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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Components of book tax differences, corporate social responsibility and equity value

Tye Wei Ling^{1*} and Nor Shaipah Abdul Wahab²

Abstract: This study examines the relationship between components of book-tax differences (BTD), corporate social responsibility (CSR) and market value of equity in Malaysia. The sources that impact BTD are unclear as previous studies incline to focus on aggregated BTD. By analysing the data of 373 Malaysian non-financial public-listed companies from 2008 to 2015 using balanced-panel regression models, the findings provide evidence on shareholders' valuation of permanent and temporary differences in the presence of CSR. Consistent with legitimacy theory, in which companies are theorised to conduct activities to appear legitimate in the eye of the shareholders, CSR is found to affect equity value positively. This suggests that the companies achieve their objectives to appear legitimate through CSR activities. As permanent differences and temporary differences imply the extent of companies' tax planning activities through strategic and deferral tax planning, this study finds negative relationship between permanent differences and temporary differences, and equity value. This suggests that the shareholders are reluctant to incrementally value tax planning activities through permanent differences and temporary differences due to the activities' inherent risk. In addition, this study finds shareholders simultaneously and positively value permanent and temporary differences, when CSR and the BTD components interact, suggesting that the strength of

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PUBLIC INTEREST STATEMENT

This paper examines shareholders' valuation of the components of book-tax differences in the presence of corporate social responsibility. Specifically, permanent differences, temporary differences and statutory tax rate differences are analysed for their direct and moderating roles in the equity valuation of a company with the presence of CSR. This research is significant to its field as it can provide an indicator to the Malaysian government in assessing the current tax regime in their effort to reduce the national tax gap. As CSR is often observed to be critical in influencing the tax strategies of a company, the former is introduced into the study as a moderating variable on the relationship between components of book-tax differences and equity value. Therefore, the findings of this study are useful to the public and authority to assess the effectiveness of CSR in influencing shareholders' valuation on the gaps between tax theoretically due and tax actually collected at the micro level.

the initial relationships between permanent differences, temporary differences and equity value are depending on the company's CSR engagement.

Subjects: Financial Accounting; Financial Statement Analysis; Corporate Social Responsibility

Keywords: book tax differences; corporate social responsibility; equity value; permanent differences; statutory tax rates differences; temporary differences

1. Introduction

Unfavourable effects of tax gap on the governments' provision for public goods are of a global concern. United States was estimated to lose \$188 billion and China at \$66.8 billion of tax revenue annually (World Economic Forum, 2017). The loss of government revenue due to tax gap is alarming and this becomes a burden to the government in their efforts to provide for public spending, in particular, on health, education, unemployment and capital expenditures. Many countries, in their strategies to reduce the tax gap at the country level, participate in the Organisation for Economic Co-operation and Development's (OECD) base erosion and profit shifting (BEPS) project to combat tax planning through manipulations of tax differences across jurisdictions. The project consists 15 action plans that attempt to increase restrictions on multinational companies to conduct tax planning via income shifting through which, if unsuccessful, countries' tax gap will increase (OECD, 2018) along with increments in book tax differences (BTD). The project attracts many countries from developed and developing economy classes, including Malaysia. This joint effort is crucial to Malaysia in the government's strategy to reduce national tax gap as corporate taxes are the largest contributor to the government revenue (Abdul Wahab, 2015).

With two consecutive years of 20% tax gap from 2015, Malaysia suffers approximately RM47 billion loss of tax revenue (New Straits Times, 2017). The government attempts to combat the issue of tax gap by increasing the penalty for unpaid tax to a 100% compared to a 45% penalty in previous years (The Star Online, 2017). Following this, the tax authority, Inland Revenue Board of Malaysia (IRB), the Central Bank of Malaysia and the Malaysian Anti-Corruption Commission have worked collaboratively to supervise and monitor the companies' tax returns (New Straits Times, 2017). In cases when companies failed to make payments after receiving notices from the IRB, there was a law suit followed by a nationwide disclosure of the company's identity. The efforts by the authorities signify that issues of large tax gap and BTD are of public's concern of which debates on what constitutes a fair share of tax by companies have been raised surrounding the ultimate effects of the BTD on the intrinsic social value (Slemrod, 2004) and economic developments (The World Bank, 2014).

The amount of tax that a company should pay can form a part of the company's social responsibility under the concept of social capitalism (Elkington, 1997), which can affect shareholders' wealth. Previous research finds evidence of shareholders' negative reflections on dispersions of a company's actual tax expense from its statutory tax (Abdul Wahab & Holland, 2012). Similarly, companies' engagements in CSR also affect shareholders' value (Becchetti, Ciciretti, Hasan, & Kobeissi, 2012). However, evidence on the combined effects of BTD components and CSR on equity value is generally scarce.

Paragraph 80 of MFRS 112 Income Tax of the Malaysian Financial Reporting Standards (MFRS) requires companies to disclose their tax expense together with the components. The components stated in the standard are current year tax expense, prior year tax expense, current year deferred tax expense due to write downs or reversal of write downs, current year deferred tax expense due to changes in tax rates or in tax legislations and prior year unrecognised deferred tax expense (MASB, 2014). The disclosure requirements of MFRS 112 Income Tax thus allow for the examinations of BTD through the breakdown of its components, comprising permanent differences, temporary differences and statutory tax rates differences (Abdul Wahab & Holland, 2015). Therefore, it is possible to study

BTD by examining the components as the source of aggregated BTD. However, such evidence is limited in taxation and CSR studies, especially in examining the components of BTD.

As BTD can be disaggregated into permanent, temporary and statutory tax rates differences, we, therefore, raise a question, what are the effects of combined BTD components and CSR on equity value? Analysing BTD components' and CSR' effects on equity value simultaneously allows for an assessment on whether shareholders consider companies' stance on society affairs in their BTD-sources valuation. The different nature of BTD components can then provide insights on the sources of BTD that impact equity value.

From the legitimacy perspective, linking BTD and CSR in equity valuation drives an inference that companies engage in CSR, among else, to appear legitimate in the eye of the shareholders despite their significant amount of BTD. The compensating perspective of sources of BTD and CSR from shareholders' point of view is however unclear. For example, permanent differences component of BTD implies strategic tax planning activities while temporary differences are relating to deferral strategies of tax planning (Abdul Wahab and Holland, 2015). Therefore, components of BTD, with the presence of CSR and the combination of levels of permanent differences, temporary differences and statutory tax rate differences, may provide offsetting implications on perceived benefits of tax planning activities. It is thus this study's aim to investigate the different nature of relationships between components of BTD, comprising permanent differences, temporary differences and statutory tax rates differences, corporate social responsibilities (CSR) and equity value.

In particular, CSR is examined for its effects on the equity valuation of BTD components, consisting permanent differences, temporary differences and statutory tax rates differences. BTD measure the variations between pre-tax accounting income and taxable income at a company level. Collectively, companies' BTD contribute to a country's tax gap, which the positive magnitude signifies lower actual tax revenue compared to tax theoretically due.

This study analyses the company tax, CSR, equity value and other firm-specific data of 373 Bursa Malaysia-listed companies from 2008 to 2015 using balanced panel regression estimations. CSR is hypothesised to moderate the relationship between components of BTD and equity value as CSR is expected to be able to offset the unfavourable shareholders' value on BTD following the company's legitimate appearance created by CSR. The results provide evidence on significant direct and moderating relationships between permanent differences, temporary differences, CSR and equity value. In specific, shareholders value permanent and temporary differences negatively but CSR positively. Interestingly, CSR is found to moderate the relationship between BTD components and equity value in a positive manner. This implies shareholders' consideration on company CSR engagements when reflecting on permanent and temporary differences. We, however, find no evidence on the significant shareholders' valuation of statutory tax rates differences. The findings of this study are useful to regulators when evaluating the contributing factors to the country's tax gap. This study can also be beneficial to shareholders through the insights on the sources of BTD that can affect their wealth through equity value. The findings also contribute to the taxation and CSR literature in providing further empirical evidence on valuation of company BTD levels and CSR engagements based on differing nature BTD components. Industry players can also utilise the findings as an insight to improve their CSR policies in order to reduce the detrimental effects of their tax strategies.

This paper proceeds with the next section on literature review and hypotheses development. This is followed by research design and the section on results and discussions. Further tests are discussed in the sensitivity analysis section. Finally, conclusion section concludes the paper.

1.1. Literature review and hypotheses development

According to Paragraph 79 of MFRS 112 Income Tax, tax expense (income) of companies should be disclosed separately in the notes to financial statements in accordance to its major components

(Malaysian Accounting Standards Board, 2014). Paragraph 80 of the standard provides further descriptions on the tax items that should be included in the disclosure for components of tax expense. Components of tax expense include items related to current tax expense (income), prior period adjustment, deferred tax expense (income), temporary differences and changes in tax rates. These tax items required by the standard are the tax items related to BTD for listed companies in Malaysia.

BTD arise from the differences between taxable income and pre-tax accounting income (Abdul Wahab, Ntim, Mohd Adnan, & Tye, 2018). The differences can be a signal of tax planning and earnings manipulation to shareholders in assessing future performance of the company (Abdul Wahab & Holland, 2015) as companies with large BTDs are often associated with high risks, including reputational risks (Abdul Wahab, 2016). This is because large BTD provide hints on irresponsible tax affairs to the authority, hence the increase of the likelihood for the companies to be tax audited. This can then increase potential risks of the company to incur higher tax settlements (Drake, Lusch, & Stekelberg, 2019) than the reported expenses. Previous studies also associate large BTD with indications of tax sheltering activities (Desai & Dharmapala, 2006; Wilson, 2009). Although BTD can be detrimental to equity value, companies' engagement in social responsibilities can set-off the unfavourable shareholders' reflections following the company's legitimate appearance created through CSR. This is consistent with legitimacy theory (Scherer, 2018) and findings by previous studies on the positive association between share price and company CSR levels (e.g. De Klerk, De Villiers, & Van Staden, 2015; Reverte, 2016; Tye & Abdul Wahab, 2018).

Legitimacy theory of CSR was developed based on the notion that there is inherent social power in all companies. This social power is derived from the combination of supportive actions by relevant stakeholders in a company. When the legitimacy status of a company improves, this will result in an increment of the company's social power. Companies thus view legitimacy as a vital resource that is needed to sustain the company's operations (Suchman, 1995). A company with high legitimacy has rights to operate in the jurisdiction while a company with low legitimacy loses rights for operation in that same jurisdiction. Based on this, companies are theorised as to actively seek for legitimacy to protect its shareholders' interest.

The concept of legitimacy is also important for the inflow of resources, such as labour, customers and capital (Hybels, 1995). When a company is able to establish its legitimacy status, indirectly, this suggests that the company has the support from its stakeholders to improve and protect the interest of the company against any relevant threats. In such circumstance, the company would have higher access to resources from relevant stakeholders, and increased capability to protect and enhance the company's interest. Due to this, the legitimacy status of companies needs to be established, enhanced and defended from the companies' rivals. Should they fail to protect their respective legitimacy status, the companies will lose their legitimacy and eventually be unable to continue their operations. The rivals of these companies will then step up and assume the legitimacy status (Davis, 1960). For a company to maintain its legitimacy status, it needs to build relationship with the community that it is operating in. Building relationship with the community would mean that companies have to create a sense of belonging within the community itself. This sense of belonging can be attained when the company operates within the expected social values of the community.

In summary, legitimacy theory views companies as social institutions with social power which is managed using "social power equation" and "iron law of responsibility" (Davis, 1960). The social power of a company is derived from a collection of actions of the company's relevant stakeholders who, at the collusion level, are groups of individuals that support, improve and protect the company's interest (Lanis & Richardson, 2016). Therefore, in order for a company to sustain its business operations, legitimacy is necessary. Companies thus frequently seek for legitimacy to operate and appeal for capital, labour and customers. Constant effort is crucial for the company to build, maintain, improve and defend its legitimacy status.

In the legitimate appearance context, companies establish legitimacy by seeking for approval for its existence from their various stakeholders, including on the various extents of their BTM levels. BTM is a proxy used by literature to indicate the extent tax planning and earnings management that the companies have carried out (Abdul Wahab & Holland, 2015). At the aggregate level, companies with high BTM are the main contributor to the country's tax gap. This is viewed as unfavourable position by the authorities and government. High BTM companies are also perceived as failed to fulfil their responsibility to pay their fair share of tax and the phenomenon is a tough challenge to the authorities (Sikka, 2010). Besides, the unfair share of tax by companies provides hints on weak enforcements by the regulatory bodies, which can be politically detrimental to the government as the shortfall of tax revenue collected by the authorities is against the expectations of the community and society because the national tax gap can negatively affect the societal well-being, including through limited funds to maintain, develop and support national projects for the welfare of the society (Williams, 2007). Therefore, companies with high BTM have tendencies to practice CSR to legitimise its action to avoid repercussion from its tax activities. As BTM comprise of three components that reflect variations of BTM sources, namely permanent differences, temporary differences and statutory tax rates differences (Tye & Abdul Wahab, 2018), the reflections of shareholders on BTM with the presence of CSR may vary depending on the nature of the components. However, as previous studies tend to examine the BTM in aggregated manner, the evidence of the association between BTM components, CSR and equity value is limited.

Permanent differences arise when the differences between the accounting and tax income are irreversible and in turn generate permanent tax saving. This is due to different reporting regulations between accounting and taxation, and manipulation of accrual policies, which can cause recognition variations between the accounting and tax incomes (Raedy, Seidman, & Shackelford, 2011). As permanent differences can also be associated with aggressive tax reporting (Balakrishnan, Blouin, & Guay, 2019; Frank, Lynch, & Rego, 2009), shareholders may value permanent differences as risks that affect shareholders' wealth. From the positive point of view, permanent differences can be valued by shareholders upwardly as the risks entailed by permanent differences are expected to increase shareholders' return. On the other hand, shareholders may value permanent differences negatively as the risk related to permanent differences are related to reputational risk (Abdul Wahab, 2016) that can tarnish the sustainability of the companies. Based on the mixed findings from the literature on CSR and permanent differences, the impacts of CSR and permanent differences on shareholders' valuation are hypothesised in a non-directional form:

H1a: With the presence of CSR, there is a significant relationship between permanent differences and equity value.

As companies that exhibit large permanent differences can be associated with aggressive tax planning (Gaertner, Laplante, & Lynch, 2016), the negative views by shareholders on permanent differences can be compensated with companies' CSR level as the latter is perceived as able to minimise the risks of harmful consequences of the former through the company's legitimate appearance in the eye of the shareholders and authorities, including through CSR disclosure (Holland, Lindop, & Zainudin, 2016). By demonstrating CSR engagements, companies can then "socially" justify their tax strategies, through which the appealing socially responsible atmosphere drives the perceptions of "legitimised" permanent tax benefits among shareholders (Whait, Christ, Ortas, & Burritt, 2018). This suggests that the CSR practices of a company has a potential to moderate the relationship between permanent differences and equity value as hypothesised below:

H1b: Company's CSR engagements significantly moderate the relationship between permanent differences and equity value.

The second component of BTM, i.e. temporary differences, as compared to permanent differences, varies in its effects on tax benefits across times. From the financial reporting perspective, while

deferral effects of temporary differences postpone the tax expense to the future periods, which is demonstrated through increased (reduced) deferred tax liabilities (assets), the early recognition of tax liability increases (reduces) deferred tax assets (liabilities) (Shackelford, Slemrod, & Sallee, 2011). Temporary tax differences demonstrate temporal flexibilities that the company has utilised to defer their tax payments, through which the cash flow benefits can be generated because the companies with a significant amount of temporary difference have the flexibility to choose the period to recognise or expense-off the deferred tax. Through this method of tax deferral strategy, companies have a better control over their cash outflows, allowing for better cash management that increases the companies' efficiency and effectiveness in decision making for large scale investments.

CSR on the other hand is generally a legitimating tool for companies to promote sustainable operations (Scherer, 2018). Sustainable operations are vital for a company's survival especially in a competitive market because companies need to differentiate themselves from their rivals. The extent through which a company can maximise the benefits from tax deferral strategies using temporary differences is dependent on the effectiveness of the company's sustainable operations. With the presence of CSR, shareholders may positively value temporary differences with the perception that the BTM component can increase the companies' cash flow. However, given the temporary effects of the saving from temporary difference, shareholders may detrimentally value the temporary differences. It is therefore hypothesised in a non-directional form that temporary differences are directly related to equity value:

H2a: With the presence of CSR, there is a significant relationship between temporary differences and equity value.

In line with the legitimacy theory (Dowling & Pfeffer, 1975; Drake et al., 2019), companies may also strategise to reap (delay) tax benefits when their CSR engagement levels are high (low) to maintain the companies' legitimacy status within the society whilst simultaneously securing the tax benefits in the long run. This suggests that the level of CSR can affect the level of aggressiveness of tax deferral strategies of a company. It is therefore hypothesised that CSR has a moderating effect on the equity value of temporary differences:

H2b: Company's CSR engagements significantly moderate the relationship between temporary differences and equity value.

Statutory tax rates differences, the third component of BTM, are associated with companies that have business operations across multiple jurisdictions. The differences imply companies' strategic tax planning activities to generate tax benefits by utilising their overseas permanent establishments that are subject to favourable tax regimes, including through transfer pricing (OECD, 2018). Taxation literature associates the activities with BPS (Piantavigna, 2017). In their efforts to maintain legitimacy status while generating tax benefits through statutory tax rates differences, companies strategise their CSR activities up to the optimum level to moderate potential adverse effects of statutory tax rates differences on equity value. This is particularly effective within the developing countries as the expectations on company CSR practices are relatively lower in the particular economic climates than the developed countries counterpart (Fisher, 2014). Thus, with the presence of CSR, shareholders are expected to value statutory tax rates differences positively as tax planning strategies through statutory tax rates differences reflect strategic tax management. However, as statutory tax rates differences can widen the risks of the companies to be caught at the international level, shareholders may value the statutory tax rates negatively. It is therefore hypothesised in a non-directional form that:

H3a: With the presence of CSR, there is a significant relationship between statutory tax rates differences and equity value.

Global expectations on CSR practices also affect companies' strategic tax policy on the utilisation of statutory tax rate differences. It has been world-widely accepted that, in line with the expectation on companies' CSR activities, companies should practise responsible tax planning strategies. Combining both arguments on CSR and responsible tax strategies leads to the expectation on socially responsible tax payment (Tye & Abdul Wahab, 2018). Responsible tax planning strategy implies that the company considers its CSR obligations before deciding the extent of its tax planning practices using statutory tax rate differences. Given the inherent risk of statutory tax rates differences at the international level, CSR may moderate the equity valuation of tax planning through statutory tax rates difference. It is therefore hypothesised that:

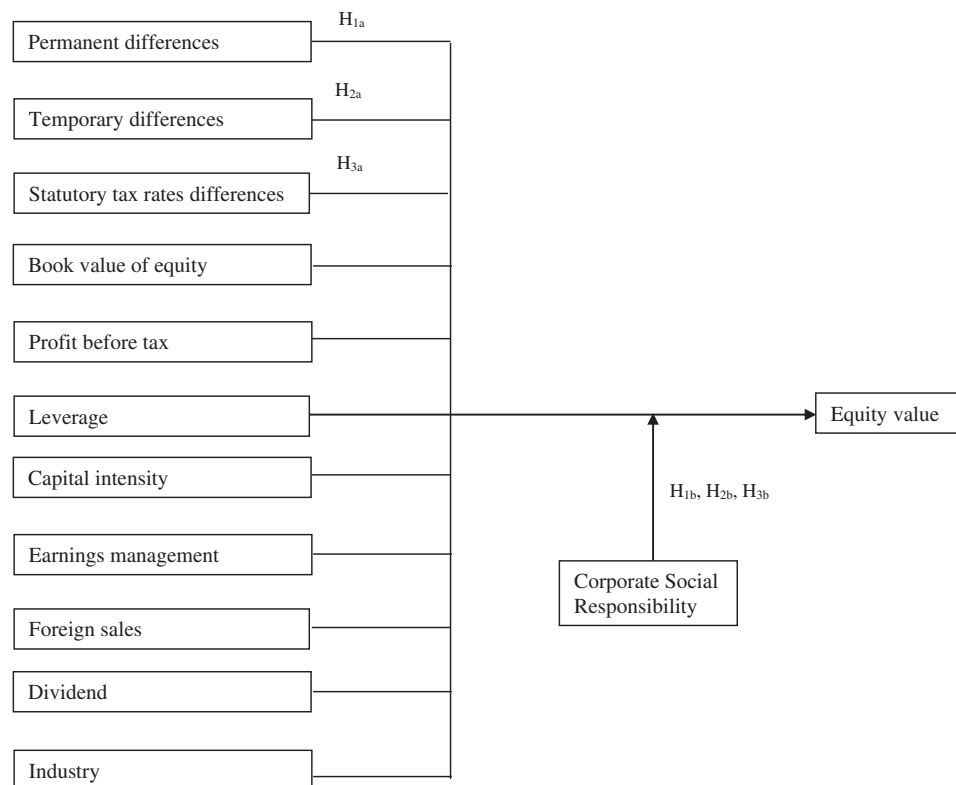
H3b: Company's CSR engagements significantly moderate the relationship between statutory tax rates differences and equity value.

In summary, legitimacy is the underpinning theory of the arguments related to the relationship between components of BT, CSR and equity value as presented in Figure 1. Previous literature, however, is limited in providing empirical evidence of direct and indirect effects of CSR on valuation of BT components. This restricts researchers from drawing the conclusions on shareholders' valuation based on sources of BT whilst considering company CSR engagement, following the arguments of different nature of BT components and compensating effects of CSR on company tax affairs.

2. Research design

The sample of this study is the non-financial Malaysian companies listed on the main market of Bursa Malaysia from 2008 until 2015. Public-listed companies are chosen as the financial statements are publicly available to allow for tax- and CSR-related data collection. Year 2008 is to control for corporate tax reform from which the single tier system has first been implemented to replace the imputation system. The period ends with 2015 to control for bias of IRB's

Figure 1. Research framework.



aggressiveness in tackling aggressive tax planning in 2016, in which the Aggressive Tax Planning Division was established (Inland Revenue Board, 2016). This can cause fluctuations of BTM between the years. To ensure consistencies in disclosure currency, a company that used foreign monetary value in the financial disclosure was filtered from the sample. Further, to control for bias of reporting period, companies that had changed their accounting year-end (41 companies) were excluded from the sample. Companies that have non-consecutive eight years of annual reports (seven companies) were also excluded from the sample selection. To control for non-recurring items, companies with extreme value of BTM were filtered based on 5th percentiles (137 companies). This sample selection process results in an initial sample of 422 companies.

The tax and CSR data is hand-collected from company annual reports as the data is not electronically available. Other financial-related data is collected from *Refinitive Eikon Datastream* (formerly known as *Thomson Reuters Datastream*). The industry classification is derived based on Bursa Malaysia's sector categories.

2.1. Measurement of components of book tax differences

Consistent with Abdul Wahab and Holland (2015), we begin the calculation of BTM components with temporary differences. Paragraph 15 of MFRS 112 includes deferred tax liability in its taxable temporary differences and excludes initial recognition of goodwill, initial recognition of assets or liabilities which are not related with business combination and neither relating to accounting profit nor taxable profit (MASB, 2014). The standard requires companies to recognise taxable temporary differences that are related with investments in subsidiaries, branches and associates, and interests in joint venture explicit as deferred tax liability. We derive temporary differences by dividing current deferred tax expense with the domestic statutory tax rates as in Equation (1):

$$TD_t = \frac{CDTE_t}{STR_{domestic_t}} \quad (1)$$

Where TD is temporary differences, $CDTE$ is current year deferred tax expense and $STR_{domestic}$ is Malaysian statutory tax rate.

The statutory tax rates differences component of BTM is as disclosed in the tax footnotes. As BTM comprise permanent differences, temporary differences and statutory tax rates differences, arranging Equation (2) to derive permanent differences leads to Equation (3):

$$BTM_t = PD_t + TD_t + STRD_t \quad (2)$$

Where PD is permanent differences and $STRD$ is statutory tax rates differences.

$$PD_t = BTM_t - TD_t - STRD_t \quad (3)$$

As BTM is a measure of the deviation of taxable income from accounting income, Equation (3) can be extended as in Equation (4).

$$PD_t = PBT_t - TI_t - TD_t - STRD_t \quad (4)$$

Where PBT is pre-tax income and TI is estimated taxable income derived by deducting $STRD$ from the grossed up amount of current tax expense with domestic statutory tax rates.

2.2. Measurement of corporate social responsibilities

This study measures company CSR score based on *Asset4 ESG* from *Refinitive Eikon Datastream* of which equal-weighted-rating index is used. The index is constructed based on a balanced estimation of CSR performance from four CSR aspects, consisting economic, environmental, social and governance (Thomson Reuters, 2010). As BTM computation includes profit, the CSR measure in this study focuses on the remaining three CSR aspects, i.e. environmental, social and governance. This is also important to avoid redundancy of economic measure. Environmental aspect of CSR covers three main categories, consisting resource used, emissions and innovations. Items in resource

used include the resources needed for production, resource efficiency and resource-related policies. Emission component of environmental aspect includes reduced emission, initiatives concerning air pollution and emissions trading initiatives. Innovations in environmental aspect cover, among others, all-purpose policies on environmental product innovation, targets or objectives for environmental product innovation and processes to accomplish environmental product innovation. In summary, the environmental aspect of CSR comprises CSR practices that serve to preserve and protect the environment from further deterioration. These are mainly the efforts taken by the companies to minimise waste material, usage of natural resources and reducing the carbon footprint during their business operations.

Social aspect of CSR covers four main categories, consisting workforce, human rights, community and product responsibility. The majority of items of the social aspect of CSR cover human resource and community involvement in companies' business operations. These include health and safety, service quality, and privacy and integrity. The social aspect of CSR allows one to view all initiatives that the companies have to preserve and improve the society's welfare and standard of living. This includes appropriate communication tool, training and development, and cooperation with schools or universities.

Governance aspect of CSR covers corporate governance practices that are related to management, shareholders and CSR strategies. This aspect of CSR indicates attempts made by companies in their efforts to address issues of moral hazard in controlling agency problem. This includes steps taken to ensure that the directors of companies are accountable for the interest of the shareholders. A good conduct of corporate governance in a company signifies that the shareholder's interests are protected with minimal conflict of interests between the managers and the shareholders of the company. The coverage of the governance aspect includes audit committees, nomination committees and compensation committees. The governance aspect of Asset4ESG is also taking into account CSR committee of which it is expected that the company has established or has initiatives to establish independent CSR committee. The governance aspect of CSR is thus comprehensive of compliance to codes for corporate governance, monitoring role of the board of directors in the company, and CSR governance.

Collectively, Asset4 ESG covers 10 main categories in total (3 for environment, 4 for social and 3 for governance). From these 10 categories, ESG metrics are adopted. For the purpose of this study, there are 295 CSR indicators comprise of 79 environment indicators, 123 social indicators and 93 governance indicators.¹ However, the available Asset4 ESG data of Malaysian listed companies is limited. It is therefore necessary to collect the information manually and, following the concept of Asset4 ESG, each available indicator is assigned 1 point and 0 otherwise. Upon completing all assignments, total points were summed to determine the percentage of the score over total possible 295 points as in Equation (5):

$$CSR = \frac{Escore + Sscore + Gscore}{295} * 100 \quad (5)$$

Where *Escore*, *Sscore* and *Gscore* are the total points of environment indicators, social indicators and governance indicators, respectively.

2.3. Regression models

Building on a classical Hicksian model, Ohlson (1991) proposed that under the condition of uncertainty, a company's equity value will be equal to the division of the sum of future shares, future dividends and risk free rate of the company. A further breakdown of the value of future shares allows for an examination of the same model on equity value to be investigated under the clean surplus accounting relation (Ohlson, 1995). This allows equity value of a company to be examined with accounting information, including profit before tax (PBT) and tax related items (BTD). Ohlson's (1995) valuation model is a level price market data analysis model. Being a level valuation model, it does not reflect changes in accounting practices or in capital structures. It is

therefore not sensitive to accumulated returns and the model is suitable for a long run relationship between abnormal income and equity value, i.e. using level valuation model as a function of expected future items. These properties of Ohlson's (1995) model make the model most suited for the purpose of this study. Further, this model is based on three assumptions. The first assumption is that the equity value of a company is determined by the present value of expected dividend. The second assumption is that there is a clean surplus relation between the accounting data and dividends. The third assumption is that the abnormal income exists due to the differences between current earnings and the risk free portion of the opening book value of equity.

This study thus uses Ohlson's valuation model (Ohlson, 1995) with PBT and BTD to represent after-tax income as the base regression model of this study. To examine the direct effect of BTD components and CSR on equity value, PD, TD, STRD and CSR are estimated using model 1:

$$EV_{it+3} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 PBT_{it} + \alpha_3 PD_{it} + \alpha_4 TD_{it} + \alpha_5 STRD_{it} + \alpha_6 CSR_{it} + \alpha_7 LEV_{it} + \alpha_8 CAPINT_{it} + \alpha_9 EM_{it} + \alpha_{10} FS_{it} + \alpha_{11} DIV_{it} + \alpha_n \sum_{n=12}^{21} IND_{it} + \varepsilon_{it} \quad (\text{Model1})$$

EV_{t+3} is equity value of the company three months post accounting date. This is to allow for time lag of shareholders' reflections on the release of company preliminary financial results. The lag period is the optimum time to limit excessive noise on the market value of equity. BVE is book value of equity to reflect firm size and PBT is profit before taxation disclosed in the financial statements. Other control variables that can impact equity value and relevant to CSR and taxation are LEV for leverage (Javed, Rao, Akram, & Nazir, 2015), measured by scaling the long-term debts with total assets, $CAPINT$ for capital intensity (Okiro, Aduda, & Omoro, 2015; Zeitun & Tian, 2007), measured by deflating gross machinery and equipment with total assets, EM for earnings management (Desai & Dharmapala, 2009a; Shan, 2015), measured by total accruals, FS for foreign sales (Nguyen & Rugman, 2015), measured as the percentage of foreign sales over total sales, DIV for dividend (Travlos, Trigeorgis, & Vafeas, 2015), measured by dividends per share over earnings per share and IND for industry classification (Abdul Wahab & Holland, 2012), a dichotomous measure of each industrial sector based on Bursa Malaysia classification. To control for scaling effect, all continuous variables, i.e. EV , BVE , PBT , PD , TD , $STRD$ and EM , are deflated by opening book value of equity (BVE_{t-1}).

To examine the moderating effects of CSR on market valuation of BTD components, Model 1 is extended to include the interaction variables between the components and CSR as in Model 2.

$$EV_{it+3} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 PBT_{it} + \alpha_3 PD_{it} + \alpha_4 TD_{it} + \alpha_5 STRD_{it} + \alpha_6 CSR_{it} + \alpha_7 PD_CSR_{it} + \alpha_8 TD_CSR_{it} + \alpha_9 STRD_CSR_{it} + \alpha_{10} LEV_{it} + \alpha_{11} CAPINT_{it} + \alpha_{12} EM_{it} + \alpha_{13} FS_{it} + \alpha_{14} DIV_{it} + \alpha_{15} \sum_{n=15}^{24} IND_{it} + \varepsilon_{it} \quad (\text{Model2})$$

2.4. Diagnostic tests

Prior to the multivariate analyses, several diagnostic tests have been conducted. Outliers for this study are determined using studentised residual $> |2|$ (Chen, Ender, Mitchell, & Wells, 2005). This is to reduce errors of inference and subsequently improve the accuracy of the statistical tests because given a respondent value on the regressed variables, a large residual could be an indication of an unusual value of firm-years (Hair, Black, Babin, Anderson, & Tatham, 2006). Following the exclusion of outliers, the final sample is 373 companies, i.e. 2,984 firm-years.

In the presence of multicollinearity, estimators produced from estimations can violate the accuracy of predictors as the behaviour of the predictor variables are linked with each other. Therefore, the models are examined for multicollinearity using Pearson correlation and condition indices (Belsley, Kuh, & Welsch, 1980). Table 1 presents the bi-variate correlation coefficients. Using 0.9 as the coefficient threshold (Hair et al., 2006), a significant initial multicollinearity is

observed between *PD* and *TD*, *PD* and *PD_CSR*, *PD* and *TD_CSR*, *TD* and *TD_CSR*, *TD* and *PD_CSR*, and *STRD* and *STRD_CSR*. Through a further multicollinearity analysis using condition indices of 30 or more and proportion of decomposition of 0.5 or more (Belsley et al., 1980), significant multicollinearity is found persistent within all interaction variables, i.e. *CSR_PD*, *CSR_TD* and *CSR_STRD*. We, thus, centre *PD*, *TD*, *STRD* and *CSR* following Aiken and West (1991) of which the overall means of the variables are subtracted from the variables' magnitudes prior to the interactions.

In addition, we also test the data for heteroscedasticity using Breusch–Pagan and White tests (Breusch & Pagan, 1979; White, 1980). The results of the test indicated significant Chi-squared ($p < 0.01$) for both models. This suggests that the variability of the dependent variable (*EV*) is unequal across the range of the independent variables. The results of the tests also indicated that modelling errors of the panel regression estimations are correlated and are not uniform. The Chi-squared of Breusch–Pagan and White tests, and their significance are presented in Table 3. Therefore, to control for heteroscedasticity, Eicker–Huber–White robust standard errors are used to estimate the models (Eicker, 1963). The Eicker–Huber–White robust standard errors also account for the deficiency in the normal robust standard errors (Abdul Wahab & Holland, 2012) by correcting the errors of both heteroscedasticity and non-normality dispersion (Hair et al., 2006).

3. Results and discussions

3.1. Descriptive statistics

Table 2 presents the descriptive statistics of the sample. From a sample of 2,984 observations, the distribution of the companies across industries is skewed towards industrial products (31.9%), trading and services (19%), consumer products (16.1%) and property (15.8%). The remaining companies are in plantation (6.2%), construction (5.9%), technology (3.5%), infrastructure (0.8%) and hotel (0.8%). On average, *PD* and *STRD* are positive at 2.9% and 0.1% of the opening *BVE*, respectively. This indicates that *PD* and *STRD* are the sources of positive *BTD*. On the contrary, consistent with the reversal nature of the differences on tax expenses, *TD* is negative at 1.2% of the opening *BVE*. The standard deviations for *PD* and *TD* are high at 0.7933 and 0.7863, respectively. In comparison, *STRD* has the lowest standard deviation (0.0083) between the three components of *BTD*. These suggest that the companies have a variety of tax planning practices with regards to *PD* and *TD* but for *STRD*, there is limited variation from one company to another company.

In terms of *CSR*, with a minimum score of 8.1% and a maximum score of 38.6%, the *CSR* score of the companies is at the average of 18.0%, signifying limited *CSR* engagement. The standard deviation for *CSR* is high at 3.9112, suggesting that listed companies in Malaysia are still unsure about the adaptation of *CSR* into the companies' practices. As for the control variables, all variables have positive mean values with *LEV* at 0.0805, *CAPINT* at 0.2628, *EM* at 0.0059, *FS* at 18.3781 and *DIV* at 0.4539. Among the control variables, *FS* (26.5340) has the highest standard deviation followed by *DIV* (4.1835). The next highest dispersed control variable is *CAPINT* at 0.3015 and followed by *EM* at 0.2598. This indicates a strong link between *CAPINT* and *EM* as both variable are depending on, among others, the extent of accruals relating capital expenditure. *PBT* records a positive mean value, i.e. 1.0514, indicating the companies are, on average, profit-makers.

3.2. Panel regression results

Column 2 of Table 3 presents the results from the panel regression estimation of model 1 that tests the direct relationship of *BTD* components, i.e. permanent differences, temporary differences and statutory tax rates differences, and *CSR* with equity value. While permanent and temporary differences significantly explain equity value in a detrimental manner, statutory tax rates differences are not significant in affecting equity value. Consistent with Abdul Wahab and Holland (2012), results on permanent differences and statutory tax rates differences indicate that shareholders discount permanent differences in their equity valuation and insignificantly value statutory tax rates differences. The nature of the former valuation could due to the entailed risks of tax aggressiveness by the tax authorities following the large positive magnitude of permanent

Table 1. Pearson correlation

	MVt+3	BVE	PBT	PD	TD	STRD	CSR	PD_CSR	TD_CSR	STRD_CSR	LEV	CAPINT	EM	FS	DIV
MVt+3	1.000														
BVE	0.279***	1.000													
PBT	0.764***	0.418***	1.000												
PD	0.033*	0.012	0.072***	1.000											
TD	0.028	0.023	0.022	-0.986***	1.000										
STRD	0.167***	0.042**	0.212***	0.039**	-0.006	1.000									
CSR	0.283***	-0.018	0.148***	-0.001	0.007	0.063***	1.000								
PD_CSR	0.039**	0.009	0.077***	0.999***	-0.982***	0.046**	0.004	1.000							
TD_CSR	0.027	0.018	0.021	-0.985***	0.999***	-0.009	0.007	-0.982***	1.000						
STRD_CSR	0.162***	0.022	0.200***	0.037**	-0.007	0.977***	0.097***	0.046**	-0.013	1.000					
LEV	0.056***	0.001	0.025	-0.019	0.020	0.024	0.170***	-0.017	0.019	0.040**	1.000				
CAPINT	0.008	-0.029	-0.052***	-0.001	0.014	0.023	0.109***	0.003	0.013	0.024	-0.096***	1.000			
EM	0.087***	0.224***	0.317***	0.006	0.032*	-0.008	-0.027	0.006	0.034*	-0.020	0.003	-0.318***	1.000		
FS	0.053***	-0.009	0.045**	0.022	-0.003	0.190***	0.101***	0.027	-0.004	0.187***	-0.085***	0.276***	-0.095***	1.000	
DIV	0.019	-0.002	0.004	-0.003	0.000	-0.002	0.027	-0.003	0.000	-0.002	-0.024	0.023	0.004	0.003	1.000

***, ** and * indicate significance at 1%, 5% and 10%, respectively.

Table 2. Descriptive statistics

n = 2,984	Mean	Minimum	Maximum	Standard deviation
EV_{t+3}	1.8150	0.0089	25.7471	2.0103
BVE	1.0514	0.0622	27.9860	0.5587
PBT	0.1922	-0.3098	4.8502	0.2443
PD	0.0291	-1.4961	42.6488	0.7933
TD	-0.0120	-42.5894	1.7623	0.7863
STRD	0.0014	-0.0301	0.1422	0.0083
CSR	18.0442	8.1356	38.6441	3.9112
LEV	0.0805	0.0000	0.9812	0.1079
CAPINT	0.2628	0.0000	2.4508	0.3015
EM	0.0059	-1.6102	2.9363	0.2598
FS	18.3781	0.0000	100.0000	26.5340
DIV	0.4539	0.0000	175.2917	4.1835

EV_{t+3} = Equity value 3 months post accounting year-end, BVE = Book value of equity, PBT = Profit before taxation, PD = Permanent differences, TD = Temporary differences, STRD = Statutory tax rates differences, CSR = Corporate social responsibilities, LEV = Leverage, CAPINT = Capital intensity, EM = Earnings management, FS = Foreign sales, DIV = Dividend

differences (Gaertner et al., 2016). Similar with permanent differences, temporary differences are also discounted by the shareholders in their equity valuation. This may be because of the differences' associations with earnings management and tax avoidance (Blaylock, Shevlin, & Wilson, 2012), upon which shareholders may respond unfavourably as the activities involve obfuscation and secrecy (Desai & Dharmapala, 2009a, 2009b) and can potentially be costly to their investments. On the contrary, CSR in model 1 is positively and significantly ($p < 0.01$) valued by the shareholders. This evidence is consistent with legitimacy theory (Dowling & Pfeffer, 1975) in which companies are theorised to be involved in CSR in order to appear legitimate from the shareholders' perspective and to legitimise their existence in an attempt to sustain in the industry. Due to this, a company conducts its operations in accordance to the wants and needs of its stakeholders and this is viewed positively by its shareholders. The results therefore support H_{1a} and H_{2a} in predicting the significant direct relationships between permanent and temporary differences, and CSR with equity value.

In testing the moderating effects of CSR on the equity valuation of BTD components, the equity value is regressed on the interaction variables of the BTD components and CSR. The results of the estimation are presented in Column 3 of Table 3. The observed negative direct relationships between permanent and temporary differences and equity value (Column 2 of Table 3) are positively moderated by CSR as indicated by significant positive relationships ($p < 0.01$) between PD_CSR and TD_CSR and equity value. This supports the argument on compensating effects of CSR on detrimental effects of permanent and temporary differences on equity value. The moderating effects also consistent with the arguments that companies are seeking for legitimacy of tax avoidance through CSR disclosure (Holland et al., 2016). Tax payment by companies are viewed as a "litmus paper test" on the company's CSR stance strategies (Sikka, 2010). A company that is aggressive on its tax strategies is seen to be taking advantage of the flaws in existing tax regulations which is against the concept of CSR (Deegan, Rankin, & Tobin, 2002). Companies thus focus on additional CSR activities in order to justify their operations or to offset their stakeholder-unwanted activities. The results therefore provide evidence to support H_{1b} and H_{2b} in testing the moderating effects of CSR on equity valuation of permanent differences and temporary differences respectively. We, however, find no evidence to support the prediction of moderating effects of CSR on statutory tax rates differences. This could be due to limited number

Table 3. Panel regression results

Dependant variable = EV_{t+3}	Model 1	Model 2
BVE	0.1350 (1.62)	0.2010** (2.44)
PBT	5.5752*** (12.82)	5.5809*** (12.99)
PD	-1.8168*** (-4.10)	-1.9615*** (-4.47)
TD	-1.7808*** (-4.03)	-1.9398*** (-4.43)
STRD	0.7888 (0.24)	2.0498 (0.57)
CSR	0.0950*** (7.63)	0.0983*** (8.60)
PD_CSR		0.2693*** (3.49)
TD_CSR		0.2600*** (3.18)
STRD_CSR		-0.8370 (-1.29)
LEV	0.1856 (0.57)	0.1259 (0.39)
CAPINT	-0.0220 (-0.11)	-0.0523 (-0.27)
EM	-0.6138*** (-4.46)	-0.6274*** (-4.42)
FS	0.0005 (0.31)	0.0002 (0.12)
DIV	0.0033** (2.19)	0.0036** (2.20)
Constant	-1.4125*** (-6.26)	-1.5319*** (-7.27)
Industry dummy	Yes	Yes
R-squared	47.38%	48.47%
<i>n</i>	2984	2984
Wald chi ²	596.67***	721.63***
White	1189.06***	1385.52***
Breusch-Pagan	1992.56***	2048.97***

Cross-section clustered Eicker-White adjusted t-statistics are represented by the figures in the parentheses.

***, ** indicate significance at 1% and 5%, respectively.

EV_{t+3} = Equity value 3 months post accounting year-end, BVE = Book value of equity, PBT = Profit before taxation, PD = Permanent differences, TD = Temporary differences, STRD = Statutory tax rates differences, CSR = Corporate social responsibilities, PD_CSR = Interaction between permanent differences and corporate social responsibilities, TD_CSR = Interaction between temporary differences and corporate social responsibilities, STRD_CSR = Interaction between statutory tax rates differences and corporate social responsibilities, LEV = Leverage, CAPINT = Capital intensity, EM = Earnings management, FS = Foreign sales, DIV = Dividend

of listed multinational companies on the Main Market of Bursa Malaysia (Abdul Wahab, 2016). The companies that do not have operation in foreign country would not be subject to foreign income tax which then justifies why shareholders do not value statutory tax rates differences.

In terms of control variables, significant relationships are found across models between the equity value and earnings management, dividends and PBT. In specific, PBT and dividends positively affect equity value, consistent with value relevance theory's (Ohlson, 1995) argument on equity valuation of abnormal earnings. Earnings managements, on the other hand, negatively affects equity value, signifying shareholders' reluctance to accept potentials of earnings manipulation, and therefore, discounting their valuation on accruals.

3.3. Sensitivity analysis

Fixed-effects estimation, endogeneity, scaling effects and industry-specific analyses are the sensitivity tests conducted to examine the robustness of the results reported in Table 3. The term fixed-effects estimator (within estimators) represents the estimator for coefficients derived from the panel regression, which includes fixed-effects whereby fixed-effects can be single-time invariant intercept for each variable in the models. Similar qualitative results are found when the models are estimated using fixed-effects estimation. From the re-estimation of model 1, coefficients of *PD* and *TD* are consistently found to be significant and negative, and *STRD* is insignificantly related to equity value. Similarly, the results from the fixed-effects estimation of model 2 are also consistent with the initial results of which *PD_CSR* and *TD_CSR* are significantly and positively related to the equity value, and *STRD_CSR* is insignificant in the valuation. The findings suggest that the results reported in Table 3 are robust upon model estimation specifications.

To test whether the initial results are sensitive upon the assumption of exogenous variables, a lag CSR variable is introduced as an instrumental variable to CSR in the 2SLS regression analysis to identify potential of a casual identification of CSR. 2SLS uses instrument variables that are uncorrelated with error terms to estimate values on variables that potentially have endogeneity issue from the first stage of the regression (Theil, 1971). The results from the analysis show that there is insignificant variation between the results of model 1 reported in Table 3 and the results from the 2SLS estimation. The results of model 2, however, vary from the initial results as the 2SLS estimation finds *STRD_CSR* as significant in impacting equity value. The results from the estimation of model 2 are therefore can be concluded as sensitive based on the endogeneity specification.

The results of this study are also further tested for scaling effects using total assets as the deflator. A deflator is a value that is used to allow for the observation of data measured over time in terms of a basis value. The use of deflators enables the evaluation of changes of values of variables rather than changes of size of companies. The results indicate significant *PD*, *TD*, *STRD*, *PD_CSR* and *TD_CSR* across models. This suggests that *STRD* is sensitive upon the choice of deflator.

Further analysis is also carried out using the breakdown of industries, consisting construction, industrial products, infrastructure, hotel, trading and services, technology and plantation. Analysing the data by industry indicates significant *PD*, *TD* and *STRD* for construction industry. In contrast, the significant *BTD* components are only found on *PD* and *TD* for the industrial products, infrastructure and hotel. Shareholders of companies in trading and services, and technology are found not to significantly value all *BTD* components. Interestingly, as compared to the initial results on insignificant *STRD*, shareholders of companies in plantation industry only significantly value *STRD*, consistent with the statistics on substantial exports of agriculture products, i.e. 5.95 times of the production for local use (International Trade Administration, 2017). The by-industry results suggest that the initial results vary across industry-specifics.

4. Conclusion

This study investigates equity valuation of *BTD* components while simultaneously considering CSR in the valuation. Permanent differences and temporary differences are found to be the main contributors to the valuation of company *BTD*, which at a larger scale can be inferred to tax gap of the country. Shareholders of the listed companies in Malaysia are found to negatively value permanent differences and temporary differences but not statutory tax rate differences which is in

line with Malaysian listed companies' tax strategies focus, i.e. on tax items related to permanent differences and temporary differences as opposed to statutory tax rate differences. In addition, the significant negative valuation of shareholders on permanent differences and temporary differences supports the discussion on the perception of the repercussion of tax planning activities on the society. This shows that the shareholders of the listed companies in Malaysia are aware of the contributors and the effects of the tax gap on the community.

On the contrary, CSR engagement is valued incrementally by the shareholders. The moderating roles of CSR in the valuation of BTD components is found in a favourable manner of which CSR positively moderates the negative effects of BTD components on equity value. This is in line with the legitimacy theory's arguments whereby CSR is an important indicator for public to reflect the legitimacy status of the company. Thus, companies that are practicing various tax strategies to reduce tax payable would pay more attention to their CSR strategies to offset the negative repercussions of their tax strategies with the positive effects of their CSR strategies.

This study contributes to the CSR, tax planning and equity value literature in providing evidence on compensating roles of CSR in BTD components. The results also provide further empirical evidence to theories that are relevant to CSR and BTD, in particular on shareholder's valuation perspective. As this study finds the results that imply shareholders' consideration on company CSR engagement when reflecting on BTD components, industry players can be benefited from the findings by improving the company CSR to avoid valuation discounting effects, on permanent and temporary differences. Industry players would be able to manage or control the equity value of their respective companies more effectively using their knowledge on the roles played by each components of BTD by maximising the benefit from the interaction between CSR and the components of BTD. Thus, by knowing how each component of BTD works in determining the equity value of the company, the industry players would be able to make informed decisions for the companies especially in terms of tax planning strategies and CSR practices, on how each component of BTD affects equity value with the presence of CSR. Companies need to know the threshold of tax planning or the amount of tax planning that is deemed acceptable to ensure that it does not adversely affect the valuation of the company's CSR practices. Ultimately, this can improve the company's performance and efficiency in designing tax planning strategies and in planning their CSR activities.

The findings of this study can also be useful to the authorities when evaluating sources of BTD that can contribute to the country's tax gap. The authorities would be able to objectively review their tax policies from a wider spectrum and with a more thorough understanding of BTD in their efforts to reduce the country's tax gap. With the knowledge on the roles played by each components of BTD (permanent differences, temporary differences and statutory tax rate differences) in relation to CSR, Bursa Malaysia can also assist the authority to reach the country's aim to reduce tax gap through better CSR guidelines. This would allow for a more effective restructuring of nationwide tax policy and CSR practices among companies that would eventually benefit the society as a whole. In this context, the authorities would benefit from the additional tax revenue gained from reducing the tax gap and the government would then be able to reinvest the revenue. Shareholders would also benefit from this study as the results provide insights on which BTD components can affect their wealth through equity value. With thorough understanding on the factors that affects the equity value of a company, they would be able to make an informed decision in regards to their investments and to predict future trends or performance of the company based on the company's taxation and CSR positions. This can then minimise the risk of poor investments by the shareholders.

As this study is constrained by publicly available information, the accuracy of the data is depending on the level of disclosure transparency. Furthermore, the sample of this study is limited to non-financial listed companies in Bursa Malaysia, hence generalisation to other settings can be inappropriate. Future studies, therefore, should consider replicating this study using primary data across various sample characteristics, including across multiple country settings.

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Note

1. The full description for the indicators used for each aspect is disclosed by Thomson Reuters on https://uvalibraryfeb.files.wordpress.com/..asset4_esg_data_glossary_april2013.xlsx.

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