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Tax Incentives for Green Industries: Determinants of Performance between Green Building Index (GBI) and Non-Green Building Index Firms in Malaysia

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Abstract

Industrialization, urbanization, and economic growth are among the major causes of environmental degradation. These factors are closely related to the construction sector. To curb the issue, the government has initiated tax incentives to encourage developers embracing green technology. Developers who entitled to these tax incentives should enjoy a considerable amount of tax savings, which can be employed for capital reinvestment. Consequently, this study aims to determine whether firms that specifically involve with the construction of green buildings and have received the tax incentives are more likely to achieve relatively better financial performance, as a result of tax benefits gained from the government assistance. For the empirical analyses, secondary data was employed. A total of 138 firm-year observations from 2015 until 2017 used to measure the firm's characteristic of board size, asset tangibility, deferred tax balances, and leverage against financial performance. The Theory of the Growth of the Firm was used to interpret the relationship between the financial characteristics and firm performance. We obtain evidence that indicates there is no significant difference in the financial performance between the GBI and non-GBI firms. The deferred tax balance, a proxy of the investment tax allowances granted by the Malaysian government to the GBI firms, is shown to be ineffective in improving the financial performances of these firms. The finding of this study suggests that any form of tax assistance from the government for the construction sector has not benefitted its recipients and requires remodeling.

Keywords: theory of the growth of the firm, green building tax incentive, investment tax allowance, green technology, green building index.

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1. Introduction

In recent years, environmental issues such as climate change, energy crisis and increasing of pollution, have received much attention in Malaysia, especially within the construction industry (Shafiei, Abadi, & Osman, 2017). Transforming building construction and operations are significant because the environmental impacts are expected to increase

with population growth. It also due to changes in other factors such as demographic and economic factors. Various measures have been carried out to minimize the construction impacts towards environmental and sustainable development with the purpose to improve the quality of life for the current population and the future generation.

To implement sustainable development goals in Malaysia's construction industry, the government has introduced the concept of green buildings. The design and operation of green buildings should reduce the overall impact of the built environment to its surroundings (Green Building Index, 2017). A green building increases the efficiency of using resources such as energy, water, and materials. It correspondingly reduces the building impact on human health as well as on the environment during the building's lifecycle. These could be achieved through better siting, design, construction, operation, and maintenance (Onuoha, Aligha & Rahman, 2017). The green building policies in Malaysia began in 2009 with the launching of the National Green Technology Policy (NGTP) and subsequently, with the introduction of the Green Building Index (GBI) (Onuoha et al., 2017). The National Green Technology Policy was launched on 24 July 2009 by the former Prime Minister YAB Dato' Seri Mohd Najib Bin Tun Haji Abdul Razak.

The numbers of Malaysian firms that obtain GBI certification in order to capitalize on the Malaysia Green Building tax incentives are significant, but not outstanding (Aliagha, Hashim, Sanni, & Ali, 2013). Shafiei et al. (2017) share the same opinion as from their study, they have found that even though the concept of GBI has been introduced in Malaysia, there is a lack of interest among the building industry stakeholders. He indicated that most new projects only displayed a few green building technology features. The authors also explain that the firms, which have previously awarded with the certification had failed to continuously comply with the conditions for extension of the GBI certification. Hence, they are not entitled to an extension of the GB tax incentives. Instead, their GBI certifications were revoked due to increasing issues or problems related to the environment in Malaysia.

Aliagha et al. (2013) further mentioned that even though the Green Building tax announced by the Malaysian government provides very attractive incentives, the number of registered projects is still relatively low. There are a total of 806 registered projects for GBI from 2009 to 2017, but only 433 were certified. From 1 certified project in 2009, it increases to 82 for the next five years but reduces significantly afterward (Green Building Index, 2017). The declining number of certified projects identified might be due to reasons, such as the tedious process to claim the GBI and to utilize the tax incentives given (Olubunmi, Xia & Skitmore, 2016). The final total of firms approved for tax incentives under the GBI was only 23 as of 2017. The small number of approved

cases indicates that the tax incentive was not attractive to the construction firms in enjoying the benefits of exemptions, despite the tax incentive promoted (Abd Hamid, 2015). A firm that is granted tax incentives is expected to prepare itself to sustainably perform in the future once the tax incentive expires and also to perform better than a firm without these incentives. Chan and Mo (2000) reported that in China, firms granted tax incentives outperformed those without the tax incentives.

In Malaysia, the tax incentives given to GBI firms have yet to be analysed empirically. Only a few researchers such as Olubunmi et al. (2016) and Shazmin, Sipan and Sapri (2016) have examined the GBI firm with tax incentives in their studies, but there are no descriptive studies with empirical analysis have been done thus far. Hence, this study addresses this gap by analyzing the effects of a few independent financial variables such as board size, assets tangibility, deferred tax and leverage on the financial performance of the listed GBI firms in Malaysia, using the Theory of the Growth of the Firm. Also, performance comparison analysis was also carried out to determine the effectiveness of GBI firms (firms utilized with tax incentives) against the non-GBI firms.

The rest of the paper will proceed with the discussion of the literature review. This is followed by the methodology section, which describes the data analytical procedures, findings, and discussion. Lastly, we provide a summary of the study.

2. Literature Review

2.1. Green building index

A green building index certification is awarded to developers of a green building in Malaysia, upon complying with the conditions and procedures as specified by Green Building Index Sdn Bhd, the entity which operates GBI. The GBI rating is awarded upon recommendation by a GBI Accreditation Panel that enables the holder of the GBI rating to apply for tax incentives, provided by the government.

Malaysian Investment Development Authority is the agency responsible for administering tax incentives on green technology projects and services while the Malaysian Green Technology Corporation (MGTC) is mandated to manage the incentives granted for purchases of green technology assets. Green building is one of the projects listed as a 'green technology project,' which is entitled to a 100% investment tax allowance (ITA) on the qualifying capital expenditure incurred. The allowance could then be offset against 70% of statutory income in a year of assessment; effective from the year of

assessment 2013 up to the year of assessment 2020. Also, any unclaimed allowance may be carried forward into the future years, until it is fully utilized.

One of the conditions listed in the 'Guideline on Application for Incentive and Expatriate Posts for Green Technology (GTT)' is that the applicant must have a green building certificate. According to the GBI website, different rating levels requires different standard requirements. This exacerbates by the fact that the highest GBI rating, i.e., GBI Platinum, is indeed very 'difficult to achieve.' The intention was that a world-class building worthy of the highest rating should only be a handful ("Myths and Truth about GBI," n.d.). Since the pre-conditions for eligibility of the ITA was silence on the rating grade, parties aspiring to apply for the incentives need not necessarily have the highest GBI rating.

The GBI is not (yet) a compulsory requirement. Hence, building developers may need to establish the potential benefits of such certification before initiating a green building project. A previous study by Zaid and Kiani (2016) highlighted that possible economic benefits in obtaining the GBI rating include lowering of operation and maintenance cost, development of green products and services, economic performance optimization, cost reduction for civil infrastructure as well as image improvements. Additionally, tax incentives granted to SMEs are found to be as one of the contributing factors for enhanced or improved financial performance for SMEs (Shuid & Noor, 2012).

2.2. Investment tax allowance

National Green Technology Policy provides the guiding principle for the construction industry to venture into developing the green building by providing tax incentives for GBI firms. According to Onuoha et al., (2018), developers and investors are influenced to invest in green commercial properties due to the monetary green tax incentives. Such inclination has created a highly significant effect on the supplies and investments of green commercial property. Firms that have been granted with the ITA can plan their capital expenditures to maximize the benefits of tax incentives on its financial performance or profitability. In a study in relation to the impact of R&D tax incentive provided by the Taiwanese government, Chen and Gupta (2017) found evidence indicate that it helps the R&D firms to optimally structure their R&D spending plan to obtain better tax credits and potentially improved tax revenues. Tax incentives were also found to have a considerable positive effect on firms with a high level of cash flows and no financing constraints (Edgerton, 2010).

Chirinko and Wilson (2008) attempted to identify the extent of tax incentives policy by states in the USA. The findings show that the State's tax policy appears to be a zero-sum game among other states. However, a zero-sum game has a more significant role in the markets that is, to inject higher liquidity to the futures markets and help firms to find ways in stabilizing their prices and subsequently, improves their operation and financial performance. In this study context, any tax incentives introduced by the government are, therefore, expected to have an overall net positive effect on the economy. Devereux, Maffini, and Xing (2018) suggested that the provision of the tax incentives may not be suitable for the targeted industries if governments are misguided by the information they have obtained. A study by Edge and Rudd (2011) pointed out that tax incentives should not be used repeatedly can have a destabilizing effect. Specific schemes of incentives should be designed to match even at the sub-specific sector levels (Karimi, Eksioglu & Khademi, 2018). Government policies relating to tax incentives must not be applied in a blanket across all industries as Gordon and Sarada (2018) suggested that refunding tax savings from business losses and compensating surtax on profits are a better alternative to help start-up firms. Nonetheless, in this context, the government role in leading a more sustainable corporate performance, in the long run, is beyond doubt (Alexopoulos, 2018)

2.3. Financial characteristic

The firm's financial characteristics can be observed from its financial statements. With further analysis - financial ratio analysis, the information from the financial statements can provide useful data to the interested parties to the firm. Financial ratio analysis is a quantitative analysis which uses information extracted from the financial statements. This type of analysis provides a more meaningful interpretation of the organisation's financial and operational performance in various aspects, such as efficiency, liquidity, profitability, and solvency. Financial ratio analysis allows the managers to identify organizational strengths and weaknesses, as shown by the indicators, which would then allow the necessary concerned parties to develop proper response strategies and initiatives. Intra-firm comparison can be made for performance assessment; however, a cross border comparison could have a significant difference due to the variation in accounting standards adopted by different countries (Liu, O'Farrell, Wei, & Yao, 2013). Other drawbacks include variation in the valuation used for items in the financial statements as well as operational differences (Wright, 1975). Firms should be aware of the importance of selecting an appropriate ratio to use, as it may undermine the quality

of evaluation (Hsieh & Wang, 2001). Bauman and Shaw (2016) pointed out that certain classification of balance sheet items may reduce investors' ability to accurately forecast stock prices, causing distortion in the result of their ratio analysis. Aripin et al. (2011) suggested that regulators should consider mandatory disclosures of important ratios in the financial reports for the benefits of potential investors, as the extent of financial ratios disclosure was found to be very low although, its usage is essential.

Qualitative assessment of institutional characteristic is very subjective as the evaluation is subjected to personal interpretation based on the assessor's background and is also exposed to individually perceived circumstances. In order to reduce (or possibly to remove) these uncertainties, financial ratio indicators are considered more appropriate to predict the organisation's financial characteristics, as these indicators are more stable and permanent in nature. Hence, the selected financial characteristics identified as the independent variables were hypothesized with the construction firms' characteristics and successful utilization of the tax incentives as the determinants of the firms' financial performance, i.e. dependent variable.

2.3.1. Board Size – Number of Board Members

Managers must be able to develop a suitable governance structure to enforce decisions in the interest of their shareholders. Generally, there has always been a conflict between managers and firm owners. To explain this problem, the agency theory highlighted that executives (normally referred to as the CEO) may not always act in the best interest of the shareholders. Such circumstances could have an impact on firm performance due to the conflict it poses. There are many factors that can influence financial performance, and as one of the essential components, board size was tested in this study.

Xie and Fukumoto (2013) found in their study of Japanese firms that, there was a significant positive relationship between the firm performance and board size, provided that the board size was small. If the board size was significant, the relation of firm performance and board size was significantly negative. They concluded that the characteristics of the firms have some levels of influence in the relationship between performance and the board size. According to Cheng, Evans, and Nagarajan (2008), reducing the size of board members is essential when corporate control of the market is active. They found a significant association between smaller board size and better firm performance before the anti-takeover laws were passed in the USA. Once the law was passed, a weaker relation exists between the firm performance and board size.

Lin and Chang (2016) study on banks listed on the Taiwan Stock Exchange revealed that not only board size influences performance but the composition of the board (independent vs. non-independent directors) or the board structure as well. Orozco, Varga, and Dorado (2018) found that the board structure had a direct impact over the firm financial performance but further added that there was no relationship between financial performance and board size in large firms. Consistently, smaller SMEs in Finland were also found to be less affected by the board structure (Lappalainen & Niskanen, 2012).

Elsayed (2011) attempted to look at how the board leadership structure influence the relationship between the board size and performance; further concluded that in the situation whereby the role of CEO and chairman was split, board size has a significant effect on the performance. If the board structure has CEO and Chairman being the same person, board size was found to have a negative influence on corporate performance. This finding, however, contradicted a study by Salehi, Tahervafaei, and Tarighi (2018), who noted that corporate performance was not affected by the board size or the dual role of CEO in the firms listed on Tehran Stock Exchange. Instead, they concluded, that board independence was the factor that had a positive and significant association with performance. The author also claimed that in Tehran, non-executive directors understand the business and market behavior far better than the executive members of the Board.

Nguyen et al. (2016) affirmed that there was evidence of a strong negative relation between board size and firm value in their studies of Australian firms. However, they also noted that the effect of board size on performance was more apparent in smaller firms. According to Larmou and Vafeas (2010), larger board sizes appear to be positively related to improved operating performance and shareholder value upon testing smaller firms with a history of poor operating performance. A larger board has a negative relationship with the financial performance of firms impacted by the financial crisis of 2008/09 in India (Srivastava, 2015). Pathan, Skully, and Wickramanayake (2007) also found a significant negative relation between Thailand's banks' board size and their performance. Arosa, Iturralde, and Maseda (2013) noted that large board size had negatively affect performance as coordination, flexibility, and communication worsen. They concluded that non-executive directors do not contribute to the improvement of non-listed Spanish SMEs performance. Mishra and Kapil (2017) found that the board size with different levels of promoter ownership has different levels of a significant positive relationship on the ROA, in their study of firms listed on the CRISIL NSE Index of 500

firms. Although findings from previous research seem to contradict each other, it is clear that the board size is an important factor that influences the firm's ability to perform.

A total number of directors has been the most widely used measurement for board size in previous other research, such as in Larmou and Vafeas (2010). Based on the above arguments and to test the relationship between board size and GBI and Non-GBI firms' financial performance, the hypotheses established are:

H1a – The number of a board member will significantly affect the level of the financial performance of the GBI firms.

H1b – The number of a board member will significantly affect the level of the financial performance of the Non-GBI firms.

2.3.2. Asset Tangibility

The ratio of property, plant, and equipment (PPE) to total assets (TA), also known as asset tangibility, represents a firm's assets structure as it shows the portion of non-current assets on the overall total assets. This ratio is only meaningful if the comparison is between the firms from the same industry, as a different industry has different asset structures. Koralun-Bereznick (2013) pointed out that asset tangibility is considerably influenced by industry-specific and to a bigger extent; even by country-specific.

Asset structure is an important factor as it has a direct contribution to the improvement of total business performance (Jezovita, 2016). This notion is also supported by Khalaf et al. (2015), who concluded that asset structure has a significant influence on Jordanian's non-listed firms' profitability. In contrast, while studying the impact on life insurance firms across Asia, Zainuddin, Mahdzan, and Leong (2018) found that asset tangibility was not a factor that could influence the profitability of the insurance firms.

As a proxy to asset tangibility, the current study uses the ratio of a total non-current asset over the total asset, following previous studies by Ezeoh (2008) and Awartani et al. (2016). Based on the above arguments, we test the relationship between asset tangibility and financial performance of the GBI and Non-GBI firms using the hypotheses as below:

H2a – Assets tangibility will significantly influence the level of the financial performance of GBI firms

H2b – Assets tangibility will significantly influence the level of the financial performance of Non- GBI firms

2.3.3. Deferred Tax

Malaysian Financial Reporting Standard (MFRS): 112 Income Taxes issued by the Malaysian Accounting Standard Board provides guidance on the accounting treatment of deferred tax balances in the financial statements. The standard defines deferred tax liabilities (DTL) as the amounts of income taxes payable in future periods, in respect of temporary taxable differences. In contrast, deferred tax assets (DTA) has been described as the amounts of income taxes recoverable in future periods in respect to (i) deductible temporary differences; (ii) the carry forward of unused tax losses; and (iii) the carry forward of unused tax credits. A DTL has the effect of increasing the amount of tax owed (and payable in future periods) by a firm to the tax authorities. A DTA often arises due to taxes paid or carried forward, but are yet to be recognized in the income statement.

The DTA could also be explained in the scenario, whereby a business incurs a loss in a financial year and entitled to report the loss for lowering its taxable income in the future. For loss firms, loss earnings are assets. The most common scenario that creates the DTA is when there is a difference between accounting rules and tax rules, in particular, when an expense is recognized in the income statement before they are being recognized by the tax authorities or when revenues subjected to taxes before becoming taxable in the income statement. The different treatment causing the expenditure or revenue items of either being allowed or disallowed for taxation purposes is known as a timing difference.

The timing differences or book-tax differences can be further classified into either a temporary or permanent difference; the former is when the differences are capable of reversal in subsequent periods. It is essential to appreciate that a DTA is only recognized in books of accounts if the asset is expected to offset future profits. Unutilized investment tax allowances (being the tax incentives or exemptions) are recognized as a DTA up to the extent that it is probable that the future taxable profits will be available against which the unutilized tax incentives can be set-off or utilized. Otherwise, if future taxable profits are not likely to occur, the amount of DTA will not be recognized; instead, are quantified and disclose in the notes to the financial statement.

A firm which has improved financially is expected to generate higher profits. The profits would theoretically attract higher income taxes. However, the availability of the tax exemptions reduces the tax liability of the profitable firm. Therefore, a firm which demonstrated a reduction in its DTA/DTL ratio may be considered as a financially performed firm as the DTA balances reduce (upon being utilized for set off with the profits).

An investor would typically perceive a loss firm positively if its financial statements recorded a DTA in the balance sheet; for the reason that there is a possibility of an adequate future taxable income to be netted off with the DTA (Samara, 2014).

The research also pointed out that the mere existence of a net DTL balance in the balance sheet would imply the negative performance of the firm. Investors would interpret that the reversal from losses to profits by the firm to be less likely because DTL reflects future tax payments. The deferred tax was also considered as an indicator of future cash flow that the market sometimes views as less risky, possibly due to the firms being perceived as attempting to minimize or defer taxes (Chandra & Ro, 1997). Nor Shaipah and Holland (2015) also suggested that deferred tax balances could be used as a measure of earnings quality in their study of firms listed on the London Stock Exchange.

Sundvik (2017) reported from their study of private European firms across 12 countries that these firms have a peculiar tendency to manage their earnings in a situation of a 'low book-tax conformity'; this situation arises primarily with the presence of tax incentives. 'Low book-tax conformity' occurs when there is a more significant difference between accounting profits and taxation profits, which contributes to the creation of deferred tax balances in the financial statements. The book-tax conformity levels, as well as the recognition criteria method used for financial reporting purposes, were also found to provide certain avenues for tax management manipulation or aggressive reporting (Guenther et al., 1997; Tang & Firth, 2011).

Malaysian public listed firms were also found using net DTL to avoid earnings reduction even when a proper corporate governance mechanism was in place (Kasipillai & Mahenthiran, 2013). Management behaviours in manipulating earnings could be mitigated with strong monitoring system championed by Board (although, research has shown that they can be influenced by age, tenure and education heterogeneity) and Audit Committees as well as increasing the disclosure requirements of the timing differences (Heltzer & Shelton, 2011; Moore, 2012; Nor Shaipah et al., 2018). Based on the above and to test the relationship between deferred tax balances and GBI and Non-GBI firm's financial performance, the hypotheses are as follow:

H3a – The net deferred tax balances resulting from the tax incentives enjoyed by the GBI firms will significantly affect their financial performance.

H3b – The net deferred tax balances holding by the Non-GBI firms will significantly affect their financial performance.

2.3.4. Leverage

The firm reduces the leverage in order to increase their cash balances. Dasgupta, Noe and Wang (2011) found that this action had a consequential effect on the firm's investment potential, which at the same time had led to an increase in leverage for the subsequent periods, as shown from their study on the sensitiveness of cash flows of firms listed in the New York Stock Exchange, the American Stock Exchange, and NASDAQ.

A firm without significant financial constraints should maximize shareholder value by maintaining an appropriate level of capital structure that balances the tax shield from debt. As Graham (2000) pointed out in his study that the tax benefit of debts was 9.7% of firm value. This finding would suggest that the firm should aggressively increase reliance on debt for external financing (rather than equity) by looking at its tax benefit functions. Nonetheless, high indebtedness may signify financial distress (Miroshnychenko, Barontini & Testa, 2017).

In the case of non-listed firms in Jordan, Khalaf et al. (2015) found out that leverage hurt profitability. Extremely high leverage can expose the firms to unnecessary and much greater risks on their financial performance (Borhan, Naina & Azmi, 2014; Wright, 1975). The choice of leverage, however, is an industry-specific decision (Islam & Khandaker, 2015).

Firms issue debt instruments to obtain cash proceeds, which are intended for various reasons. It is not uncommon for construction firms to issue bonds because of the reason that business nature is highly capital intensive. Cook, Fu, and Tang (2016) found that issuance of debts has adverse effects such as lower growth, higher tax liabilities, and high leverage deficit. Alternatively, a debt repurchase exercise would reduce highly leverage firms into a less business risk situation, which would increase its shareholder value as well as the effect of lowering tax liabilities.

Majumdar (2014) studies revealed that non-listed firms' borrowings depend on the capacity of their collateral, as they were unable to obtain financing from the capital markets. Therefore, the government should take positive steps to redefine the role of financial institutions or banks, into being a partner to encourage the growth of these firms rather than only be the source of credit. Sorana (2015) noted that listed manufacturing firm on the Bucharest Stock Exchange had recorded an improved performance as they relied more on equity funding rather than on debts.

Long term debt over total assets had also been used as a proxy to financial leverage by other recent research such as Chen and Gupta (2017) and Ballester (2017). Based on

the above arguments and to test the relationship between leverage level and financial performance of the GBI firms, the hypotheses are:

H4a – The leverage level will significantly affect the financial performance of the GBI firms.

H4b – The leverage level will significantly affect the financial performance of the Non-GBI firms.

2.3.5. Financial Performance

To be competitive in today's business environment, it is vital for any sector of the industry to specifically identify areas that could contribute significantly to the performance of the organization. Performance may be easily evaluated over a period of time within a firm, provided that the managers are aware of their historical business trends (Wright,1975). According to Malichov and Mária (2015), although, non-financial ratio indicators may also provide information on performance, the financial indicators can evaluate the firm's conditions more objectively and accurately based on previous development. It is indisputable that executive decisions influence the financial performance of any organizations consistent with their roles as the key decision-makers. Their decisions would display the ability to efficiently use the assets and manage the firm's operations to make a profit. Profitability ratios such as profit margin, return on equity, or return on assets are generally used for performance assessment purposes. According to Tahir and Razali (2011), these ratios are important to shareholders and potential investors because profitability influence the firm value. Thus, good results of the ratios attract higher investments, and for the creditors, they would imply repayment abilities.

The cost has always been an important element of a business as it influences the level of targeted profitability of any business venture. A firm involved in the construction industry incurs a higher cost of capital expenditure. Even more so if they are involved with green building development projects. Kim, Greene, and Kim (2014) found out that by comparing the construction of a traditional building and a green building, developers of the green building had to incur a cost of 10.8% higher than the construction of a traditional building.

Apart from constructing a green building, a developer must also be involved with the practice of a green building. Ballester (2017) and Miroshnychenko et al. (2017) revealed that a developer's green practices are closely related to the firm future market value as well as its profitability. According to Fan, Pan, Liu, and Zhou (2017), proactive construction of China firms in environmental management practices had seen some considerable

amount of growth in productivity and financial performance in both short term and long term. The profitability of insurance firms across Asia was found to be influenced by its size and volume of capital (Zainuddin et al., 2018). Romanian firms' performance was higher when they avoided debt and operated highly on lower debt to equity ratio (Sorana, 2015).

ROA was used as a proxy to measure financial performance in various contexts of study such as, for SMEs in Shuid and Noor (2012), manufacturing firms in Alexopoulos et al. (2018) and Japanese listed firms (Xie & Fukumoto, 2013). ROA was also used to evaluate banks' performance (Lin & Chang, 2016), as a proxy for investment projects or firm's quality (Awartani et al., 2016) and profitability (Zainuddin, Mahdzan and Leong, 2018). The ratio of profit before income taxes (PBIT) over total assets was used as a proxy of financial performance in the study similar to the measurement used by (Ezeoha, 2008). This measurement was selected as it may have a better indication of the tax incentives being studied.

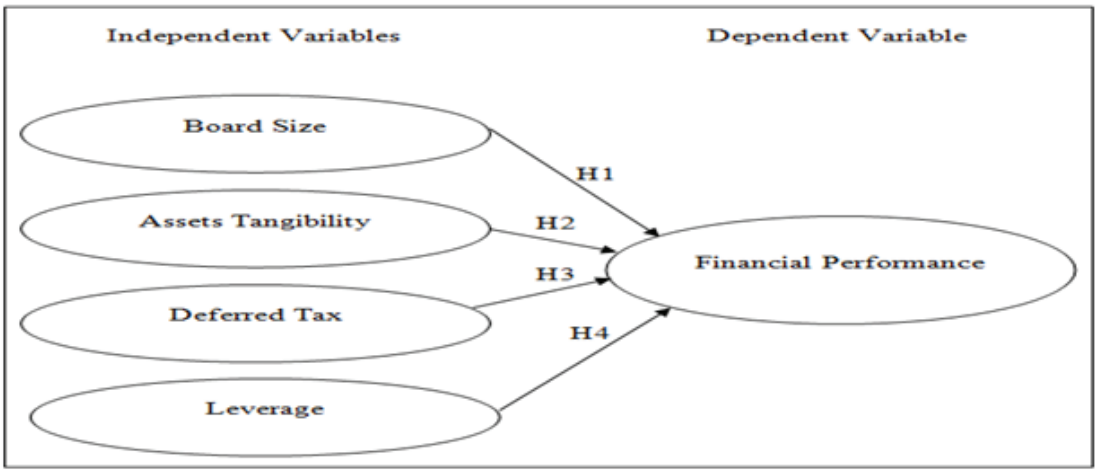

Figure 1: Research Framework.

The hypothesized relationships as illustrated in Figure 1 depict the relations between independent variables, which are the board size, asset tangibility, deferred tax balances and leverage, and the dependent variable, which is the financial performance of the GBI firms.

2.4. Theory of growth of the firm and firm's financial performance

A theory which is found to be very relevant to GBI performance in utilizing the tax incentives is the Theory of Growth of the Firm, which was developed by Penrose (2009). The theory explains the speed of a firm's growth and the related resources involved in

pursuing the firm's desirable growth rate. However, since firm resources are scarce due to costly general and administration expenses, the growth process would be dynamically affected. It was also argued that the average cost of output increased with the rate of growth rather than the production scale (Buckley & Casson, 2007).

This study focuses on identifying whether the financial characteristics influence the financial performance of GBI firms following the receiving of tax incentives. Various internal and external factors could have affected firm performance. According to this theory, internal development is synergized by realizing the opportunities that arise from the firm environment, with a precaution that the firm must also be aware of the conditions that it operates. The theory has laid out certain growth paths, which it believes would boost the generation of resources. These paths were identified as accessibility, mobilization, deployment, growth reinforcement, and growth reversal; the first three is argued to be the most critical. It further explains that opportunities are to be identified with decisions on the carried-out opportunities, and resources should be appropriately deployed.

Additionally, the mixture of financial resources, management team, experienced and skilled labour, and personality are considered as an important ingredient towards growth. Business founders are considered vital as their ambitions dictate the growth; including the relations that the founders might have with other stakeholders, such as colleagues and funders. The initial phase would generally revolve around the activities (including addressing issues) of identifying resources, perceived opportunities, as well as other related issues of resourcing. According to Woodward (1958), the firms' choice of business activity is vital as it has to establish the appropriate business model and maybe the needed technology. Oakey (1995) added that firms' inability to grow was mostly caused by the lack of expertise and insufficient funding for business operation. According to the theory, in order to grow the financial performance, a GBI firm is also influenced by the internal and external factors which are exposed and influenced by its environment.

3. Methodology

This study is quantitative research as it is focused on gathering numerical data, generalizing it, and finally explains the phenomenon that was observed. It relied primarily on the collection and analysis of numerical information by using a longitudinal design as the information or data was collected over three years. All public listed firms on Bursa Malaysia were considered as the population. Based on the Bursa Malaysia listing

sectors, firms categorized under the construction sector were identified. A content analysis was conducted on the firms' annual reports to identify whether the firms have been accorded with the GBI rating.

The data that was used for this study was secondary. A total of 66 listed firms on Bursa Malaysia were classified under the construction sector. A content analysis was conducted on all the 66 firms to identify those accorded with the GBI rating. The awarded GBI rating is usually mentioned in the non-financial section of the annual reports. The study assumed that if a green building rating was not specifically mentioned in their financial statement, therefore, any of related words, such as 'graded green building' or 'approved green building,' would serve as an indication that the firm is a GBI firm.

In the initial stage, the study had considered using the GBI projects registry from Green building index as the population base. However, it was found that to match each certified project to the individual construction firm was an uphill task as the directory did not make any reference to the firm's identity. According to the registry maintained at Green building index, 464 projects were awarded the GBI ratings as at 15 November 2018. Out of the 66 public listed firms, a total of 23 firms were found to have project(s) accorded with the GBI rating. Therefore, for the comparative study, the same number of 23 non-GBI firms were selected based on a non-probabilistic sampling method. The study used longitudinal data from three financial years; which was 2015 to 2017. The sample size was assumed as sufficient based on Sekaran and Bougie (2016) whose suggestion for the sample size range is considered appropriate for most research. Annual reports were downloaded from the Bursa Malaysia website (including reliable links off the site) or the firm's website. Data was hand-gathered from the directors' reports and financial statements, including relevant 'notes to the financial statements. When group annual financial statements were presented, the ratios were based on group results.

The unit analysis in the current study involved firms categorized under the construction industry and was accorded with the GBI rating, as well as the non-GBI firms. Firstly, the data extracted from the annual reports were systematically organized into a suitable template, which was created by using Microsoft Excel. Then, to produce simple statistics which allow observation of patterns in variables, the data were analyzed by using a descriptive analysis before it was further analyzed with the IBM SPSS. Outputs from the SPSS were then presented in the form of tables which can be further analyzed by multiple regression analysis.

A simple descriptive statistic is conducted to compare the mean and standard deviations between variables. Additionally, for the testing of hypotheses, the study used regression analysis. The regression model is as follows:

$$FP_j = \beta_0 + \beta_1 BSZ_{1j} + \beta_2 ASST_{2j} + \beta_3 DTB_{3j} + \beta_4 LEV_{4j} + \varepsilon_j$$

Where,

FP_j= Financial Performance

BSZ_{1j}= Board Size

$ASST_{2j}$= Asset Tangibility

DTB_{3j}= Deferred Tax Balance

LEV_{4j}= Leverage

4. Results and Discussion

4.1. Descriptive analysis for GBI and non-GBI firms

Table 1 shows that for the board size of the non-GBI firms, the mean was recorded at 6.94 and the standard deviation at 1.444 with a minimum of 5 and a maximum of 10. For GBI firms, the mean for board size was 8.20, and the standard deviation was 1.451, with a minimum of 5 and a maximum of 12. On average, non-GBI firms had a smaller board size compared to the GBI firms.

For asset tangibility, the non-GBI firms had a mean value of 0.17 and a standard deviation of 0.468 with 0 as the minimum and 0.391 as the maximum value. For GBI, the mean and standard deviation was 0.12 and 0.122, respectively, with 0 as the minimum and 0.569 as the maximum value. As both the GBI and non-GBI firms are in the construction sector, the asset structures were almost the same. Non-current assets formed 12% and 17% of the total assets of the GBI and non-GBI firms, respectively.

In terms of deferred tax balance, the non-GBI firms' mean and standard deviation was 9.05 and 31.612, respectively, with a minimum of 0 and a maximum of 164.48. For the GBI firms, the mean was 2.81, and the standard deviation was 8.827, while the minimum value was 0, and the maximum was 66.06. The deferred tax balance was lower for the GBI firms, which may indicate a relatively lower occurrence of future taxable profits.

The non-GBI firms' leverage recorded a mean value of 0.59 and a standard deviation of 0.583. The minimum value was 0, while the maximum value was 5.02. As for the GBI firms, the mean value of leverage was 0.52, and the standard deviation was 0.153, with a minimum of 0.18 and a maximum of 0.89. Both GBI and non-GBI firms had

Table 1: Descriptive Statistics for Variables by Rating.

Variable		Descriptive Statistics			
	Ratings	Mean	Std. Deviation	Minimum	Maximum
Board Size	Non-GBI	6.94	1.444	5	10
	GBI	8.20	1.451	5	12
Asset Tangibility	Non-GBI	0.17	0.468	0.00	3.91
	GBI	0.12	0.122	0.00	0.569
Deferred Tax Balance	Non-GBI	9.05	31.612	0.00	164.48
	GBI	2.81	8.827	0.00	66.06
Leverage	Non-GBI	0.59	0.583	0.00	5.02
	GBI	0.52	0.153	0.18	0.89
Financial Performance	Non-GBI	0.08	0.105	0.00	0.83
	GBI	0.06	0.391	-0.06	0.18

almost the same mean value, which indicated almost similar dependence over debt for the industry. Additionally, non-GBI firms seem to be highly geared by reference to the higher maximum value of 5.02 against 0.89 for the GBI firms.

One of the objectives of the study intended to compare the performance of the GBI and non-GBI firms. It is noted that the financial performance of the non-GBI firms had a mean and standard deviation of 0.08 and 0.105 respectively, with a minimum of 0 and maximum of 0.83. For the GBI firms, the mean and standard deviation was 0.06 and 0.39, respectively. The minimum was -0.06, and the maximum was 0.18. Non-GBI firms' profitability was marginally higher than that of the GBI firms.

4.2. Test of differences

Table 2 indicated that the mean scores of board size are statistically different at 0.01 ($p<0.01$). It is concluded; therefore, that mean scores on board size differ between ratings. It can be seen that GBI firms had a higher number of board size compared to non-GBI firms. However, the mean scores of asset tangibility are not significant at 0.05 ($p>0.05$), indicating that there is no difference in asset tangibility between the two ratings, the mean scores towards asset tangibility are almost the same. The same goes for the mean scores of deferred tax balance. They are not significant at 0.05 ($p>0.05$), indicating that there is no difference in deferred tax balance between the two ratings. The mean score for leverage also not significant at 0.05 ($p>0.05$), indicating that there is no difference in leverage between the ratings. Indicating that in any group of ratings, the mean scores towards leverage are almost the same.

Table 2: Summary Statistics of Mann Whitney Test on Difference between GBI and non-GBI.

Variable	Ratings	Mean	t-value	p-value
Board size	GBI	1.451	-5.117	0.000**
	Non GBI	1.444		
Asset Tangibility	GBI	68.42	-0.317	0.751
	Non GBI	70.58		
Deferred Tax Balance	GBI	70.1	-0.177	0.86
	Non GBI	68.9		
Leverage	GBI	73.88	-1.288	0.198
	Non GBI	65.12		
Financial Performance	GBI	70.1	-0.177	0.86
	Non GBI	68.9		

4.3. Correlation analysis

Table 3 shows that the number of board members, which is the proxy for board size, is negatively and moderately correlated with financial performance (r = -0.506; p<0.01). To a moderate extent, an increase in the number of board members is associated with a decrease in financial performance, and vice versa. Leverage also has a negative, but low correlation (or weak relationship) with financial performance (r = -0.269; p<0.05) that is, to a low extent, an increase in leverage will decrease financial performance and vice versa.

The result also shows that asset tangibility and deferred tax balance do not have a significant correlation (or no relationship) with financial performance as statistically; the p-value is more than 5%. On average, there is no relationship between asset tangibility (p=0.396 p>0.05) and deferred tax balance (p=0.228, p>0.05) with financial performance.

Table 3: Summary statistics of correlation analysis between the variables for GBI firms.

Variable	Financial performance	
	Pearson Coefficient of Correlation (r)	p-value
Board size	-0.506	0.000**
Asset Tangibility	-0.104	0.396
Leverage	-0.269	0.025*
Deferred Tax Balance	-0.147	0.228
*Significant at 0.05		
** Significant at 0.01		

Table 4 indicates that board size and asset tangibility are positively and moderately correlated with financial performance (r = 0.306; p < 0.01), (r = 0.335; p < 0.05) for

non-GBI firms. To a moderate extent, an increase in the number of board members and the value of non-current assets in the non-GBI firms will improve their financial performance and vice versa. The result also shows that there is no significant correlation or relationship between deferred tax balance and leverage with the financial performance of these firms as the *p*-value is more than 5%. On average, the deferred tax balance and leverage does not have any relationship with financial performance.

TABLE 4: Summary Statistics of Correlation Analysis between the Variables For Non-GBI Firms.

Variable	Financial Performance	
	Pearson Coefficient of Correlation (r)	p-value
Board size	0.306	0.010*
Asset tangibility	0.335	0.005**
Leverage	-0.004	0.976
Deferred tax balance	-0.104	0.396
*Significant at 0.05		
** Significant at 0.01		

4.4. Regression analysis

In the regression equation, the dependent variable, financial performance, is analyzed against the board size, asset tangibility, deferred tax balance, and leverage, which are the independent variables.

Based on the analysis from Table 5, the regression equation is statistically significant at 0.05 ($p < 0.05$), implying that there is an association between financial performance and any or all of the independent variables. However, the adjusted R-square value being 0.217 means that the four independent variables as a whole account for 22% of the variation in the dependent variable (financial performance). Therefore, the effect of board size, asset tangibility, leverage and deferred tax balance as a whole on financial performance value is low (Hair, Hult, Ringle, & Sarstedt, 2014) There are other variables that exert much more influence on financial performance but beyond the scope of this study. A VIF value of 5 or higher indicates a possible multicollinearity problem (Hair et al., 2014). Since the VIF value is lesser than 5 (between 1.112 to 1.358), there is no collinearity problem with the model used. The following table presents the summary statistics of the estimated regression equation.

Looking at the individual regression coefficient, one finds that only the coefficient of board size and leverage are statistically significant at 0.01 ($p < 0.01$) and 0.05 ($p < 0.05$).

Table 5: Estimated Regression Equation for GBI Firms.

Variable	Coefficient	t-value	p-value	Collinearity Statistics	
				Tolerance	VIF
Board size	-2.387	-3.383	0.001**	0.900	1.112
Asset Tangibility	-6.636	-0.746	0.458	0.736	1.358
Leverage	13.411	1.901	0.042*	0.895	1.118
Deferred Tax Balance	14.012	0.480	0.633	0.807	1.239
F	3.599		0.010*		
Adjusted R^2	0.217				
* Significant at 0.05					
** Significant at 0.01					

Hence, H1a and H4a are supported. Whereas, asset tangibility (H2a) and deferred tax balance (H3a) are not. The coefficient of board size with a value of -2.387 means that an increase in board size decreases financial performance. This is consistent with the findings by Cheng et al. (2008), Nguyen et al. (2016) and Xie & Fukumoto (2013); a larger board size has a negative relationship with performance. While the positive coefficient of leverage (13.411) indicates that an increase in leverage leads to an increase in the firms' performance. The changes in asset tangibility and deferred tax balance have no impact on financial performance value.

Table 6: Estimated Regression Equation For Non-GBI Firms.

Variable	Coefficient	t-value	p-value	Collinearity Statistics	
				Tolerance	VIF
Board size	-7.055	-2.794	0.007**	0.735	1.360
Asset Tangibility	47.977	1.930	0.048*	0.838	1.193
Leverage	-24.845	-1.686	0.097	0.921	1.086
Deferred Tax	-124.262	-1.662	0.101	0.815	1.227
F	3.121		0.021*		
Adjusted R^2	0.163				
* Significant at 0.05					
** Significant at 0.01					

The adjusted *R*-square value (Table 6) being 0.163 means that the four independent variables as a whole account for 16 percent of the variation in the dependent variable (financial performance). The effect of board size, asset tangibility, leverage, and deferred tax balance as a whole on performance value at 16% is considered low (Hair et al., 2014). However, other variables may have much more influence on financial performance but are beyond the scope of this study. The VIF value of between 1.086 to 1.360 indicates that there is no collinearity problem with the model used.

Looking at the individual regression coefficient, one finds that only the coefficient of board size and asset tangibility are statistically significant at 0.01 (p<0.01) and 0.05 (p<0.05). Therefore, H1b and H2b are supported. Whereas, deferred tax balance (H3b) and leverage (H4b) are not supported. The coefficient of board size (-7.055) and asset tangibility (47.977) means that an increase in board size decreases performance and that an increase in asset tangibility increases the financial performance. Changes in the value of leverage and deferred tax balance, however, have no impact on financial performance.

Similar to GBI firms, the board size, and financial performance have a negative relationship (Cheng et al., 2008; Nguyen et al., 2016). The positive relationship between asset tangibility and financial performances is similar to the findings of the study by Jezovita (2016) and Khalaf et al. (2015). Since non-GBI firms do not enjoy the benefit of tax incentives as compared to GBI firms, changes in deferred tax assets arising from the ITA do not have any effects on their financial performance.

The circumstances of improved financial effect are in line with the study by Graham (2000), who highlighted that the tax benefits account for 9.7% of the firm value. Leverage was also found to have positive effects on financial performance from studies by Kartikasari and Merianti (2016), Kumar (2014) and Singapurwoko and El-Wahid (2011). The findings by this study, however, contradict with other studies which had shown a negative relationship between leverage and financial performance, such as by Borhan et al. (2014), Cook et al. (2016), Khalaf et al. (2015), and Wright, (1975).

The asset structure is firm-specific (Koralun-Bereznicka, 2013), and depending on the industry, may not affect financial performance (Zainuddin et al., 2018). The effect of deferred tax in the financial statements need not be recognized if the underlying assets and liabilities are recorded at the present value of their associated future cash flows. Guenther and Sansing (2000) had shown that if tax deductions are not taken up when expenditure such as depreciation is made, the value of deferred tax account is independent of when that account will reverse.

Deferred taxes have been used for earning management purposes (Guenther et al., 1997; Kasipillai & Mahenthiran, 2013; Sundvik, 2017; Tang & Firth, 2011), but have no direct effect on firms' financial performance. Even to the extent of "*the firm's income increasing, decreasing, or smoothing choices may be embedded in the deferred tax component; some of which is not explicitly disclosed elsewhere in the financial statements*," according to Chaney and Jeter (1994). It was not an easy task for the firms to obtain the GBI certifications in order to be eligible for the ITA, as discussed earlier in this study. However, the deferred tax balance as a proxy to the ITA can be seen as not

an effective policy in improving the financial performance of GBI firms. This is consistent with the findings of (Abd Hamid, 2015) in the study of the Malaysian SMEs and their corresponding tax incentives.

The effect of board size, asset tangibility, deferred tax balances and leverage on both the GBI and non-GBI firms were low as signified by the low adjusted *R*-square values of 21.7% and 16.3%, respectively. This is consistent with the Theory of Growth of the Firm, which emphasizes that the environment as well as the internal development of resources, plays an essential role in the firms' growth rather than the identified financial characteristics identified in this study.

5. Conclusion and Implications

Results showed that board size and leverage had a relationship with GBI firm's financial performance. Meanwhile, board size and assets tangibility had a relationship with the non-GBI firms. There were no significant differences between GBI and Non-GBI firms regarding financial performance and financial characteristics. The tax incentives did not directly improve the firm's performances. The study found that profitability levels were not affected by the green building recognitions awarded to the firms within the construction industries. In other words, construction firms were indifference even with the adoption of better construction practices. The authorities may also need to review their tax incentives policies to promote better competitive advantage between these firms for the reason that the certified GBI firms had put in efforts and commitments in gaining the recognition yet could not generate better returns than the non-GBI firms.

The study adds to the limited taxation incentive knowledge and literature in Malaysia. The study could add value or contribute to knowledge to green technology as there were not many studies in the area. Therefore, this study may be of some guidance for future GBI and tax incentives research. Since the samples were from the Malaysian public listed firms within the construction industry, therefore it may not be applied to other industries. Future research shall be extended to other types of firm in order to gain a broader result about the tax incentives on Malaysian GBI firm performance. It will show a better indicator of the Malaysian scenario. The researcher may also include other factors, such as technology, human resource (in terms of numbers of staff) and their knowledge, as discussed by the Theory of the Growth of the Firm. Besides, the result of this study may also be extended by interviewing the project owners of the building awarded with GBI. The researcher may further explore whether the tax incentive given had benefitted them with regards to their firm's performance in the long run.

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