

Synergistic Integrated Business

Model-Sustainability-Technology of Top Malaysian Oil and Gas PLCs: The Moderating Role of United Nations

SDG 5

Dayana Mastura Baharudin

Department of Accounting, School of Management, Universiti Sains Malaysia, Penang,
11800, Malaysia

Department of Management and Humanities, Faculty of Science and Information Technology,
Universiti Teknologi PETRONAS, Tronoh, 31260, Perak, Malaysia

Maran Marimuthu

Department of Management and Humanities, Faculty of Science and Information Technology,
Universiti Teknologi PETRONAS, Tronoh, 31260, Perak, Malaysia

Received: June 7, 2021 Accepted: June 21, 2021 Published: July 6, 2021

doi:10.5296/bms.v12i2.18710 URL: <https://doi.org/10.5296/bms.v12i2.18710>

Abstract

Purpose – This study investigates the impact of the three main determinants of strengthening the sustainability practices of the oil and gas public listed companies of Bursa Malaysia (PLCs) through the Business Model, Sustainability and Technology synergistically compared between pre and post Malaysian Code of Corporate Governance 2017 (MCCG 2017).

Design/methodology/approach – The study has followed the purposive sampling method followed by descriptive statistics, regression analysis and content analysis derived from the Malaysian Code of Corporate Governance 2012 (MCCG 2012) and the MCCG 2017 together with previous studies of the analysis of the annual reports and integrated reports in order to explore the reporting of the business model, sustainability and technology as a synergy.

Keywords: Malaysian Code of Corporate Governance, MCCG 2017, MCCG 2012, Business Model, Sustainability, Technology, Malaysian oil and gas industry

1. Introduction

Corporate scandals in the past have affected organizations, industries, employees' welfare state and the country's economy adversely leading to an overall unsustainable economic and social landscape. Enron and WorldCom collapsed in 2002 resulted in the total closure of the organization in the US together with their offices worldwide, resulting in the loss of employment, and the loss of employee pension funds which eventually lead to the global financial crisis in 2007-2008 (Zahid & Ghazali, 2015; Toffler & Reingold, 2004). The external auditor of Enron and WorldCom which was Arthur Andersen lost its good reputation and was charged for malpractice eventually closed down in the US together with its worldwide offices reducing the Big-5 multinational audit firms to the recent Big-4 namely PwC, KPMG, Deloitte and Ernst & Young (Toffler & Reingold, 2004). The global financial crisis of 2007-2008 was the game changer which brought about shorter economic cycles resulting in more economic downturns within a short span of time disallowing businesses to recover from the earlier financial downturn and to start anew with their businesses. Despite the intervention from the United Nations with its global sustainability agenda, organisations on its own should also have a catalyst within their internal system to disseminate sustainability best practices throughout their organisation and to treat the sustainability practices as part of its daily routine in order to work hand in hand with the global sustainability agenda. Global Sustainability practices in the media have attracted global attention through an award-winning business and society magazine Corporate Knights founded in Canada in 2002. Its best-known rankings include the Best 50 Corporate Citizens in Canada and the Global 100 Most Sustainable Corporations which were published on a yearly basis. Supporters of the Corporate Sustainability practices included the Global Reporting Initiative (GRI) founded in Boston, USA which had pioneered sustainability reporting since 1997 together with the United Nations founded in 1945 had also introduced the Millennium Development Goals (MDGs) earlier and the Sustainable Development Goals (SDGs) thereafter which were the roots of corporate sustainability practices meant to be implemented globally for the next 15 years until 2030. Current corporate sustainability practices in the Malaysian public listed companies are low compared to the global trends in which drivers of corporate sustainability practices are needed to advocate the agenda in line with the current global achievements as per the plan laid out by the United Nations (Zahid & Ghazali, 2015). Board of Directors theoretically should be the main catalyst in an organisation to uphold the sustainability agenda. A diversified intervention should also be present among the upper echelons to encourage a more intellectual discourse and sharing of knowledge and experiences in order to bring about a more positive implementation of the sustainability agenda throughout the organization benefitting the global and local economy, society and environment in the process.

2. Problem Statement

The Malaysian economy was badly hit by the Asian Financial Crisis in 1997-1998 and 10 years later the Global Financial Crisis in 2008 hit Malaysia again which created repercussions of bad management practices within organisation in order to stay afloat during the recurring crises over the years. Currently the Covid-19 pandemic which started in early in year 2020 which continued on to date in year 2021 have global created repercussions of another global financial crisis brought about by national and global economic lockdowns imposed by governments around the world as we speak. Previously the Gross Domestic Product growth rate in Malaysia had fallen from 10% to 7% as per the Organisation of Economic Cooperation and Development (OECD) National Accounts Data Files and the World Bank

National Accounts Data during the Asian Financial Crisis (OECD, 2016) and it had reduced ever since to date.

The workaround strategies and bad management practices were short term strategies practiced by organisations in order to survive the financial crisis and the current Covid-19 pandemic or risk not being able to survive financially and eventually succumb to bankruptcy. These bad management practices are the causes of weak corporate governance within organisations. Companies found it hard to barely survive and recover from the first Asian financial crisis to be hit badly again 10 years later by the Global Financial Crisis, and eventually the financial crisis brought about by the Covid-19 global pandemic which resulted ~~them in~~ firms operating in any way they could in order to survive with many workers were forced to work from their homes together with factories and construction sites which needed to be shut-down to curb the Covid-19 pandemic from spreading. Previously during the Asian Financial Crisis Malaysia at the time in 1998 did not have a code of Corporate Governance to govern the PLCs on Bursa Malaysia compared to the current situation with MCCG 2017 in force during the Covid-19 pandemic realizing the fact that the new MCCG 2022 is due to be updated anytime soon by the Malaysian Securities Commission despite the uncertainties.

In the year 2000, Malaysia has implemented various initiatives including the issuance for Code of Corporate Governance to strengthen corporate governance's structure as a result of the Asian Financial Crisis. A survey by KPMG Fraud Survey Report in the year 2009 found out the serious problem in the corporate governance was corporate fraud. Results indicate that in 2008, about 88 percent of the value of fraud occurrences was attributed to inner leadership in Malaysian businesses, and the issue of corporate fraud had risen 26 percent compared to 2004. This case was shown that the inner issues facing staff and management are getting worse in Malaysian businesses (Jakpar, Tinggi, Tan, Johari & Myint, 2019).

In 2011, the Malaysian Securities Commission released the Blueprint on Corporate Governance, which established strategic measures directed at strengthening self-discipline and community which resulted in the same year, the Securities Commission launched the MCCG 2012. In the Securities Commissions Malaysia (SC) report, it indicated that the 2012 MCCG focused on clarifying institutions' function in enhancing authority and governance, enhancing autonomy, and enhancing institutional efficiency and effectiveness by enhancing their structure (Securities Commission Malaysia, 2012).

On the draft Corporate Governance Code 2016 (MCCG 2016), the Securities Commission Malaysia (SC) published advice in order to guarantee that it is in line with the business plan and market growth. Another important element of the draft MCCG 2016, after recognizing the significance and need to improve corporate governance values, was to adopt a distinct strategy to the earlier code in which the aim was to encourage the growth and focus on conduct and the outcome of the framework of corporate governance. This resulted in the birth of the MCCG 2017 which is still in force to date (Securities Commission Malaysia, 2017).

Sustainability is a major concern among organisations globally, as the need to survive in the long run on top of creating value and profits for shareholders is a challenge in the current uncertain economic conditions (United Nations, 2015, 2017, 2020).

Global commitment towards achieving overall sustainability through sustainable development is reflected in the most recent United Nations' Sustainable Development Agenda which came into force on 1 January 2016 which introduced the 17 Sustainable Development Goals (SDGs) for the next 15 years which is also known as the 2030 Agenda for Sustainable Development which is still in force to date until year 2030 (United Nations,

2015, 2017, 2020).

Malaysia had taken interest in the concept of Corporate Sustainability (CS) which were reflected in the government of Malaysia's initiatives and policies in September 2006 during the budget speech by the Prime Minister and Minister of Finance, YAB Dato Seri Abdullah bin Hj. Ahmad Badawi in which he announced that all public limited companies were required to disclose their sustainability practices in their company annual reports from the financial year ending 31 December 2007 (Zahid and Ghazali, 2015; Budget Speech 2006). Malaysia is therefore 24 years behind the global best practices based on when the Global Reporting Initiative (GRI) which was launched in 1997 when the Sustainability initiatives were then practiced by global companies in full force compared to the current weak Sustainability reporting practices in Malaysia in year 2021. Malaysian public listed companies have consequently adopted the sustainability reporting practices within its Annual Report as recommended by Bursa Malaysia through the Sustainability Framework despite the contents of the disclosure remained voluntary (Zahid and Ghazali, 2015; Bursa Malaysia, 2006). Previous studies have identified that CS practices and reporting are more matured in developed countries (Zahid and Ghazali, 2015; Goyal, Rahman & Kazmi, 2013; Junior, Best & Cotter, 2013; Kolk, 2010), while in developing and emerging economies like Malaysia, it lacks interest among the companies, in which CS is still in its infancy stage (Zahid and Ghazali, 2015; Atan & Razali, 2013; Nazli, Ahmad & Sulaiman, 20014; Nazli, Ahmad, Salat & Haraf, 2013; Yam, 2012, 2013).

Another sustainability problem in the Malaysian and global oil and gas industry is the lack of gender diversity within its board of directors, despite the excellent progress made over the last century towards gender equality, there are still many areas in which females are under-represented in the oil and gas industry. The Board of the Society of Petroleum Engineers (SPE) have thus given the consent of a new committee to address this critical problem.

The Committee of SPEs Women in Energy (WIN) was established in 2016 and promotes gender diversity in the exploration and production (E&P) industry to date, and with WIN which is part of a societal change, SPE members need to know some of the myths behind becoming leaders with a global transition to gender equality. WIN have championed to provide females engineers and oil and gas professional women with possibilities to become leaders and pursue their career towards the Board level. The primary agenda of WIN is the development of a strong program to encourage diversity in the oil and gas sector, from entry through to retirement which will ensure a self-sustainable oil and gas industry at the local and international level (Mounir, 2018).

Therefore, this paper aims to investigate if the synergistic integrated business model, sustainability and technology has the ability to overcome the governance, diversity and sustainability issues and achieve firm financial performance for the Malaysian oil and gas PLCs.

3. Research Objectives

Following are objectives of the proposed study:

1. To measure the disclosure level of the business model, sustainability and technology synergy during the pre and post Malaysian Code of Corporate Governance 2017 across the Malaysian oil and gas PLCs.

2. To examine the impact of the disclosure extent of the business model, sustainability and technology synergy towards firms' financial performance across the Malaysian oil and PLCs during the pre and post Malaysian Code of Corporate Governance 2017.

4. Research Questions

Following are the proposed questions of the study.

1. What is the disclosure level of the business model, sustainability and technology synergy during the pre and post Malaysian Code of Corporate Governance across the Malaysian oil and gas PLCs?

2. Does the disclosure extent of the business model, sustainability and technology synergy compared between the pre and post Malaysian Code of Corporate Governance 2017 have impact on the financial performance of the Malaysian oil and gas PLCs?

5. Literature Review

Sustainability, Sustainable Development and Corporate Sustainability Practices

Sustainability as defined by the World Commission on Environment and Development is 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (Tweedie & Martinov-Bennie, 2015). Alternatively, the International Integrated Reporting Council (IIRC, 2013) used the word 'sustainable' to mean two different issues in which 'Sustained value creation' refers to a company's ability to continually create value over time and 'Natural and social sustainability' which refers to companies that consider how their actions are connected to or impact , society and the environment. In more detail, according to definition given by (Perrini & Tencati, 2006) 'sustainability is the capability of an organisation to continue its activities indefinitely, having taken due account of their impact on natural, social and human capitals'. Sustainable development (SD) is an ethical concept related to the fight against poverty, social cause and to protect the environment at the same time at the macro level (Baumgartner and Ebner, 2010). The World Commission on Environment and Development (WCED) described SD as "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations" (WCED, 1987). A sustainability-oriented company is one that develops over time by taking into consideration the economic, social and environmental dimensions of its processes and performance. Therefore, financial and competitive success, social legitimacy and the efficient use of natural resources are intertwined according to a synergetic and circular view of the company's aims. CS practices are in significant growth in developed countries, while in contrast, developing countries has lax practices (Gugler and Shi, 2008). Many sustainability initiatives have materialized currently in the western countries, while it is not yet of interest in developing countries (Jamali, 2007b; 2007a). Consequently, sustainability practices pose challenges in developing and emerging economies like Malaysia (Adnan, 2011). Prior studies have identified that sustainability disclosures are very low among Malaysian firms and the process of adopting sustainability practices and reporting are still in its infancy stages particularly the environmental disclosures (Nazli et al., 2004). The Malaysian Government needs to cure it with very serious steps and measures (Amran et al., 2009; Nazli et al., 2013). "Another major finding is that companies are not consistent with the extent, nature or quality of sustainability disclosures made over time" (Nazli et al., 2013). Prior studies also found that 250 largest listed companies of Bursa Malaysia based on the market capitalization revealed that

sustainability had shown some improvements over the past few years, but the overall progress was still in its embryonic stage in comparison with some western countries as most of the disclosures were declarative and non-quantitative (Thompson and Zakria, 2004). Another study identified the same results in GLCs of Malaysia regarding sustainability disclosures covering the period from 2005 to 2007 using the content analysis. The findings indicated that the disclosure is still moderate (Atan and Razali, 2013). An investigation of CSR disclosures found that product theme has the highest number of disclosures. The human resource disclosures was ranked second among the study of 150 listed companies, followed by the environmental disclosures (Said et al., 2009). A Harvard Business Review working paper on examining CS disclosures of Environment, Social and Governance (ESG) information across China, Denmark, Malaysia, and South Africa found that there was a significant heterogeneity in disclosing CS disclosures in which Malaysian firms, had no significant growth reported in the adoption of sustainability practices (Loannou and Serafeim, 2012). Parallel to the previous results, findings from the content analysis of annual reports showed that very few companies reported environmental disclosures in which the disclosures are minimal, and they only follow the disclosures related to compliance. Moreover, the study also identified that the customers and suppliers' concerns are on the least priority (Nazli et al., 2004). In a nutshell, it is concluded that the studies related to CS are limited and inconclusive, which needs further investigation, in order to clarify the importance among the academia, researchers, corporate sector, government and regulatory bodies (Zahid & Ghazali, 2015; Arshad et al, 2012; Darus, 2012; Eltayeb et al, 2011; Wang & Sarkis, 2013).

Dimensions of Corporate Sustainability Practices

There has been limited literature on CS practices among Malaysian public listed companies on Bursa Malaysia. The previous studies have only focused top companies or a single dimension of CS, while this study will address all the three dimensions of sustainability. This is the study that will address all the three dimensions (economic, environmental, and social) of CS after the 10th Malaysian Plan (2010-2015) incorporating the investigation if the gender diversified Board of Directors which is in congruence with the United Nations Sustainable Development Goal 5 (SDG 5) would be a catalyst towards the three dimensions of the CS practice which is encapsulated within the Sustainability component of the synergistic integrated business model, sustainability and technology.

Prior research by Collins, Steg & Koning (2007) have researched on all three aspects of Sustainability (Economic, Social & Environmental) which is deemed the sole researcher which has covered all 3 aspects of corporate sustainability but within the context of Customers' Values, Beliefs and Buying Behaviour (Alhaddi, 2015). This research will address the gap related to the synergistic business model, sustainability and technology.

Economic Sustainability Practices

Economic sustainability holds the general aspects of an organization that have prominence compared to the environmental and social sustainability. The essence of economic sustainability is to remain in business within the market for a very long time, which will lead to good financial and sustainability results of the company (Baumgartner and Ebner, 2010; GRI, 2013). Hence the management should focus on the economic sustainability practices of the company first before looking at the financial results (Zahid and Ghazali, 2015).

Social Sustainability Practices

The social dimension of CS emphasizes the impact of the organization has on the social

system. Social sustainability is defined as “the social dimension of sustainability which concerns the impact the organization has on the social systems within which it operates” (GRI, 2013). Social sustainability includes labour practices and decent work, human rights, a stable society and product responsibility. Social sustainability is aimed to build, maintain and sustain positive relationships with all the present and future stakeholders (Zahid and Ghazali, 2015).

Environmental Sustainability Practices

The environmental dimension of CS deals with the impact—on the environment due to corporate activities. This dimension is also named as the ecological dimension of CS. It can be defined as “the environmental dimension of sustainability which concerns the organization’s impact on the living and non-living natural systems, including land, air, water and the ecosystems” (GRI, 2013). Environmental dimension covers the impact related to inputs, which are energy and water use, outputs such as emissions, effluents and waste. It also covers biodiversity, transport, product and service-related impacts, environmental compliance and expenditures of a company (Zahid and Ghazali, 2015; Baumgartner and Ebner, 2010).

The Business Model

According to Osterwalder and Pigneur (2010), creators of the Business Model Canvas methodology, a business model describes the rationale according to which an organization creates, delivers and captures value.

In fact, there is no universally accepted definition of business model. The Osterwalder and Pigneur (2010)’s model consists of the nine elements as follows:

1. Customers: customer segments to serve
2. Value Proposition: the value of products / services offered
3. Channels: distribution channels and contacts with customers
4. Customer Relationships: relationships established with customers
5. Revenue: stream of revenues generated from selling of products/services
6. Key Resources: fundamental resources needed for the functioning of the company
7. Key Activities: core activities for the functioning of the company business model
8. Key Partnerships: core partners for alliances
9. Costs: cost structure and costs to be sustained.

The business model sits at the heart of the organisation, in which it is interconnected with the other content elements. This is reflected in the diagram below which illustrates a business model in which the inputs (includes the various types of capital such as financial, natural and human) are transformed through business activities into outputs (which includes products or services) in order to create a particular outcome in terms of the effects on the capitals and the value ultimately created or destroyed (Ernst & Young, 2014, 2015).

The Business Model is central to Integrated Reporting and is described as the “heart of the business” and a “system of transforming inputs through business activities into outputs and outcomes that fulfil the strategic objectives and create value over the short, medium and long term” (IIRC, 2013; Sukhari & De Villiers, 2019). The various capitals are inputs to the Business Model, which converts them into outputs (products, services, by-products and waste). The Integrated Reporting Framework defines a Business Model as “a system of inputs, value-adding activities and outputs that aims to create value over the short, medium and long

term” and defines strategy as “strategic objectives together with the strategies to achieve them” (IIRC, 2013; Sukhari & De Villiers, 2019). The International Integrated Reporting Framework views the strategy and Business Model as separately disclosable items that are pertinent to investors’ decision making (IIRC, 2013; Sukhari & De Villiers, 2019).

Technology: Big Data Analytics

Big data analytics is the use of advanced analytic techniques against very large, diverse data sets that include structured, semi-structured and unstructured data, from different sources, and can be found in different sizes from terabytes to zettabytes.

Big data is a term applied to data sets whose size or type is beyond the ability of traditional relational databases to capture, manage and process the data with low latency. Big data has one or more of the following characteristics: high volume, high velocity or high variety. Artificial intelligence (AI), mobile, social and the Internet of Things (IoT) are driving data complexity through new forms and sources of data. For example, big data comes from sensors, devices, video/audio, networks, log files, transactional applications, web, and social media — much of it generated in real time and at a very large scale.

Analysis of big data allows analysts, researchers and business users to make better and faster decisions using data that was previously inaccessible or unusable. Businesses can use advanced analytics techniques such as text analytics, machine learning, predictive analytics, data mining, statistics and natural language processing to gain new insights from previously untapped data sources independently or together with existing enterprise data (IBM, 2019).

Technology: Cloud Enterprise Resource Planning

Enterprise resource planning (ERP) refers to a type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations. A complete ERP suite also includes enterprise performance management, software that helps plan, budget, predict, and report on an organization’s financial results. ERP systems tie together a multitude of business processes and enable the flow of data between them. The process of collecting an organization’s shared transactional data from multiple sources, involves the ERP systems which eliminates data duplication and provides data integrity. Today, ERP systems are critical for managing thousands of businesses of all sizes and in all industries (Oracle, 2019).

ERP systems are designed around a single, defined data structure that typically has a common database. This helps to ensure that the information used across the enterprise is normalized and based on common definitions and user experiences. These core constructs are then interconnected with business processes driven by workflows across business departments (which includes finance, human resources, engineering, marketing, operations), connecting systems and the people who use them. Therefore, ERP is the vehicle for integrating people, processes, and technologies across a modern enterprise (Oracle, 2019).

It is impossible to ignore the impact of ERP in the current business world. As enterprise data and processes are corralled into ERP systems, businesses can align separate departments and improve workflows, resulting in significant bottom-line savings. Examples of specific business benefits include; Improved business insight from real-time information generated by reports; Lower operational costs through streamlined business processes and best practices; Enhanced collaboration from users sharing data; in contracts, requisitions, and purchase orders; Improved efficiency through a common user experience across many business

functions and well-defined business processes; Consistent infrastructure from the back office to the front office, with all business activities having the same look and feel; Higher user-adoption rates from a common user experience and design; Reduced risk through improved data integrity and financial controls; and Lower management and operational costs through uniform and integrated systems (Oracle, 2019).

Technology: Oil and Gas Integrated Operations (IO)

Since the turn of the millennium, most major oil companies and global operating vendor/service companies have increasingly addressed oil exploration and operation enabled by information and communication technology as their future way of doing business. Integrated Operations (IO) is a concept used to describe this new way of doing business (Rosendahl, 2013).

According to Larsen et al. (2012), Integrated Operations (IO) are the integration of people, work processes and technology to make smarter decisions and better execution. It is enabled by using shared real time information, collaborative technologies and multiple expertise across disciplines, organizations and geographical locations.

There is a multiplicity of names for Integrated Operations, coined by oil companies, some of which are Digital Oil Field, Digital Oil Field of the Future, Smart Fields, Smart Wells, iField, iWells, eField, and Intelligent Field (Cramer, 2012).

Firm Performance (Return on Equity and Return on Assets)

Return on equity (ROE) is defined as a measure of how much the company produces for its owners, ROE is equivalent to net profit divided by shareholder equity's book value. The equity of the shareholder generally includes the value of the reserves that could be paid out to shareholders (Richard, Devinney, Yip and Johnson, 2009).

In the current literature, several indices, such as return on assets (ROA) (Huang, Oua, Chena, & Lin, 2006; Khanna & Palepu, 2000), ROE, Tobin's Q (Habib & Ljungqvist, 2005; Khanna & Palepu, 2000); market to book value ratio (MBVR) (Sarkar & Sarkar, 2000), return on capital employed and operating profit margin measures the performance of the organisation.

Indicators such as the ROA and ROE are profitability measurements based on accounting, while indicators such as the Tobin's Q and MBVR are measurements based on the stock market. The measurements based on accounting reflect past economic results, while the market-based measures future performance.

If the ROA were selected as an indicator of company performance, then it would only explain how efficiently the company used the resources to produce profits, but this is not the only determinant of the well-being of the company. Other than using assets, the company also has to invest judiciously in the equity to produce greater income that will make the company's shareholders happy. This can encourage the use of ROE as a strong performance measure. However, using ROE can be difficult.

It can distract attention from company fundamentals if investors are not cautious and lead to unpleasant surprises. Companies can resort to economic approaches to preserve a good ROE artificially for a while and conceal declining company fundamentals performance.

Growing debt leverage and inventory buybacks financed through accumulated money can assist to sustain the ROE of a company despite the eroding of operating profitability. Based on the balance sheet and other company financial statements, both the ROA and ROE are

calculated and therefore do not account for market-oriented variables. The balance sheet announcements could also affect stock market policies owing to investor expectations (Chaudhuri, Kumbhakar & Sundaram, 2016).

6. Theoretical Framework

Stakeholder Theory

According to Jensen and Meckling (1976), agency relationship is established when agents, who are the managers, appointed by the principal, who is the owner of company, are given the authority to make decision on behalf of the principal. Agency problem usually occurs due to the information asymmetry between the owners and managers. The agency theory argues that having at least half of the board to consist of independent directors or majority independent directors as per the recommendations in MCCG 2017 will increase the independence of the board and will improve the monitoring role of the board.

Agency Theory

In terms of the corporate performance and its basis on board structure, agency relationship plays a very significant part (Jensen and Meckling, 1976). Diverse boards can better monitor executives and leadership teams through increased board independence (Hassan, Marimuthu and Johl, 2016; Carter et al, 2003). The Agency theory states that female directors behaves differently from their masculine counterparts and their presence changes the behavior of the board members as they are expected to deliver better monitoring, surveillance and consultation services (Azmi and Barrett, 2013). Furthermore, the company's reputation could be strengthened by having more females board of directors (Luckerath-Rovers, 2013).

7. Proposed Conceptual Framework

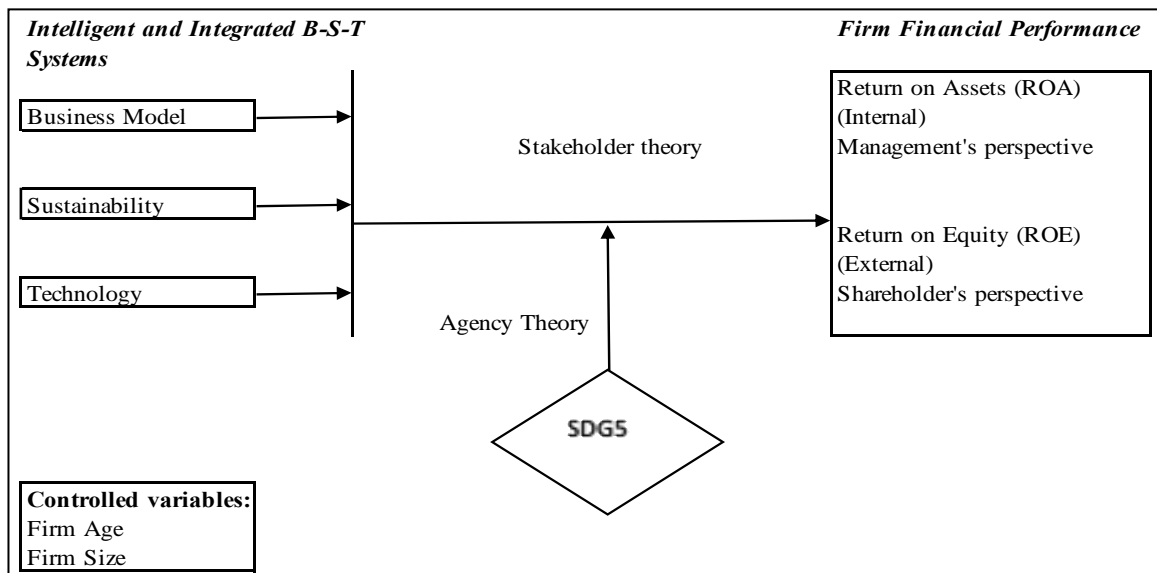


Figure 1. Proposed Conceptual Framework

The MCCG 2017 was launched by the Malaysian Securities Commission with immediate effect on 26 April 2017 and replaced MCCG 2012. The new MCCG 2017 introduced new recommendations in order to increase the level of corporate governance practices among the public listed companies in Malaysia.

The MCCG 2017 has a different strategy through the CARE approach (abbreviated from the

term ‘Comprehend, Apply and Report’) moving away from the ‘comply or explain’ method used in MCCG 2012 to the ‘apply or explain an alternative’ method. The new Code is thought to allow greater flexibility in the implementation of the code of best practice (Christopher & Lee Ong, 2017).

This paper will focus on the one of the major changes in the Code which is to strengthen the diversity of the Board and is also discussed under the United Nations Sustainable Development Goals 5 – Gender Equality.

8. Hypotheses of the Study

Hypothesis 1: The disclosure of the business model, sustainability and technology has positive impact on firm financial performance proxied by the Return on Assets (ROA) compared between the pre and post MCCG 2017.

Hypothesis 2: The disclosure of the business model, sustainability and technology has positive impact on firm financial performance proxied by the Return on Equity (ROE) compared between the pre and post MCCG 2017.

Hypothesis 3: The United Nations SDG 5 has a positive significant moderating effect on the relationship between the disclosure of the business model, sustainability and technology and firm financial performance proxied by the Return on Assets (ROA) compared between the pre and post MCCG 2017.

Hypothesis 4: The United Nations SDG 5 has a positive significant moderating effect on the relationship between the disclosure of the business model, sustainability and technology and firm financial performance proxied by the Return on Equity (ROE) compared between the pre and post MCCG 2017.

9. Proposed Models for Future Empirical Testing

Against this background, and in line with the objectives of this study the following models are proposed for future empirical testing:

Model 1:

$$ROA = \beta_0 + \beta_1BUSMOD + \beta_2SUST + \beta_3TECH + \beta_4SIZE + \beta_5AGE + \epsilon_{it}$$

Whereas

ROE = Return on Equity for measuring accounting performance of the Malaysian oil and gas PLCs (External perspective)

ROA = Return on Assets for measuring accounting performance of the Malaysian oil and gas PLCs (Internal perspective)

BUSMOD = Business Model

SUST = Sustainability

TECH = Technology

SDG5 = Women Board of Directors

SIZE = Firm size

AGE = Firm Age

ϵ_{it} = Error term

Model 2:

$$\text{ROE} = \beta_0 + \beta_1\text{BUSMOD} + \beta_2\text{SUST} + \beta_3\text{TECH} + \beta_4\text{SIZE} + \beta_5\text{AGE} + \epsilon_{it}$$

Model 3:

$$\text{ROA} = \beta_0 + \beta_1\text{BUSMOD} + \beta_2\text{SUST} + \beta_3\text{TECH} + (\beta_4\text{BUSMOD} * \text{SDG5}) + (\beta_5\text{SUST} * \text{SDG5}) + (\beta_6\text{TECH} * \text{SDG5}) + \beta_7\text{SIZE} + \beta_8\text{AGE} + \epsilon_{it}$$

Model 4:

$$\text{ROE} = \beta_0 + \beta_1\text{BUSMOD} + \beta_2\text{SUST} + \beta_3\text{TECH} + (\beta_4\text{BUSMOD} * \text{SDG5}) + (\beta_5\text{SUST} * \text{SDG5}) + (\beta_6\text{TECH} * \text{SDG5}) + \beta_7\text{SIZE} + \beta_8\text{AGE} + \epsilon_{it}$$

10. Content Validity

The parameter for measurement of individual items were shortlisted from different measurement techniques available in the MCCG 2012, the MCCG 2017, the Bursa Malaysia Sustainability Toolkit, Business Model Canvas and the Industrial Revolution 4.0 guidebook.

11. Scope and Methodology of the Study and Operationalization of Variables

The sample of the study examined the public listed companies which publish Annual Reports or Integrated Reports from a population of 916 Malaysian PLCs on Bursa Malaysia.

The data was gathered from 2016 to 2018. This study proposed a purposive sample of 30 oil and gas public listed companies (PLCs) on Bursa Malaysia. This study used the descriptive statistics and regression analysis methodology and also the quantitative content analysis to analyse the annual reports or integrated reports.

Year 2016 was chosen due to the fact that MCCG 2012 was still effective and matured in year 2016. Year 2017 was chosen as MCCG 2017 was launched during year 2017 and companies are in a transition to change their corporate governance practices from MCCG 2012 to MCCG 2017 and most likely that the changes introduced in MCCG 2017 will not have been implemented yet. Year 2018 was chosen to see the effect of the changes launched in MCCG 2017 to be taken into effect and to observe the likelihood of the new Code that has been gradually implemented. Therefore, the observation from these 3 years will allow the researcher to differentiate between the pre and post effects of MCCG 2017.

Content analysis is the most popular and widely used method in research and accounting disclosures (Zahid and Ghazali, 2015; Boesso and Kumar, 2007). Content analysis may have both qualitative and quantitative measurements. Quantitative content analysis is considered to be the more reliable analysis (Zahid and Ghazali, 2015; Day and Woodward, 2009). The current study will use the quantitative content analysis procedure.

The data coding as per the content analysis method would be based on themes, words, or items found in the data (Nilsson, 2016; Collins and Hussey, 2014).

During the classification, a scoring system will be used to determine to what extent the items were reported. The scoring system was based on a review of previous studies that used content analysis in order to determine the appropriate number of points. Larsson and Ringholm (2014) and Eccles et al (2014) used the four-point systems while Wang, Song and Yao (2013) used a three-point system. Boiral (2013) and Setia et al. (2015) both used the

two-point systems. This study will utilise a system similar to a previous research on Integrated Reporting by Nilsson (2016), to allow for some differentiation between the companies while still being a time-effective method. The system and the criteria used are shown in Table 1 Table 2 and Table 3.

Business Model Scoring Index

Table 1. Business Model Scoring Index (Osterwalder and Pigneur 2010; Ernst and Young, 2013; International Integrated Reporting Council, 2013)

Business Model disclosed
Business Model not disclosed

Sustainability Scoring Index

Table 2. Sustainability Scoring Index (Baumgartner and Ebner, 2010; GRI, 2013; Zahid and Ghazali, 2015; Lozano and Huisinigh, 2011)

Economic Sustainability
Social Sustainability
Environmental Sustainability
Stand-alone Sustainability Report
Board Sustainability Committee

Technology Scoring Index

Table 3. Technology Scoring Index (Oracle, 2019; IBM, 2019; Rosendahl, 2013; Larsen, 2012; Cramer, 2012)

Oil and Gas Integrated Operations (IO)
Big Data Analytics
Cloud Computing (ERP)

12. Significance of Study

The proposed study is important to the public listed companies as it allows the annual report and integrated report preparers to realise the importance of preparing and collating meaningful data for stakeholders and also for internal planning use in order to remain legitimate in the eyes of the stakeholders and the general public. The implementation of the MCCG 2017 must gradually take place in year 2018 onwards to ensure the improvement of corporate governance in the PLCs. The novelty of this research lies with the integrated Business Model – Sustainability – Technology synergy in which to overcome any sustainability issues towards achieving firm performance.

13. Results and Discussion

Table 4. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	90	-1.015	11.580	-40.900	23.440
roe	90	-11.369	40.627	-237.580	31.240
busmod	90	0.133	0.342	0.000	1.000
sust	90	0.347	0.215	0.211	0.832
tech	90	0.499	0.369	0.333	1.548
sdg5	90	0.788	0.485	0.154	1.154
size	90	6.803	1.683	5.129	12.989
age	90	1.125	0.341	0.301	1.743

Level of disclosures or practices

Table 4 reports the mean value of the synergy of the Business Model-Sustainability-Technology – in which the Technology component has a disclosure of 49.99, which is the highest among the three components of the synergy of the Business Model-Sustainability-Technology, the second-ranked mean value is the Sustainability component at 34.70 and the lowest is the Business Model at 13.30. However, the mean values indicated are moderate at an average of 50% of total disclosures across all types of the synergy of the Business Model-Sustainability-Technology.

The minimum value of ROE of -40.9 reflects that the Malaysian oil and gas PLCs have experienced negative returns for the past 3 years from 2016 to 2018 which is also the same for ROA at -237.58. This reflects poor financial performance for the past 3 years.

The top 30 Malaysian Oil and Gas PLCs on Bursa Malaysia reflects that they are focused on increasing their public reputation by disclosing more on the Technology and Sustainability components, demonstrating their achievements over the years to the shareholders and stakeholders through the disclosures through the annual reports and integrated reports. These disclosures do not drastically increase over the years as companies do not dramatically change their policies but incrementally over the years in which, therefore, the disclosure changes from year on year are not drastically different or may not change at all.

Frequency of disclosures

The highest disclosed synergy of the Business Model-Sustainability-Technology component is the Technology component which reflects that the Top 30 Malaysian Oil and Gas PLCs based on market capitalization as the best PLCs within Bursa Malaysia and would want to disclose to the shareholder and stakeholders that they have implemented the state of the art technological components of the Integrated Reporting framework. Over the years, there are no expected drastic changes in disclosing the maximum number of disclosures for the synergy of the Business Model-Sustainability-Technology. This indicates a challenging sign for the Top 30 Oil and Gas PLCs in which they are dealing with stakeholders operating at a global level and needs to be more transparent of the Business Model and the Sustainability elements as well.

Table 5. Pearson Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) roa	1.000							
(2) roe	0.708	1.000						
(3) busmod	0.355	0.201	1.000					
(4) sust	0.382	0.196	0.790	1.000				
(5) tech	0.427	0.245	0.885	0.902	1.000			
(6) sdg5	0.102	0.045	0.095	0.288	0.281	1.000		
(7) size	0.410	0.239	0.822	0.786	0.876	0.298	1.000	
(8) age	0.306	0.161	0.263	0.406	0.426	0.437	0.467	1.000

In this study, Return on Assets (ROA) and Return on Equity (ROE) are used to measure the firm performance based on the management's perspective, taking an internal outlook which describes the ROA, and the ROE is used to measure the firm performance based on the shareholder's perspective-taking an external outlook.

Table 5 shows an insignificant positive relationship between ROA and all the elements of the synergy of the Business Model-Sustainability-Technology, which may indicate that the disclosures are not favourable or they are not familiar which such a new set of terms from the perspective of the management team. The same positive insignificant relationship were also reflected with the ROE and all the synergy of the Business Model-Sustainability-Technology which may reflect that the synergy are not yet familiar to the external shareholders as well despite offering significant future benefits to the organisation as a whole.

Furthermore the results reflects only three cases of significance within the results in which, the relationship between the Business Model and Sustainability is positively correlated at 0.790, the relationship between the Business Model component and Technology at 0.885 and finally the relationship between Sustainability and Technology at 0.902 which is highly and positively correlated.

Therefore since this synergistic model of the Business Model-Sustainability-Technology is new, it needs time to be accepted internally by the top management and also externally by the stakeholders despite offering obvious synergistic benefits towards the top 30 oil and gas PLCs on Bursa Malaysia both at the national and international level.

Regression Analysis

Multiple linear regression was conducted to analyse with the first and second research goals in which to test the effect of transparency magnitude of the synergistic impact of the Business Model-Sustainability-Technology synergy on the profitability of the Top 30 Malaysian quoted oil and gas firms in which the resultants are shown as per Table 6 to Table 9 below.

Table 6. Pooled Ordinary Least Squares – ROA

roa	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
busmod	-4.153	8.031	-0.52	0.606	-20.125	11.820	
sust	-0.898	12.212	-0.07	0.942	-25.187	23.391	
tech	12.236	10.579	1.16	0.251	-8.805	33.276	
sdg5	-2.422	2.738	-0.88	0.379	-7.867	3.023	
size	0.954	1.498	0.64	0.526	-2.026	3.934	
age	5.371	4.112	1.31	0.195	-2.806	13.549	
Constant	-16.882	7.923	-2.13	0.036	-32.641	-1.124	**
Mean dependent var	-1.015		SD dependent var		11.580		
R-squared	0.211		Number of obs		90.000		
F-test	3.709		Prob > F		0.003		
Akaike crit. (AIC)	687.894		Bayesian crit. (BIC)		705.393		

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

The results show significance in terms of Return on Assets which reflects internal top management's acceptance of the synergistic impact of the Business Model-Sustainability-Technology synergy published within the Annual Reports and Integrated Reports of the top 30 publicly traded oil and gas companies. However, if the components of the Business Model-Sustainability-Technology synergy are analysed individually, it does not reflect significance compared to when the 3 components of the Business Model-Sustainability-Technology business synergy are grouped and combined together as one unit. Since the internal top management of the top 30 oil and gas PLCs are the ones that initiated the Business Model-Sustainability-Technology synergy, it is obvious that acceptance of the synergistic model would be acceptable to them.

Table 7. Pooled Ordinary Least Squares – ROE

roe	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
busmod	-13.894	30.536	-0.45	0.650	-74.630	46.842	
sust	-24.322	46.435	-0.52	0.602	-116.679	68.035	
tech	38.971	40.224	0.97	0.335	-41.034	118.976	
sdg5	-6.029	10.410	-0.58	0.564	-26.734	14.675	
size	2.761	5.697	0.48	0.629	-8.570	14.093	
age	8.512	15.634	0.54	0.588	-22.584	39.608	
Constant	-44.152	30.127	-1.47	0.147	-104.072	15.769	
Mean dependent var	-11.369		SD dependent var		40.627		
R-squared	0.074		Number of obs		90.000		
F-test	1.101		Prob > F		0.369		
Akaike crit. (AIC)	928.310		Bayesian crit. (BIC)		945.809		

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

The results show insignificance in terms of Return on Equity which reflects external investors and shareholders non-acceptance of the synergistic impact of the Business Model-Sustainability-Technology synergy published within the Annual Reports and Integrated Reports of the top 30 publicly traded oil and gas companies. Furthermore, if the components of the Business Model-Sustainability-Technology synergy are analysed individually, it reflects the same insignificance compared to when the 3 components of the Business Model-Sustainability-Technology synergy are grouped and combined together as one unit. The Return on Equity represents the external stakeholders and shareholders of the

top 30 oil and gas PLCs in which this Business Model-Sustainability-Technology synergy is of a new initiative that the Malaysian oil and gas industry is not familiar to the external stakeholders. Furthermore, the PLCs have not embraced the synergistic model in full despite the global exposure that the top 30 oil and gas PLCs are facing on a daily basis due to the nature of their business activities in terms of dealing with international stakeholders of the global oil and gas players.

Table 8. Pooled Ordinary Least Squares - ROA with moderation effect of United Nations SDG 5

roa	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
busmod	10.796	16.466	0.66	0.514	-21.966	43.558	
sust	-19.084	37.729	-0.51	0.614	-94.152	55.984	
o.tech	0	.	.	.	.	.
sdg5	-12.912	9.305	-1.39	0.169	-31.426	5.601	
size	1.648	1.728	0.95	0.343	-1.791	5.086	
age	5.615	4.149	1.35	0.180	-2.639	13.870	
int1	-30.801	28.632	-1.08	0.285	-87.770	26.167	
int2	2.983	41.258	0.07	0.943	-79.107	85.074	
int3	28.793	26.687	1.08	0.284	-24.306	81.893	
Constant	-13.135	13.573	-0.97	0.336	-40.142	13.872	
Mean dependent var		-1.015		SD dependent var		11.580	
R-squared		0.220		Number of obs		90.000	
F-test		2.864		Prob > F		0.007	
Akaike crit. (AIC)		690.851		Bayesian crit. (BIC)		713.350	

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

The results show significance in terms of Return on Assets despite the intervention of the Women Board of Directors represented by SDG 5 of the United Nations which reflects internal top management's acceptance of the synergistic impact of the Business Model-Sustainability-Technology synergy published within the Annual Reports and Integrated Reports of the top 30 publicly traded oil and gas companies.

However, if the components of the Business Model-Sustainability-Technology synergy are analysed individually, it does not reflect significance compared to when the 3 components of the Business Model-Sustainability-Technology synergy are grouped and combined together as one unit. Furthermore, the technology component was omitted due to the multicollinearity problem which reflects that the intervention of the Women Board of Directors represented by SDG 5 does not support the technology component of the Business Model-Sustainability-Technology synergy in terms of Return on Asset.

Table 9. Pooled Ordinary Least Squares - ROE with moderation effect of United Nations SDG 5

roe	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
busmod	38.807	61.630	0.63	0.531	-83.817	161.431	
sust	-47.008	141.212	-0.33	0.740	-327.976	233.960	
o.tech	0	.	.	.	.	.
sdg5	-49.965	34.826	-1.43	0.155	-119.259	19.328	
size	8.706	6.469	1.35	.182	-4.164	21.577	
age	9.610	15.527	0.62	.538	-21.284	40.505	
int1	-203.970	107.165	-1.90	.061	-417.196	9.255	*
int2	-110.448	154.422	-0.72	0.477	-417.699	196.804	
int3	204.841	99.887	2.05	.044	6.097	403.585	**
Constant	-63.627	50.803	-1.25	.214	-164.710	37.455	
Mean dependent var		-11.369		SD dependent var		40.627	
R-squared		0.113		Number of obs		90.000	
F-test		1.288		Prob > F		0.261	
Akaike crit. (AIC)		928.424		Bayesian crit. (BIC)		950.922	

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

The results show insignificance in terms of Return on Equity with the intervention of the Women Board of Directors represented by SDG 5 of the United Nations which reflects external shareholders and stakeholders' non acceptance of the synergistic impact of the Business Model-Sustainability-Technology synergy published within the Annual Reports and Integrated Reports of the top 30 publicly traded oil and gas companies as it is a very new initiative which have not be implemented thoroughly by the oil and gas PLCs in Malaysia.

Consequently, if the components of the Business Model-Sustainability-Technology synergy are analysed individually, it does not reflect significance in congruence to when the 3 components of the Business Model-Sustainability-Technology synergy are grouped and combined together as one unit. Furthermore, the technology component was omitted due to the multicollinearity problem which reflects that the intervention of the Women Board of Directors represented by SDG 5 does not support the technology component of the Business Model-Sustainability-Technology synergy in terms of Return on Equity.

14. Conclusion

This study is limited to only 1 year after MCCG 2017 was launched which is year 2018 in which future research could look into analysing the implementation beyond one year of the launch of the Code.

One the other hand, this research will be able to see any early adoption of MCCG 2017 by large oil and gas PLCs in order to sustain corporate reputation as the Malaysia oil and gas industry are currently interacting with global stakeholders and shareholders on a daily basis.

Integrated Reporting was created to optimize and generate knowledge management transparency, and it is intended to offer more intelligence linked organizational values in the 21st century via close collaboration, dialogue, and experimentation. The study is limited to just 12 months after the implementation of the MCCG in 2017, with prospective work examining the Code's usefulness over a lengthy span of time is needed. Furthermore, the global pandemic of Covid-19 have also impacted the Malaysian oil and gas industry severely.

In contrast, the aim of this study is to see how the MCCG 2017 is being used effectively by the top 30 publicly traded oil and gas companies in terms of preserving a positive corporate profile of managing diversity through the continuing recruiting of women key executive members of the board in congruence with a global stance of the United Nations Sustainable Development Goal Number 5 (SDG 5) of Women Board of Directors (equality for women in the workplace).

The study's *theoretical importance* would be discussed in terms of stakeholder and agency theory. A stakeholder model of a financial report, according to the Stakeholder philosophy, focuses on the integrity of the integrated business model, and includes the five main components of the model. The Agency Theory claims that explicit disclosure of the 3 elements within the Business Model-Sustainability-Technology synergy will reduce tensions between the directors and shareholders.

The current SDG 5 female directors rating indicator's *methodological importance* would decide if it accurately calculates the required number of females on an executive board for the Malaysian oil and gas PLCs and consequently could be applied to other oil and gas PLCs across the globe.

The scoring index for the synergistic Business Model-Sustainability-Technology components, can be used to assess the amount of exposures for Malaysian oil and gas PLCs and also for other top PLCs from different sectors within Bursa Malaysia, and across the global level as well is of *functional significance*.

15. Recommendations for Future Research

Ultimately, taking into account the effect of the Covid-19 pandemic on the Business Model-Sustainability-Technology synergy, the research should be extended into 2020 and beyond. The impact of Covid-19 on financial statements should be investigated accordingly. In addition, this review will be able to assess any early implementation of MCCG 2017 by Malaysia's top 30 publicly traded oil and gas companies in order to protect corporate integrity in light of gender diversity at the board level despite the global pandemic.

References

- Adnan, H. A. (2011). Sustainable shift: institutional challenges for the environment in Malaysia. *AKADEMIKA*, 81(2), 59-69.
- Alhaddi, H. (2015). Triple Bottom Line and Sustainability: A Literature Review. *Business and Management Studies*, 1(2). <https://doi.org/10.11114/bms.v1i2.752>
- Amran, A., Bin, A. M. R., & Hassan, B. C. H. M. (2009). Risk reporting: an exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal*, 24(1), 39-57. <https://doi.org/10.1108/02686900910919893>
- Arshad, R., Mansor, S. M., & Othman, R. (2012). Market orientation, firm performance and the mediating effect of corporate social responsibility. *The Journal of Applied Business Research*, 28(5), 851-860. <https://doi.org/10.19030/jabr.v28i5.7228>
- Atan, R., & Razali, N. M. (2013). CSR reporting by government linked companies and their corporate attributes. *Australian Journal of Basic and Applied Sciences*, 7(4), 163-171.
- Azmi, I. A. G., & Barrett, M. A. (2013). Women on Boards and Company Financial Performance: A Study on Malaysian SMEs. In: Md. Mahbubul Hoque Bhuiyan (ed.) Proc. of

3rd Global Accounting, Finance and Economics Conference. Melbourne: World Business Institute. 2013, 1-8.

Baumgartner, R. J., & Ebner, D. (2010). Corporate sustainability strategies: sustainability profiles and maturity levels. *Sustainable Development*, 89(18), 76-89. <https://doi.org/10.1002/sd.447>

Boesso, G., & Kumar, K. (2007). Drivers of corporate voluntary disclosure: A framework and empirical evidence from Italy and the United States. *Accounting, Auditing & Accountability Journal*, 20(2), 269-296. <https://doi.org/10.1108/09513570710741028>

Boiral, O. (2013). Sustainability reports as simulacra? A counter-account of A and A+ GRI reports. *Accounting, Auditing & Accountability Journal*, 26(7), 1036-1071. <https://doi.org/10.1108/AAAJ-04-2012-00998>

Budget Speech (2006), Budget speech, 1-30.

BURSA Malaysia. (2006). Corporate social responsibility (CSR) framework for Malaysian public listed companies, 1-2. Retrieved from www.csr-weltweit.de/uploads/tx_jpdnloads/Bursa_Malaysia_01.pdf (accessed March 13, 2015)

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate Governance, Board Diversity and Firm Value. *Financial Review* 38(1), 33-53, <https://doi.org/10.1111/1540-6288.00034>

Collins, C. M., Steg, L., & Koning, M. A. S. (2007). Customers' Values, Beliefs on Sustainable Corporate Performance and Buying Behaviour. *Psychology and Marketing*, 24(5), <https://doi.org/10.1002/mar.20173>

Collis, J., & Hussey, R. (2014). Business research, A practical guide for undergraduate and postgraduate students (4th edition). Palgrave MacMillan.

Cramer, R., Göbel, D., Mueller, K., & Tulalian, R. (2012). A Measure of The Digital Oil Field Status – Is It The End of The Beginning?. Utrecht, The Netherlands, SPE 149957. <https://doi.org/10.2118/149957-MS>

Darus, F. (2012). Embracing corporate social responsibility in Malaysia- towards sustaining value creation. *Malaysian Accounting Review, Special Issue*, 11(2), 1-13.

Day, R., & Woodward, T. (2009). CSR reporting and the UK financial services sector. *Journal of Applied Accounting Research*, 10(3), 159-175. <https://doi.org/10.1108/09675420911006398>

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The Impact of Corporate Sustainability on Organizational Processes and Performance. *Management Science*, 60(11), 2835-2857. <https://doi.org/10.2139/ssrn.1964011>

Eltayeb, T. K., Zailani, S., & Ramayah, T. (2011). Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: investigating the outcomes. *Resources, Conservation and Recycling*, 55(5), 495-506. <https://doi.org/10.1016/j.resconrec.2010.09.003>

Ernst and Young. (2014). EY's Excellence in Integrated Reporting Awards 2014. Retrieved from [http://www.ey.com/Publication/vwLUAssets/EY-Excellence-In-Integrated-Reporting-2014/\\$FILE/EY-Excellence-In-Integrated-Reporting-2014.pdf](http://www.ey.com/Publication/vwLUAssets/EY-Excellence-In-Integrated-Reporting-2014/$FILE/EY-Excellence-In-Integrated-Reporting-2014.pdf) (accessed on 20 May 2015).

Ernst and Young. (2015). EY's Excellence in Integrated Reporting awards 2015. Retrieved from

[http://www.ey.com/Publication/vwLUAssets/ey-excellence-in-integrated-reporting-awards-2015/\\$FILE/ey-excellence-in-integrated-reporting-awards-2015.pdf](http://www.ey.com/Publication/vwLUAssets/ey-excellence-in-integrated-reporting-awards-2015/$FILE/ey-excellence-in-integrated-reporting-awards-2015.pdf) (accessed on 5 April 2016).

Goyal, P., Rahman, Z., & Kazmi, A. A. (2013). Corporate sustainability performance and firm performance research: literature review and future research agenda. *Management Decision*, 51(2), 361-379. <https://doi.org/10.1108/00251741311301867>

GRI. (2013). G4 global reporting initiative, 1-94. Retrieved from www.globalreporting.org/reporting/g4/Pages/default.aspx (accessed March 20, 2015).

Gugler, P., & Shi, J. Y. J. (2008). Corporate social responsibility for developing country multinational corporations: lost war in pertaining global competitiveness? *Journal of Business Ethics*, 87(S1), 3-24. https://doi.org/10.1007/978-94-007-0818-1_2

Hassan, R., Marimuthu, M., & Johl, S. K. (2016). Women on Boards and Market Performance: An Exploratory Study on the Listed Companies. *International Business Management*, 10(2), 84-91.

Huang, S-M., Oua, C-S., Chena, C-M., & Lin, B. (2006). An empirical study of relationship between IT investment and firm performance: A resource-based perspective, 173, 984-999. <https://doi.org/10.1016/j.ejor.2005.06.013>

IBM. (2019). Big Data Analytics. Retrieved from <https://www.ibm.com/my-en/analytics/hadoop/big-data-analytics>

IIRC. (2013). Business Model background paper for Integrated Reporting. Chartered Institute of Management Accountants (CIMA), IFAC & PwC. IIRC.

Jakpar, S., Tinggi, M., Tan, K. H., Johari, A., & Myint, K. T. (2019). Analysis of Corporate Governance and Firm Performance: Evidence from Malaysian Listed Companies. *International Journal of Business and Social Science*, 10(1), January 2019. <https://doi.org/10.30845/ijbss.v10n1p14>

Jamali, D. (2007a). A stakeholder approach to corporate social responsibility: a fresh perspective into theory and practice. *Journal of Business Ethics*, 82(1), 213-231. <https://doi.org/10.1007/s10551-007-9572-4>

Jamali, D. (2007b). The case for strategic corporate social responsibility in developing countries. *Business and Society Review*, 112(1), 1-27. <https://doi.org/10.1111/j.1467-8594.2007.00284.x>

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

Junior, R. M., Best, P. J., & Cotter, J. (2013). Sustainability reporting and assurance: a historical analysis on a world-wide phenomenon. *Journal of Business Ethics*, 120(1), 1-11. <https://doi.org/10.1007/s10551-013-1637-y>

Khanna, T., & Palepu, K. G. (2000). Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups. *Journal of Finance*, 55(2), 867-891. <https://doi.org/10.1111/0022-1082.00229>

- Kolk, A. (2010). Trajectories of sustainability reporting by MNCs. *Journal of World Business*, 45(4), 367-374. <https://doi.org/10.1016/j.jwb.2009.08.001>
- Larsen, S., Bjørkevoll, K. S., Gibson, A. K., Gunnerud, V., Lien, D. O., Thorvik, K., & Nystad, A. N. (2012). A Stack Model and Capabilities Approach to Investigate Integrated Operations Across Different Industrial Sectors - O&G Industry versus Aviation, Military and Medicine. SPE 150431, paper presented at the SPE Intelligent Energy International held in Utrecht, The Netherlands, 27-29 March 2012. <https://doi.org/10.2118/150431-MS>
- Larsson, J., & Ringholm, L. (2014). Governance Disclosures According to IIRC's Integrated Reporting Framework – Are Annual Reports of Swedish Listed Companies in Line with the Framework? University of Gothenburg, School of Economics, Business and Law.
- Ljungqvist, A. P., & Habib, M. A. (2005). Firm Value and Managerial Incentives: A Stochastic Frontier Approach. *The Journal of Business*, 78(6), 2053-2094. <https://doi.org/10.1086/497040>
- Loannou, I., & Serafeim, G. (2012). The Consequences of Mandatory Corporate Sustainability Reporting, 1-45. Retrieved from www.hbs.edu/faculty/Publication%20Files/11-100_7f383b79-8dad-462d-90df-324e298acb49.pdf (accessed March 18, 2015).
- Lozano, R., & Huisingh, D. (2011). Inter-linking issues and dimensions in sustainability reporting. *Journal of Cleaner Production*, 19(2-3), 99-107. <https://doi.org/10.1016/j.jclepro.2010.01.004>
- Luckerath-Rovers, M. (2013). Women on boards and firm performance. *Journal of Management and Governance*. 2013, 17(2), 491-509. <https://doi.org/10.1007/s10997-011-9186-1>
- Malaysian Code of Corporate Governance. (2012). *Securities Commission Malaysia*, Kuala Lumpur, Malaysia.
- Malaysian Code of Corporate Governance. (2017). *Securities Commission Malaysia*, Kuala Lumpur, Malaysia.
- Mounir, N. (2018). Making Gender Diversity a Reality in the Oil and Gas Industry; The SPE Women in Energy committee works to create opportunities for women to enable them to step into leadership roles and pursue their career goals. *Journal of Petroleum Technology*, May 29, 2018.
- Nazli, N., Ahmad, N., & Sulaiman, M. (2004). Environmental disclosures in Malaysian annual reports: a legitimacy theory perspective. *IJCM*, 14(1), 1-28. <https://doi.org/10.1108/10569210480000173>
- Nazli, N., Ahmad, N., Salat, A., & Haraf, A. (2013). Environmental disclosures of Malaysian property development companies: towards legitimacy or accountability? *Social Responsibility Journal*, 9(2), 241-258. <https://doi.org/10.1108/SRJ-10-2011-0090>
- Nilsson, A. (2016). A touch of Integrated Reporting. An exploration of large Swedish companies' compliance with the IIRC's six capital. University of Gothenburg.
- OECD Economic Survey Malaysia (2016) Retrieved from www.oecd.org/eco/surveys/economic-survey-malaysia.htm
- Oracle. (2019). Enterprise Resource Planning – Overview. Retrieved from <https://www.oracle.com/erp/what-is-erp/>

- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers and Challenges*. ISBN: 978-0-470-8764-1, 288.
- Perrini, F., & Tencati, A. (2006). Sustainability and Stakeholder Management: The Need for New Corporate Performance Evaluation and Reporting Systems. *Business Strategy and the Environment*, 15(5), 296-308. <https://doi.org/10.1002/bse.538>
- Rajah & Tann Asia (2017) *The Malaysian Code on Corporate Governance 2017*. Retrieved from <https://www.christopherleeong.com/media/2803/clo-2017-05-the-malaysian-code-onf.pdf>
- Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring Organisational Performance: Towards Organisational Best Practice. *Journal of Management*, 3, 718-804. <https://doi.org/10.1177/0149206308330560>
- Rosendal, T., & Hepsø, V. (2013). Preface/Introduction. I: Integrated Operations in the Oil and Gas Industry: Sustainability and Capability Development, In book: *Integrated Operations in the Oil and Gas Industry: Sustainability and Capability Development*, Chapter: Introduction, Publisher: IGI Global. <https://doi.org/10.4018/978-1-4666-2002-5>
- Said, R., Zainuddin, Y. H., & Haron, H. (2009). The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies. *Social Responsibility Journal*, 5(2), 212-226. <https://doi.org/10.1108/17471110910964496>
- Sarkar, J., & Sarkar, S. (2009). Multiple board appointments and firm performance in emerging economies: Evidence from India. *Pacific-Basin Finance Journal*, 17, 271-293. <https://doi.org/10.1016/j.pacfin.2008.02.002>
- Setia, N., Abhayawansa, S., Joshi, M., & Huynh, A. V. (2015). Integrated reporting in South Africa: some initial evidence. *Sustainability Accounting, Management and Policy Journal*, 6(3), 397-424. <https://doi.org/10.1108/SAMPJ-03-2014-0018>
- Sukhari, A., & De Villiers, C. (2019). The Influence of Integrated Reporting on Business Model and Strategy Disclosures. *Australian Accounting Review*, 29(4), 708-725. <https://doi.org/10.1111/auar.12264>
- Thompson, P., & Zakria, Z. (2004). Corporate social responsibility reporting in Malaysia. *Journal of Corporate Citizenship*, 13(2004), 125-136. <https://doi.org/10.9774/GLEAF.4700.2004.sp.000014>
- Toffler, B. L., & Reingold, J. (2003). *Final accounting: ambition, greed, and the fall of Arthur Andersen*, ISBN 0767914546, Crown Publishing.
- Tweedie, D., & Martinov-Bennie, N. (2015). Entitlements and Time: Integrated Reporting's Double-Edged Agenda. *Social and Environmental Accountability Journal*, 35(1), 49-61. <https://doi.org/10.1080/0969160X.2015.1007466>
- United Nations Economic and Social Council. (2020). *Progress towards the Sustainable Development Goals Report of the Secretary-General Archived 30 December 2020 at the Wayback Machine*, High-level political forum on sustainable development, convened under the auspices of the Economic and Social Council (E/2020/57), 28 April 2020.
- United Nations. (2015). *Resolution adopted by the General Assembly on 25 September 2015, Transforming our world: the 2030 Agenda for Sustainable Development(A/RES/70/1 Archived*

28 November 2020 at the Wayback Machine)

United Nations. (2017). Resolution adopted by the General Assembly on 6 July 2017, Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development (A/RES/71/313 Archived 28 November 2020 at the Wayback Machine)

Wang, J., Song, L., & Yao, S. (2013). The Determinants of Corporate Social Responsibility Disclosure: Evidence from China. *Journal of Applied Business Research*, 29(6), 1833. <https://doi.org/10.19030/jabr.v29i6.8220>

Wang, Z., & Sarkis, J. (2013). Investigating the relationship of sustainable supply chain management with corporate financial performance. *International Journal of Productivity and Performance Management*, 62(8), 871-888. <https://doi.org/10.1108/IJPPM-03-2013-0033>

WCED. (1987). Report of the World Commission on environment and development: our common future, 1-247. Retrieved from www.un-documents.net/our-common-future.pdf (accessed March 18, 2015).

Yam, S. (2012). Corporate social responsibility and the Malaysian property industry. In 18th Annual PRRES Conference, Adelaide, 15-18.

Yam, S. (2013). The practice of corporate social responsibility by Malaysian developers. *Property Management*, 31(1), 76-91. <https://doi.org/10.1108/02637471311295423>

Zahid, M., & Ghazali, Z. (2015). Corporate sustainability practices among Malaysian REITs and property listed companies. *World Journal of Science, Technology and Sustainable Development*, 12(2), 100-118. <https://doi.org/10.1108/WJSTSD-02-2015-0008>

Copyright

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).