doi: 10.5923/j.ijfa.20170606.01.

Mähönen, J. (2020), "Integrated reporting and sustainable corporate governance from European perspective", *Accounting, Economics, and Law: Convivium*, Vol. 10 No. 2, pp. 1-46.

Maiyaki, A.A. and Mokhtar, S.S.M. (2011), "Determinants of customer behavioural responses : a pilot study", *International Business Research*, Vol. 4 No. 1, pp. 193-197.

Malafronte, I. and Pereira, J. (2020), "Integrated thinking: measuring the unobservable", *Meditari Accountancy Research*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/MEDAR-12-2019-0640.

Moolman, J., Oberholzer, M. and Steyn, M. (2019), "The effect of integrated reporting on integrated thinking between risk, opportunity and strategy and the disclosure of risks and opportunities", *Southern African Business Review*, Vol. 20 No. 1, pp. 600-627, doi: 10.25159/1998-8125/6065.

Moran, P. and Ghoshal, S. (1999), "Markets, firms, and the process of economic development", *Academy of Management Review*, Vol. 24 No. 3, pp. 390-412.

Muttakin Mohammad, B., Mihret, D., Lemma Tesfaye, T. and Khan, A. (2020), "Integrated reporting, financial reporting quality and cost of debt", *International Journal of Accounting and Information Management*, Vol. 28 No. 3, pp. 517-534.

Obeng, V.A., Ahmed, K. and Cahan, S.F. (2020), "Integrated reporting and agency costs: international evidence from voluntary adopters", *European Accounting Review*, pp. 1-30, doi: 10.1080/09638180.2020.1805342.

Ohlson, J.A. (1995), "Earnings, book values, and dividends in equity valuation", *Contemporary Accounting Research*, Vol. 11 No. 2, pp. 661-687.

Özcan, A. (2018), "The use of Beneish Model in forensic accounting : evidence from Turkey", *Journal of Applied Economics and Business Research*, Vol. 8 No. 1, pp. 57-67.

Pallant, J. (2001), *SPSS Survival Manual : A Step by Step Guide to Data Analysis Using SPSS for Windows*, New York.

Petrík, V. (2016), "Application of Beneish M-score on selected financial statements", *Košická bezpečnostná revue*, Vol. 2, pp. 307-312.

Pistoni, A., Songini, L. and Bavagnoli, F. (2018), "Integrated reporting quality: an empirical analysis", *Corporate Social Responsibility and Environmental Management*, Vol. 25 No. 4, pp. 489-507.

PricewaterhouseCoopers (2016), "Economic crime from the board to the ground: why a disconnect is putting Malaysian companies at risk", Global Economic Crime Survey (Malaysia Report), available at: https://www.pwc.com/my/en/publications/gecs-2016-my-report.html.

Raimo, N., Ricciardelli, A., Rubino, M. and Vitolla, F. (2020), "Factors affecting human capital disclosure in an integrated reporting perspective", *Measuring Business Excellence*, Vol. 24 No. 4, pp. 575-592, doi: 10.1108/MBE-05-2020-0082.

Roman, A.G., Mocanu, M. and Hoinaru, R. (2019), "Disclosure style and its determinants in integrated reports", *Sustainability*, Vol. 11 No. 7, pp. 1-17, doi: 10.3390/su11071960.

Sajid, M. and Afza, T. (2018), "Does managerial behavior of managing earnings mitigate the relationship between corporate governance and firm value? Evidence from an emerging market", *Future Business Journal*, Vol. 4 No. 1, pp. 139-156, doi: 10.1016/j.fbj.2018.03.001.

Salvi, A., Vitolla, F., Raimo, N., Rubino, M. and Petruzzella, F. (2020), "Does intellectual capital disclosure affect the cost of equity capital? An empirical analysis in the integrated reporting context", *Journal of Intellectual Capital*, Vol. 21 No. 6, pp. 985-1007.

Securities Commission Malaysia (2017), "Malaysian Code on Corporate Governance", available at: https://www.sc.com.my/api/documentms/download.ashx?id=70a5568b-1937-4d2b-8cbf-3aefed112c0a.

Serafeim, G. (2015), "Integrated reporting and investor clientele", *The Journal of Applied Corporate Finance*, Vol. 27, pp. 34-51.

Shanmugam, B., Nair, M. and Suganthi, R. (2003), "Money laundering in Malaysia", *Journal of Money Laundering Control*, Vol. 6 No. 4, pp. 373-378.

Soderstrom, K.M., Soderstrom, N.S. and Christopher, R. (2017), "Sustainability/CSR research in management accounting: a review of the literature", *Advances in Management Accounting*, Vol. 28, pp. 59-85.

Srivastava, A. (2014), "Why have measures of earnings quality changed over time?", *Journal of Accounting and Economics*, Vol. 57 Nos 2-3, pp. 196-217, doi: 10.1016/j.jacceco.2014.04.001.

Tirado-Valencia, P., Cordobés-Madueño, M., Ruiz-Lozano, M. and De Vicente-Lama, M. (2020), "Integrated thinking in the integrated reports of public sector companies. Evidence and contextual factors", *Sustainability Accounting, Management and Policy Journal*, Vol. 12 No. 2, pp. 330-352, doi: 10.1108/SAMPJ-11-2019-0387.

Tripathi, M., Kashiramka, S. and Jain, P.K. (2019), "Has EVA evolved to outperform conventional earnings measures in determining firm's value? A case of Indian consumer firms", *Asia-Pacific Journal of Accounting and Economics*, pp. 1-15, doi: 10.1080/16081625.2019.1584760.

Venter, E.R., Stiglingh, M. and Smit, A.-R. (2016), "Integrated thinking and the transparency of tax disclosures in the corporate reports of firms", *Journal of International Financial Management and Accounting*, Vol. 28 No. 3, pp. 394-427, doi: 10.1111/jifm.12064.

Vitolla, F., Salvi, A., Raimo, N., Petruzzella, F. and Rubino, M. (2020), "The impact on the cost of equity capital in the effects of integrated reporting quality", *Business Strategy and the Environment*, Vol. 29 No. 2, pp. 519-529.

Wahl, A., Charifzadeh, M. and Diefenbach, F. (2020), "Voluntary adopters of integrated reporting–evidence on forecast accuracy and firm value", *Business Strategy and the Environment*, Vol. 29, pp. 2542-2556, doi: 10.1002/bse.2519.

Wells, J.T. (2011), *Corporate Fraud Handbook: Prevention and Detection*, 3rd ed., John Wiley and Sons, Hoboken, NJ.

Zhou, S., Simnett, R. and Green, W. (2017), "Does integrated reporting matter to the capital market?", *Abacus*, Vol. 53 No. 1, pp. 94-132.

Corresponding author
Nor Farizal Mohammed can be contacted at: norfa783@uitm.edu.my