



Defying the Tone at the Top: An Analysis on the Effects of Board Characteristics on the Level of Tax Avoidance Across Philippine Publicly Listed Firms

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Abstract

Over the years, the growing culture of tax avoidance among multinational companies around the world has shed light on the importance of improving corporate governance mechanisms. In the Philippines, poor tax collection due to tax leakages has contributed to chronic fiscal deficits in the country. The literature argues that good corporate governance mechanisms (e.g., the structure of the board of directors) play a significant role in ensuring that the management acts in the best interest of the firm and shareholders, thus eventually helping to mitigate the incidences of corporate tax avoidance. Specifically, agency theory argues that the presence of more independent- and female-dominated boards lead to lesser corporate tax avoidance because such directors are stricter in monitoring management. On the other hand, the resource dependency theory posits that firms with boards having more independent, older, and business-educated directors are more likely to engage in tax avoidance because such directors have the experience, expertise, and knowhow to engage in tax avoidance strategies. This paper examines the impact of various board characteristics on the incidence of tax avoidance across nonfinancial and publicly-traded Philippine firms during the period 2003 to 2015. We use the residual book-tax gap, the cash-effective tax rate, and the long run effective tax rate to measure corporate tax avoidance, whereas board characteristics include board size, board age, board independence, CEO-Chair duality, gender diversity, and the educational background of directors. We employ the two-step Blundell-Bond System Generalized Method of Moments (GMM) estimation technique to address endogeneity issues that may confound the relationship between board composition and structure and the level of tax avoidance within the firm. Overall, we find no significant relationship between board characteristics and tax avoidance, as measured by the long-run cash effective tax rates. However, consistent with the agency and resource dependency theories, we find that board

age is positively related with corporate tax avoidance, as measured by the residual book-tax gap, whereas board independence and the proportion of board members with post-graduate degrees in Business and Economics have a negative and positive relationship, respectively, when corporate tax avoidance is proxied by the cash effective tax rate. These findings suggest that the case for increasing the number of independent directors and reducing the number of older directors in boards of Philippine publicly listed firms may help reduce incidences of corporate tax avoidance.

JEL Classification: G30, H25, H26

Keywords: Corporate governance, Board of directors, Corporate tax avoidance, Philippine publicly listed firms

Taxes are enforced proportional monetary contributions from persons, entities, transactions, or properties levied by the State to yield public revenue (Cooley, 1924). Over the past decade, improvements in the collection of tax revenues, and the lack thereof, have contributed significantly to the fiscal health of the Philippines.¹ Nevertheless, poor tax collections have been plaguing the government and have contributed to chronic deficits that have generated the need to borrow. Figure 1 shows that over the last 15 years, tax effort² in the Philippines has been criticized for being stagnant at around 12 to 14% per year (Diokno, 2008).

¹ The Asian Development Bank report cited major tax reforms implemented during 2005-2006 (i.e., increase of Value-Added Tax [VAT] rate from 10% to 12% and the increase of the corporate income tax rate from 32% to 35%) as the reason for the improvement in the Philippines' fiscal health during the mid-2000s. During this time, the tax-to-GDP ratio increased from 12.4% in 2002 to 14% in 2007. However, post-2008, accelerating government spending and weak tax revenue collection within the country have eroded tax revenues to only 12.8% of GDP in 2009, the lowest since the 2005-2006 tax reforms (Usui, 2011).

² Tax effort is calculated as the ratio of the share of the actual tax collection in Gross Domestic Product to taxable capacity (Le, Moreno-Dodson, & Bayraktar, 2012).

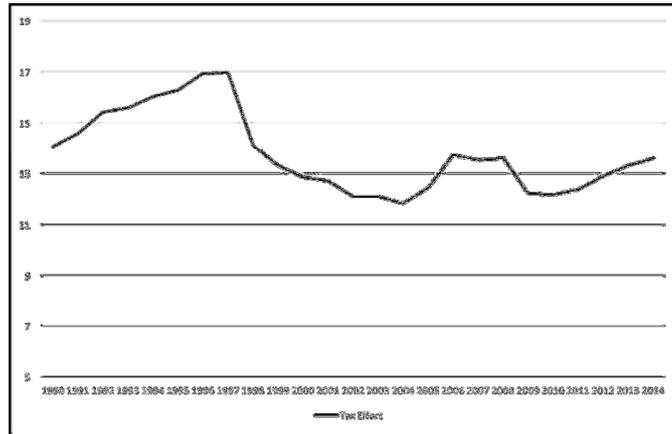


Figure 1. Tax revenue in the Philippines as a % of GDP (1990–2014).
Source: World Bank (2015)

Manasan (2008) reported that the changes in the tax effort of the Bureau of Internal Revenue (BIR) are primarily caused by modifications in tax policies, variations in economic structures, and inefficiencies in tax collection such as tax leakages³. Compared to Singapore and Malaysia⁴, the tax effort in the Philippines did not increase with economic growth because of various cases of tax exemptions, loopholes, and evasions (Manasan, 2002). Because reports show a yearly revenue loss amounting to Php30 billion, recent proposals on the tax system aim to reduce tax rates⁵ to increase firm performance through higher after-tax cash flows, which also leads to higher tax revenues for the government (Magtulis, 2016).

On the firm level, taxes are deemed to influence decision-making with regards to investment and funding policies (Graham, 2003), wherein managers continue to employ mechanisms to reduce the firm’s corporate tax liabilities. Such mechanisms pertain to tax avoidance, tax aggressiveness, and tax evasion, which the literature tends to use interchangeably (Guenther, Matsunaga, & Williams, 2013)⁶. While tax evasion is characterized as an illicit procedure of escaping from taxation, tax avoidance is legal, that is, the firm adopts legitimate tax

³ Tax leakages represent the losses of revenue through loopholes in paying direct and indirect taxes; these include tax evasion and avoidance (Vicente, 2006).

⁴ Records show that Singapore and Malaysia have reported a tax effort of more than 20% annually (National Tax Research Center, 2000).

⁵ The personal income tax rate in the Philippines is currently fixed at 32%, whereas the corporate income tax rate is currently marked at 30%.

⁶ In the literature, “tax avoidance” is used interchangeably with “tax sheltering”, “tax planning”, “tax aggressiveness”, and “tax minimization”.

policies that reduce the firm's income tax payments (De Leon & De Leon, 2012; Guenther et al., 2013). On the other hand, tax aggressiveness defines the extent to which firms will take tax positions that will undoubtedly be questioned during audits, that is, the firm engages in activities that are unlikely to be upheld by the auditing body (Guenther et al., 2013).⁷

Over the last few years, the growing culture of corporate tax avoidance among multinational companies, such as Google, Amazon, and Starbucks, were investigated and criticized by the Public Accounts Committee in the UK. In 2011, Amazon reported a tax liability of £1.8 million on its total sales of £3.35 billion, whereas Google's UK unit reported a tax of £6 million for £395 million worth of sales (Barford & Holt, 2013). Likewise, in 2014, the accounts for Google Netherlands Holdings BV showed that Google transferred funds amounting to 10.7 billion euros to its Irish-registered affiliate in Bermuda, Google Ireland Holdings (Sterling & Bergin, 2016).⁸ Still, other reports concerning corporate tax avoidance within Europe showed that Google has been paying a relatively low tax amount, having a tax bill of 2.8 million euros when it was supposed to pay 200 million pounds from its earnings of 24 billion pounds, on the overall profits generated from a continent (Sterling & Bergin, 2016). Reports further showed that although Starbucks had earned 400 million pounds, the company did not pay a corporation tax due to higher expenses incurred through transfer pricing.⁹ Apple, on the other hand, engages in a more complex tax avoidance method by using its subsidiaries in Ireland (i.e., Apple Sales International and Apple Operations Europe) to avoid paying for taxes from the earnings outside of the U.S (Taylor, 2016).¹⁰ Furthermore, Microsoft, as well as Disney, have used their

⁷ In particular, we look into the "tax avoidance" phenomenon in this study, as this seems to be the typical huge corporation's way of pushing into grey areas when it comes to paying taxes.

⁸ Known as the "double Irish, Dutch sandwich," this type of tax strategy allows the firm to lessen their tax liability that is either subject to income taxes in the U.S. or to European withholding taxes, as companies in Bermuda are not subject to corporate tax (Sterling & Bergin, 2016).

⁹ This type of transaction occurs when a multinational company in a certain country charges its other divisions across countries for its expenses. For instance, Starbucks sources its coffee from its subsidiary in Switzerland while Google's operations are situated in Bermuda and Ireland (Barford & Holt, 2013).

¹⁰ McIntyre, Phillips, and Baxandall (2015) report that Apple has booked \$181.1 billion in offshore profits, subject to a 2.3% effective tax rate.

subsidiaries in Luxembourg as their tax havens, thus generating hundreds of million dollars in profits (“Disney and Skype,” 2014). All in all, tax avoidance, although legal in its nature, raises moral and ethical issues among the public since large multinational companies are more likely and capable of taking advantage of tax loopholes, where business transactions are artificially created to avoid tax. The negative effects of such activities are cascaded down to the public due to the huge amounts of revenue loss to the government.

In this regard, corporate governance continues to play a significant role on the growing issue of corporate tax avoidance because poor governance structures and low-quality auditing may result in management capitalizing on these weaknesses and engaging in less transparent financial reporting (Ebrahim & Fattah, 2015; Desai & Dharmapala, 2009a). In the Philippines, a case report showed that the Bureau of Internal Revenue (BIR) had examined at least 18 conglomerates through a special auditory process (Gonzales, 2012). The results indicated that corporations tend to under-declare their taxable income by at least 30% and create inexistent companies serving as suppliers within the conglomerate. Moreover, Hoopes, Mescall, and Pittman (2012) found that the enforcement of Internal Revenue Services (IRS) audits have led to an increase in corporate tax collection among firms in the United States. Although Fan and Wong (2005) argued that an effective independent audit process is already sufficient to replace some corporate governance mechanisms, some still view that effective corporate governance and audit processes are complements, rather than substitutes (Lin & Liu, 2009). Nevertheless, auditing plays a critical role in reducing the incidence of tax aggressiveness and avoidance since the firms that practice these methods are faced with additional tax liability, interest and penalty, legal costs, and reputational costs (Birskyte, 2013).¹¹

¹¹ Hoopes et al. (2012) further asserted that the ideal policy for corporate tax enforcement is a mix between proper auditing and stricter corporate governance standards and disclosure requirements.

Furthermore, in the Philippines, the Securities and Exchange Commission (SEC) has recently promulgated the Code of Corporate Governance for Publicly Listed Companies¹² through SEC Memorandum Circular No. 19 dated November 22, 2016, which took effect on January 1, 2017 (Securities and Exchange Commission, 2016). With these reforms, the government can better monitor the tax avoidance strategies of firms and improve their tax administration, thus leading to an increase in their competitiveness and their ability to attract foreign investments (Valencia, 2017). Likewise, Diokno (2005) recommended that reforms in the country must focus on the rationalization of policies on fiscal incentives to increase the tax yield and on the simplification of the tax system to improve tax administration and compliance rates.

Over the years, there has been much literature (Desai & Dharmapala, 2006; Chen, Chen, Cheng, & Shevlin, 2010) analyzing the issue of tax avoidance and corporate governance in the context of developed markets; however, such studies did not decompose corporate governance into its components, such as board composition and structure. Hannetel (n.d.) stated that corporate governance indicators, such as the board of directors, have an effect on how a firm engages in tax planning. For instance, in 2016, a survey by the Women Corporate Directors Foundation of 4,000 board members all over the world reported that 22% of the respondents express their concern about corporate tax issues. Another survey in 2014 (PwC, 2014) of 863 directors among the U.S. publicly listed firms reported that more than half (59%) of the respondents admit that their boards have not discussed public perception of their companies' effective tax rates when, in fact, they should. In 2005, KPMG showed that boards are under increasing pressure to monitor corporate tax affairs. This follows the survey conducted by

¹² The new code applies only to publicly-listed firms and aims at improving the functioning of the boards, shareholder protection, and full disclosure in financial and non-financial reporting, which include setting a nine-year term limit for independent directors, requiring protection for whistle-blowers, and incorporating anticorruption measures (Dumlao-Abadilla, 2017). Moreover, it adopts the "Comply or Explain" approach, that is, companies do not have to fully comply with the code, but they must identify and state in their annual corporate governance reports if they comply with the code provisions, identify any areas of noncompliance, and explain the reasons for noncompliance. Upon taking effect on January 1, 2017, all publicly listed companies are required to submit a new Manual on Corporate Governance to the SEC on or before May 31, 2017.

Henderson Global Investors (2005) of 335 chairmen among U.K. firms included in the FTSE 350, whose results acknowledge the importance of the board in addressing the increasing expectation that corporations comply with tax regulations.

Given the importance placed upon the board as a mechanism to reduce tax avoidance and aggressiveness, the dearth of research looking into the relationship between board structure and corporate tax avoidance is surprising. Corporate tax avoidance is regarded as a strategy to reduce tax liabilities and, therefore, maximize the shareholders' value in a company. However, the agency perspective of corporate tax avoidance refers to certain issues arise from the conflicting interests of shareholders and managers because tax avoidance is not merely a re-appropriation of wealth from the state to the firm, but involves managers who enjoy their private benefits of control, through non-value maximizing actions, such as the diversion of rents (Desai & Dharmapala, 2006). Therefore, the board of directors is one of many mechanisms that have been developed to resolve the agency conflict between managers and shareholders (Hermalin & Weisbach, 1991). Previous research (Lanis & Richardson, 2011; Zemzem & Ftouhi, 2013), in the context of agency theory, have shown that board composition plays a greater role in monitoring management than other corporate governance mechanisms, making the board of directors the apex of decision control within the corporation (Fama & Jensen, 1983).¹³ Specifically, having more outside directors should lead to lesser tax aggressiveness because they increase the ability of the board to monitor management effectively (Zemzem & Ftouhi, 2013; Lanis & Richardson, 2011). Moreover, women directors, who are considered to be the "ultimate outsiders" because of their non-traditional characteristics (Carter, Simkins, & Simpson, 2003), have been found to be

¹³ Although a CEO is not a tax expert, he or she is more likely to understand the competitiveness of their industry and realize the opportunities available for expansion, economies of scale, and higher returns. This measures how influential the CEO is in a firm's operational and financial strategies by setting the "tone at the top" among management. Moreover, such extensive influence may extend to the compensation incentives of those who are directly involved in the tax decisions of the firm. For instance, Wal-Mart's vice president for tax policy David Bullington stated that the hiring of Thomas Schoewe, the Chief Financial Officer in 2000, had led him to lower the company's effective tax rate (Dyreg et al., 2010). Should the board serve as an effective monitoring mechanism, agency theory posits that the tax avoidance inclinations of top executives will be suppressed.

tougher monitors of management (Adams & Ferreira, 2009) and may, thus, help reduce tax avoidance within the firm.

Unlike the agency theory, stewardship theory posits that managers act in the best interests of the firm and are assumed to protect the company's interests above theirs (Borlea & Achim, 2013). Therefore, boards dominated by insiders are favored because of their commitment to the firm (Muth & Donaldson, 1998). Such insider-dominated boards are posited to mitigate the extent of tax avoidance within the firm whenever the marginal costs of tax avoidance to shareholders exceed the marginal benefits.¹⁴

On the other hand, the legitimacy¹⁵ and stakeholder theories posit that a "social contract" exists between the corporation and society; the underlying conditions of this "contract" are set by varying influential groups¹⁶ in society. Legitimacy can then be attained by corporations through compliance with the social responsibility standards of these reference groups by their respective business activities (Gray, Kouhy, & Lavers, 1995). In the context of tax planning, abiding by tax laws would increase a corporation's legitimacy in society and improve its reputation towards the tax authority (Landolf, 2006; Schön, 2008; Lanis & Richardson, 2011). Failure to comply with tax regulations would prompt a negative image of the firm that may possibly tarnish the company's entire business operations (Erle, 2008). Therefore, there should be a greater incentive for the board to promote compliance with tax regulations among the management.

In this vein, our study seeks to augment the limited literature (Lanis & Richardson, 2011; Beasley, 1996; Dyreng, Hanlon, & Maydew, 2008; Minnick & Noga, 2010) that analyzes the impact of board characteristics and composition on corporate tax avoidance. To accomplish this,

¹⁴ The marginal benefits of tax aggressiveness or avoidance to shareholders include greater tax savings for the firm, whereas the marginal costs involve the prospect of tax fines and penalties to be imposed by the administration (Slemrod, 2004, 2007; Lanis & Richardson, 2011).

¹⁵ By applying the ideas of these two theories in taxation, Landolf (2006) and Schön (2008) considered that the company can show its legitimacy in the society and maintain its good reputation by conforming to the tax law.

¹⁶ These groups consist of governmental bodies, political groups, trade unions, communities, associated corporations, employees, and customers (Lanis & Richardson, 2011).

we used annual firm-level data on more than 250 publicly listed companies in the Philippines from the years 2003 to 2015. We also aimed to address certain endogeneity issues that plague the relationship between board characteristics and corporate tax avoidance by using the two-step Blundell-Bond System Generalized Method of Moments (GMM) technique.

Review of Related Literature, Theoretical Framework, and Hypotheses Development

Tax avoidance is the use of legal methods and special activities¹⁷ to minimize tax liabilities among individuals or firms within the law (Pragua, 2010). Many corporations and businesses that partake in the practice have experienced large economic benefits in terms of their after-tax returns, thus increasing the popularity of using financial tools¹⁸ to deter tax laws (Armstrong, Core, & Guay, 2014). However, the risks involved in tax avoidance have increased the responsibility of the board of directors to be involved directly in developing tax strategies while considering the sustainability of the business activities and tax structures of a firm (Landolf, 2006). Moreover, studies showed that managers demonstrate compliance with tax regulations when investors become aware of the risks in their investment returns due to tax avoidance (Henderson Global Investors, 2005). Table 1 summarizes our *a priori* expectations and hypotheses.

¹⁷ These activities require strategic tax planning that involves the use and exploitation of “loopholes” such as tax deductions, tax havens and tax credits, which counter the purpose of the law of taxation (Pragua, 2010).

¹⁸ Common options of tax minimization among corporations include tax deferred investments, understatement of company profits, charitable contributions, capital allowances, and R&D Tax Relief (ACCA, 2011).

Board Composition and Tax Avoidance

The collapse of well-known multinational companies has led to the evaluation of different corporate governance mechanisms¹⁹ among firms. The board of directors assumes a significant role in ensuring that the interests of shareholders and managers are closely aligned, thus leading to a reduction of agency costs and an improvement in firm performance. Previous literature has shown how board composition and structure (i.e., board size, board independence, duality, and diversity) influence tax management (Kang, Cheng, & Gray, 2007), given that the board has been established as (i) an internal governance mechanism that helps mitigate the self-serving nature of managers, and as (ii) a valuable resource with informational and network advantages, whose care and concern for the firm's reputation enable it to promote better tax compliance among management. Because tax avoidance and evasion raise issues of inequity and are, at face value, deadweight loss to society (Andreoni, Erard, & Feinstein, 1998), a better understanding of the relationship between board composition and structure and tax avoidance may help develop guidelines that will address the inefficiencies of internal tax management systems. This, in turn, should improve government efforts in terms of corporate tax collections.

Board size. Boussaidi and Hamed (2015) stated that board size significantly influences the management of the company, especially when it comes to tax planning. Studies have shown that smaller boards have better controlling functions than larger boards, which makes them more effective in reducing communication problems and conflicts of interest among members (Jensen, 1993; Yermack, 1996; Lipton & Lorsch, 1992; Vafeas, 2000). Because of this, a smaller board strengthens good tax management whereas a large board tends to increase the incidence of tax

¹⁹ Tamang (2011) defines corporate governance as the structure of rules and practices by which the board of directors ensures accountability, fairness, and transparency in a company's relationship with its stakeholders, while targeting their objectives to increase firm performance.

avoidance within the firm (Zemzem & Ftouhi, 2013; Minnick & Noga, 2010; Lanis & Richardson, 2011). Similarly, the agency theory also argued that a larger board is more likely to incur higher agency costs due to conflicting views between the directors (Jensen, 1993). However, a few studies (Aliani & Zarai, 2012; Khaoula & Ali, 2012a; Khaoula & Ali, 2012b) found that the tax-minimizing strategies of the boards are not affected by the size of the board. Thus, we hypothesize that:

H1: As the board becomes larger, the incidence of corporate tax avoidance increases because it becomes more difficult for the board to oversee and decide on the financial affairs of the firm.

Board independence. The structure of the board is highly dependent on the industry in which the firm belongs (Monem, 2013); thus, there is no optimal board structure for all firms. However, many studies demonstrated that the presence of independent board members had led firms to focus more on improving the performance of the firm, thus implying that these independent directors would want to reduce corporate effective tax rates (Bhagat & Black, 1999; Minnick & Noga, 2010; Yeung, 2010).²⁰ According to the resource dependency theory, independent directors provide resources to the firm through their respective experiences from different industries, particularly in tax management. Because of their informational advantages, boards with more independent directors have a higher likelihood of engaging in tax avoidance, or of lowering the firm's effective tax rate, to further improve firm performance (Minnick & Noga, 2010; Yeung, 2010). Furthermore, Bhagat and Bolton (2008) claimed that under corporate governance, shareholders allow the management to practice tax avoidance because independent

²⁰ Effective tax rates are measured as the ratio of cash taxes paid by a firm to the accounting income before tax. Lower effective tax rates imply higher levels of tax avoidance, thus increasing after-tax cash flows that can be used to improve firm performance.

directors are regarded as a balancing force in the board. However, after considering some of the costs and benefits, the shareholders may also decide not to adopt tax aggressiveness; in this case, independent directors are able to likewise help the shareholders evaluate and disapprove the tax strategy (Ying, 2011).

On the other hand, a few studies (Jalali, Jalali, Moridi, Garshasbi, & Foroodi, 2013; Lanis & Richardson, 2011) found that the number of independent board members does not correlate to higher levels of tax avoidance. Similarly, Armstrong, Blouin, Jagolinzer, and Larcker (2015) studied publicly-listed U.S. firms and found that board independence has a positive (negative) relation with tax avoidance on the left (right) tail of the tax avoidance distribution²¹, that is, the presence of more independent directors is associated with firms that do not often engage in tax avoidance. Moreover, Desai and Dharmapala (2006) suggested that agency costs in relation to tax avoidance arise when shareholders and managers evaluate the marginal benefits and marginal costs of engaging in tax avoidance. Managers may choose to engage in tax avoidance if they view this as a form of rent-extraction to maximize personal wealth, but shareholders may go against this view because of the possible costs to be incurred, such as reputational damage and even the discontinuation of operations. From an agency perspective, since independent directors serve to protect the interests of the shareholders from the self-serving actions of the management, they are more likely to objectively evaluate the costs and benefits of tax avoidance (Ying, 2011). Thus, agency theory posits a lower level of tax aggression among firms with more independent directors.

Accordingly, the corporate social responsibility (CSR) theory highlights how independent directors not just only supervise the top management, and make strategic decisions, but also

²¹ Armstrong et al. (2015) examined the effect of board independence on each quartile and decile of the extent of corporate tax avoidance within the firm.

respond to the society's needs (Ibrahim, Howard, & Angelidis, 2003; Rose, 2007). Fama and Jensen (1983) found that outside directors steer clear from expropriating the shareholders' wealth, thus increasing the board's ability to effectively monitor and reduce tax aggressiveness.

Based on the preceding discussions, we hypothesize that:

H2: Board independence is positively related with corporate tax avoidance, according to the resource dependence theory.

H3: Board independence is negatively related with corporate tax avoidance, according to the agency and CSR theory.

CEO–Chair duality. According to the agency theory, the CEO is incapable of separating personal interest from management duties because of the incentive to divert firm resources for personal benefits at the expense of the shareholders (Jensen & Meckling, 1976). Therefore, it is necessary to have separate individuals to fill the positions of the CEO and the Chairman of the Board to avoid conflicts-of-interest between the role of decision control that rests upon the board and the role of decision management that is taken up by the CEO. If the CEO also serves as the Chairman, the CEO's power base is wider and board independence is constrained, which causes the oversight role of the board to be less effective (Yang & Zhao, 2014; Baliga, Moyer, & Rao, 1996). Conversely, when different individuals hold the posts of CEO and Chairman, the board's oversight over management becomes more effective and enables the latter to align their interests to that of the shareholders, thus minimizing agency costs and leading to better firm performance (Jensen, 1993; Klein, 2002). All in all, the agency theory posits that the presence of a dual power structure in firms results to a higher likelihood of management committing financial statement

fraud²² because the monitoring role of the board is compromised (Jensen, 1993; Farber, 2005; Sharma, 2004).

Similarly, the stewardship theory posits a positive relationship between CEO-Chairman duality and the likelihood of tax avoidance, although it argues that managers, as stewards, maximize shareholders' interests through better firm performance (Davis, Schoorman, & Donaldson, 1997). Through a concentrated leadership role, a CEO possesses more autonomy in decision-making that is in line with board expectations, thus resulting to ease in the approval of tax avoidance strategies since the rest of the board is unlikely to question tax avoidance proposals without enough knowledge on taxation (Ying, 2011). Moreover, while the duality structure eliminates the potential rivalry between the CEO and the Chairman, it still exacerbates the agency conflict between managers and shareholders. In effect, there will still be a reduction in the oversight function of the board, which will result to higher incidences of tax avoidance (Li, Moshirian, Nguyen, & Tan, 2007). Thus, the presence of a dual power structure encourages the implementation of more tax aggressive policies and the reduction of effective tax rates, which leads to higher tax avoidance (Jalali et al., 2013; Khaoula, 2013; Minnick & Noga, 2010).

Based on the preceding discussions, we hypothesize that:

H4: According to the agency and stewardship theories, the presence of CEO-Chair duality increases the incidence of corporate tax avoidance due to the concentration of leadership roles.

Gender diversity in the board. The presence of professional women in the board improves overall board effectiveness (Higgs, 2003). Previous literature on risk behavior²³ and tax

²² Financial statement fraud is defined as the deliberate misrepresentation, misstatement or omission of data in financial statements to recreate the financial strength of a firm, secure investors' interest, and satisfy the expectations of shareholders (Sherman, 2018.).

compliance found that women, when compared to men, are: (i) more risk-averse, (ii) have a higher attendance rate in meetings, which indicates their intensive monitoring of the managers' actions, and (iii) have higher levels of tax compliance, which reduce agency costs (Croson & Gneezy, 2009; Adams & Ferreira, 2009; Kastlunger, Dressler, Kirchler, Mittone, & Voracek, 2010; Streefland, 2016). Moreover, according to the legitimacy theory, female directors are deemed to be more ethical and are more concerned about their duty to pay taxes to the government, thus leading them to refrain from engaging in tax avoidance within the firm (Orviska & Hudson, 2003). In line with this, Aliani, Hamid, and Zarai (2011) study 32 companies listed in the Tunisian Stock Exchange Market and found that there is a negative relationship between gender diversity on the board and tax optimization.²⁴

Similarly, according to the resource dependence theory, the presence of women in the board allows the firm to tap into a wider pool of talent, information, and perspectives that may help improve the firm's performance (Hillman & Daziel, 2003). Adams and Ferreira (2009) also found that women directors with high attendance rate in meetings motivate male directors to attend more as well. Moreover, they argued that intangible resources, such as feminine traits, experiences, and the skills of women directors, are proven to contribute more to overall board performance than those of the men. Thus, we hypothesize that:

H5: Gender diversity in the board decreases the practice of tax avoidance within a firm since women are inherently more risk-averse than men.

²³ Some differences in gender characteristics include feminine traits, such as having a socially desirable behavior, and masculine traits, such as dominance, competitiveness, and aggressiveness (Kastlunger et al., 2010). Moreover, in specific economical domains, women are less involved than men in non-ethical behavior (Croson & Gneezy, 2009).

²⁴ Tax optimization refers to the identification of the legal and organizational frameworks that minimize the tax liability of a firm (BRIS Group, 2017).

Age and educational background of the board. Although the ages of board members are relatively easy to obtain, only a few have looked into its impact on firm performance (Nakano & Nguyen, 2011; Faleye, 2007). Regardless, the consensus in the literature is that boards with older directors tend to be more risk-averse; hence, they exhibit lower risk-taking and, consequently, suffer from lower firm profitability (Cochran, Wartick, & Wood, 1984).²⁵ Older managers are posited to have slower cognitive abilities and unvaried risk preferences than younger managers do (Chevalier & Ellison, 1999; Hong, Kubik, & Solomon, 2000; Yim, 2013). Moreover, while older directors can provide a thread of history to earlier decisions, younger directors have better advantages in terms of understanding current trends (Cochran et al., 1984). As a result, Cavazos and Silva (2014) posited that older or more experienced executives and directors are more knowledgeable on the relevance of taxes and the cost of information available, and because they are more risk-averse, they will be less willing to engage in corporate tax avoidance. On the other hand, Lestari and Wardhani (2015) found that the older people, in the age range of 40-50 years old²⁶, are more productive because they have more experience in making business decisions, particularly in reducing the firm's tax liabilities.

In terms of the board's educational background, Lestari and Wardhani (2015) studied 442 firms listed in the Indonesia Stock Exchange (IDX) and defined educational background as the proportion of the directors in the board who have majored in Economics and/or Business. Since taxation is commonly included as a subject in both degree programs, the researchers posited that if the directors possess degrees in Economics and/or Business, then they are expected to be knowledgeable about tax laws, thus enabling them to manage the company effectively, especially when tax planning activities are concerned.

²⁵ Nakano and Nguyen (2011) noted that risk appetite is significantly related to performance.

²⁶ Lestari and Wardhani's (2015) study on the firms listed in the Indonesia Stock Exchange (IDX) showed that the age range of 40 to 50 years old are more productive, which motivates them to achieve and maintain satisfaction in their careers.

However, Dyreng, Hanlon, & Maydew (2010) found that executives' age and educational background do not significantly affect the incidence of tax avoidance across executives, and further found that such characteristics only weakly affect how executives influence the practice of tax avoidance.²⁷ On the other hand, some studies (Bartov, Givoly, & Hayn, 2002; Bonner, Davis, & Jackson, 1992; Hsu, Moore, & Neubaum, 2014) find that directors with sufficient and financial background are able to effectively decide on the corporate tax avoidance strategy, thus encouraging the firm to be more tax aggressive. Based on these discussions, we hypothesize that:

H6: Firms with older directors may engage more (or less) in corporate tax avoidance due to experience.

H7: The educational background (on Business, Economics, and/or Finance) of the board has a positive effect on corporate tax avoidance.

Ownership Structure and Tax Avoidance

Family-owned firms are typically more conservative, and they are more likely to focus on the long-term value of the firm when compared to their non-family counterparts (Khurana & Moser, 2009). Consistent with the legitimacy theory, family owners and long-term institutional shareholders are more concerned with the sustainability of the firm; thus, they are more willing to waive short-term tax advantages to avoid reputational damages and additional costs in the long run.²⁸ Consistent with this theory, Chen et al. (2010) studied publicly listed U.S. firms and found that family ownership has a negative relationship with tax avoidance, that is, when there is a

²⁷ Dyreng et al. (2010) state that the impact on tax avoidance is likely due to the "tone at the top" (i.e., the CEO and senior executives), rather than the direct influence of other executives.

²⁸ This is because the nature of the investments of family owners are large and under-diversified (Chen et al., 2010).

concentration of ownership and influence among the shareholders, a less aggressive tax strategy is observed. Thus, we hypothesize that:

H8: Family firms engage less in corporate tax avoidance to avoid reputational damages in the long run.

Control Variables on Tax Avoidance

Firm size, firm age, and firm performance. According to Cai and Liu (2009), previous literature has not yet found a distinct relationship between firm size and corporate tax avoidance. On the one hand, larger firms can be positively associated with corporate tax avoidance since bigger firms can take advantage of economies of scale (Streefland, 2016; Hanlon & Slemrod, 2009; Gupta and Newberry, 1997). On the other hand, many studies confirm the positive (negative) relationship between firm size and the effective tax rate (corporate tax avoidance; Richardson, Taylor, & Lanis, 2013; Desai & Dharmapala, 2006; Chen et al., 2010). Streefland (2016) claimed that larger firms may be negatively associated with corporate tax avoidance since large firms are more compelled to pay higher amounts of taxes due to bigger operations. Thus, these firms will tend to deviate from tax avoidance practices to avoid reputational damages. Similarly, Cai and Liu (2009) studied Chinese firms and found a negative relationship between firm size and corporate tax avoidance since large firms draw more attention and, thus, increase the costs for engaging in tax avoidance.

Although the literature on the link between firm age and tax avoidance is scarce, many studies considered both firm size and firm age as similar concepts (Mosota, 2014). Amidu (2016) looked into the listed and unlisted firms in Ghana and found that firm age is positively related to effective tax rates (or negatively related to corporate tax avoidance), and attributed this to firms

possibly having more tax planning experience (Amidu, 2016; Hanlon & Slemrod, 2009; Gupta & Newberry, 1997). Furthermore, Nwaobia, Kwarbai, & Ogundajo, (2016) stated that knowledge in tax planning is a function of age and the accompanying experience in the tax matters of the organization. In terms of firm performance, Desai and Dharmapala (2009a) explained that firms that are already performing worse because of exogenous factors are more likely to engage in tax avoidance. Conversely, Lisowsky (2010) claimed that tax aggressiveness increases with firm performance. Accordingly, we hypothesize that:

H9: Large firms are more likely to practice corporate tax avoidance due to economies of scale.

H10: Large firms do not have an incentive to practice corporate tax avoidance due to wider operations, higher earnings, and potential reputational costs.

H11: Older firms may be more (or less) likely to practice corporate tax avoidance due to having more experience in tax planning activities.

H12: Increasing (or decreasing) firm performance induces firms to practice tax avoidance.

Sample and Data Collection, Variable Description, and Methodology

Sample and Data Collection

To examine the impact of board characteristics on tax avoidance, we constructed an unbalanced panel dataset of annual firm-level data obtained from firms whose common shares are traded in the Philippine Stock Exchange (PSE) from 2003 to 2015. In addition, we obtained the necessary raw data used to measure corporate tax avoidance from the annual financial statements disclosed by our sample firms. We obtained information on the board's and directors' backgrounds (i.e., board size, board independence, CEO-Chair duality, gender diversity, board

age, and board-level education) from the Annual Reports and Annual Corporate Governance Reports submitted by these firms to the PSE and the Securities and Exchange Commission (SEC). Furthermore, we eliminated the following firms from our sample: (a) financial firms²⁹, (b) firms with missing data, (c) firms that did not trade during the year, (d) firms with negative earnings³⁰, and (e) firms that are Philippine Economic Zone Authority (PEZA)-registered³¹. Our final sample consists of an unbalanced panel dataset of 1,477 firm-years for our regressions using the residual book tax gap as a measure of corporate tax avoidance, 1,636 firm-years for our cash effective tax rate regressions, and 1,570 firm-years for our long-run effective tax rate regressions. Tables 2.1, 2.2, and 2.3 summarize this sample selection process.

Variable Description

Table 3 summarizes the descriptions and measurements of all the variables included in the study.

Dependent variable. The data on the tax avoidance practices of a firm are not readily available; however, several methods to measure them have been proposed in the literature. Popular methods of measuring corporate tax avoidance include (a) book-tax-gap (BTG) and (b) effective tax rate (ETR).

Residual book tax gap. The BTG is a commonly used measure of corporate tax avoidance that focuses on the magnitude of the difference between pre-tax income and the

²⁹ Financial firms (e.g., banks, insurances, investing companies, financial intermediates, holding companies, leasing companies) are excluded to eliminate inconsistencies in the use of financial disclosures and corporate governance structures across industries, and to ensure that the Tobin's Q becomes more accurate in the process (Liargovas & Skandalis, 2010; Guenther et al., 2013). According to the Philippine Stock Exchange Industry Classification system, financial firms are classified as "financials".

³⁰ Firms with a positive pre-tax income provide a logical interpretation of cash effective tax rates (Dyreng et al., 2008). Conversely, firms that state a negative pre-tax income yield non-meaningful effective tax rates.

³¹ PEZA-registered firms face different fiscal incentives (e.g., tax- and duty-free importation, tax holidays, and special 5% tax on income; PEZA, 2004). We eliminate these firms from our sample using the list of operating PEZA-registered enterprises as of 2016.

estimated taxable income. According to Wahab and Holland (2015), the difference in the accounting and taxable income may be attributed to permanent differences and temporary differences.³² Furthermore, the presence and magnitude of the gap suggests that the firm engages in corporate tax avoidance activities (Kim, Li, & Zhang, 2011). BTG is computed as:

$$BTG = Y^B - \hat{Y}^T \quad (1)$$

where Y^B is the income of the firm reported to its shareholders (i.e., book income before taxes) while \hat{Y}^T is the firm's estimated taxable income. To get the value of \hat{Y}^T in the absence of the firm's confidential tax returns, the firm's taxable income must be estimated using its current tax expense and the statutory tax rate. This is computed as:

$$\hat{Y}_{i,t}^T = \frac{CTE_{i,t}}{r_t} \quad (2)$$

where CTE_{it} represents cash tax expenses by firm i in year t , $\hat{Y}_{i,t}^T$ is the estimated taxable income of firm i in year t , and r_t is the corporate tax rate for year t .

Desai and Dharmapala (2006) criticized the book-tax gap because this gap between the reported book income and the reported taxable income may be attributed not only to tax avoidance, but also to the earnings management practices of the firm. They proposed the residual book-tax gap (RBTG) to address this issue. The RBTG has been employed to measure tax avoidance across many studies (Chen et al., 2010; Desai & Dharmapala, 2009; Kim et al., 2011). It excludes the effects of the firm's earnings management practices on the book-tax gap, and measures only the extent of corporate tax avoidance of a firm. Since most of the studies on

³² Permanent differences pertain to differences on how a transaction is treated between the two income measures while temporary differences refer to the temporal differences in accounting and tax measures, which result in transactions being included in either accounting or tax measures, but never simultaneously Wahab and Holland (2015).

earnings management focus on accruals, total accruals (TA)³³ has been commonly used as a proxy for earnings management (Desai & Dharmapala, 2006). Following Desai and Dharmapala (2006), the estimate of RBTG is obtained by estimating the following equation:

$$BTG_{i,t} = \beta_1 TA_{i,t} + u_i + \varepsilon_{i,t} \quad (3)$$

where u_i is the average value of the residual of firm i in the sample period, and $\varepsilon_{i,t}$ is the deviation of firm i 's residual from the average residual u_i in year t . Instead of a random effects regression, a fixed effects regression is employed to capture the time-invariant individual firm-specific effects on the book-tax gap. Thus, the residual from this regression, $\hat{u}_i + \hat{\varepsilon}_{i,t}$, captures the portion of the book-tax gap that cannot be estimated or explained by total accruals. Hence, we denote the residual book-tax (RBTG) gap as:

$$RBTG_{i,t} = \hat{u}_i + \hat{\varepsilon}_{i,t} \quad (4)$$

Effective tax rate. ETR is a widely used measure when estimating corporate tax avoidance. Moreover, it verifies the effectivity of a firm's tax planning activities, especially because managers are driven to reduce tax liabilities while increasing book income (Lee, Dobiyski, & Minton, 2015; Mills, Erickson, & Maydew, 1998; Phillips, 2003). Generally, the ETR is computed as the proportion of tax liability to accounting income, but several variants³⁴ have been developed to address certain issues with prior versions of the ETR.

³³ "Total accruals" is the difference between operating cash flows and net income (Lee, Ingram, & Howard, 1999).

³⁴There are four variants of ETRs commonly used including: (i) Generally Accepted Accounting Principles (GAAP) (accounting) ETR, (ii) current ETR, (iii) cash ETR, and (iv) long-run cash ETR. We do not use GAAP ETR as a measure of corporate tax avoidance in our study because such measure consists of current and deferred taxes, which do not typically reflect in corporate tax avoidance practices (Dyregang et al., 2010).

Cash effective tax rate. Cash ETR (CETR) measures the taxes paid per dollar of income, which is computed by dividing the total pre-taxable income from the cash taxes paid (Chen et al., 2010; Dyreng et al., 2010; Chen, Dhaliwal, & Trombley, 2012; Cheng, Huang, Li, & Stanfield, 2012). According to Dyreng et al. (2008), a low cash ETR value pertains to the ability of the firm to pay a low amount of cash taxes per dollar of pre-tax earnings over long time periods. Thus, lower values of cash ETR indicate greater tax avoidance. Also, cash ETR is not affected by certain items, such as the changes in the tax contingency reserves that are not tax planning strategies (Hanlon & Heitzman, 2010). We denote Cash ETR as:

$$CETR_{it} = \frac{CTP_{it}}{Y_{it}^B - SI_{it}} \quad (5)$$

where CTP_{it} represents the cash taxes paid by firm i in year t , while Y_{it}^B is the pretax income reported by firm i in year t , and SI_{it} include special items reported by firm i in year t . We subtracted special items³⁵ to remove the outlier effects of extraordinary events (Dyreng et al., 2010; Palanca & Zamudio, 2013).

Long run effective tax rate. The long run effective tax rate (LRETR) is computed using the sum of the total cash taxes paid by a firm over a certain period³⁶, divided by the sum of its total pretax income, excluding the special items, in the same period. By measuring effective tax rates over long-periods, Dyreng et al. (2010) claimed that it should be less affected by accruals management activities than annual ETR measures because the period must capture the reversals

³⁵ Special, or extraordinary items, “represent events and transactions that are distinguished by their unusual nature, by the infrequency of their occurrence, and the materiality of their impact on the earnings of the company, reported after taxes on net income” (Reuters, 2015). It includes natural disasters, terrorist attacks and extraordinary income or losses presented below net income before taxes. We exclude these items because they can induce volatility in one-year ETR measure compared to long-run ETR measures” (Dyreng et al., 2008).

³⁶ According to Hanlon and Heitzman (2010), the three-year period is the minimum suggested period for the computation of long-run ETR.

of the accruals. For instance, Chen et al. (2010), Minnick and Noga (2010), and Armstrong, Blouin, and Larcker (2012) employed the LRETR with periods varying between 3 to 5 years. In this study, we measured LRETR as the ratio of the cash taxes paid by the firm to accounting income before tax calculated over a three-year-behind window, including the current year. Thus, we measured LRETR as:

$$LRETR_{it} = \frac{\sum_{k=t-2}^t CTP_{ik}}{\sum_{k=t-2}^t (Y_{ik}^B - SI_{ik})} \quad (6)$$

where CTP_{ik} represents the cash taxes paid by firm i in year k . Y_{ik} is the pretax income reported by firm i in year k , and SI_{ik} include special items³⁷ reported by firm i in year k .

Independent variables.

Board characteristics. We analyzed the influence of certain board characteristics on the incidence of tax avoidance within a firm. Specifically, we measured (i) board size (*BFSIZE*) as the natural logarithm of the total number of directors comprising the board; (ii) board independence (*BINDP*) as the proportion of directors not affiliated with the firm's executives to the total number of directors, or the number of reported independent directors in the board (declared in the Annual Report) divided by the total number of directors in the board; (iii) CEO-Chair duality (*CDUAL*) as a dichotomous variable that takes the value of 1 when an individual serves as both the CEO and the Chairman of the board, and 0 otherwise; and (iv) gender diversity (*DIV*).

We considered three alternative measures of gender diversity. The first measure describes the proportion of women on the board or the number of female directors in the board divided by

³⁷ Special, or extraordinary items, "represent events and transactions that are distinguished by their unusual nature, by the infrequency of their occurrence, and the materiality of their impact on the earnings of the company, reported after taxes on net income" (Reuters, 2015). It includes natural disasters, terrorist attacks and extraordinary income or losses presented below net income before taxes.

the total number of directors on the board. The remaining two measures take the form of indices³⁸, that is, the Blau and Shannon indices.

The Blau Index (*BLAU*) is computed as

$$BLAU = 1 - \sum_{i=1}^k P_i^2 \quad (7)$$

where P_i is the percentage of board members in category i , and k represents the number of categories (two gender categories: male and female; Blau, 1977). The Blau index values range from 0 to 0.5, where a value of 0 indicates a perfectly homogenous board (i.e., board that is comprised of entirely male or female directors), and a value of 0.5 indicates a perfectly heterogeneous and gender-diversified board (i.e., board with an equal proportion of male and female directors).

On the other hand, the Shannon index (*SHANNON*) exhibits the same qualitative properties as the Blau index, and is computed as:

$$SHANNON = - \sum_{i=1}^k P_i \ln P_i \quad (8)$$

where, similar to before, P_i represents the percentage of board members in category i , and k represents the number of categories. The Shannon index values range from 0 to 0.693, where values of 0 represent a perfectly homogeneous board and values of 0.693 indicate a perfectly gender-diversified board (Shannon, 1948). Moreover, due to its logarithmic nature, the Shannon

³⁸ Diversity indices are more advanced measures of gender diversity because of their ability to capture variations of diversity within a group of people (Harrison & Klein, 2007). Similarly, Unite et al. (2016) and Campbell and Miguez-Vera (2008) argued that the proportion of women in the board is not an adequate measure of board-level gender diversity because it measures the degree of concentration of board members in only one gender category, that is, the female category.

index is more susceptible to slight changes in the gender composition of the board while also producing higher values relative to the Blau index.

Furthermore, we also looked into the effects of individual directors' attributes on corporate tax avoidance. Specifically, we measured (i) board age (*AGE*) as the average age of the board, or the total age of all board members divided by the total number of directors in the board, (ii) board undergraduate educational background (*UEDUC*) as the proportion of board members who were conferred with undergraduate degrees from business programmes³⁹, and (iii) board post-graduate educational background (*PEDUC*) as the proportion of board members who were conferred with post-graduate degrees from similar business programmes.

Family ownership and control variables. Similar to La Porta, Lopez-De-Silanes, and Shleifer (1999), we classified a firm as a family firm when at least 20% of its total outstanding shares are owned by members of the controlling family (i.e., related by blood or marriage) or by the largest individual shareholder. Thus, we measured family ownership (*FAM*) as the percentage of outstanding shares owned by members of the controlling family or the largest individual shareholder using a 20% ownership threshold.⁴⁰

Furthermore, to highlight the effects of other variables that are known to influence corporate tax avoidance, we included control variables (i.e., firm size, firm age, and firm performance) in our regression models. Firm size (*FSIZE*) is calculated as the natural logarithm of the book value of total assets, while firm age (*FAGE*) is measured by the natural logarithm of

³⁹ Business degree programmes include (i) business administration, (ii) accounting, (iii) finance, (iv) international business, (v) information management, (vi) marketing (vii) management science, and (viii) economics (Lestari & Wardhani, 2015; Tseng & Jian, 2016).

⁴⁰ As robustness checks, we also used the following to proxy for family ownership: (i) the percentage of outstanding shares owned by members of the controlling family or by the largest individual shareholder using a 50% ownership threshold, (ii) a dummy variable taking the value of 1 when the percentage of outstanding shares owned by members of the controlling family or by the largest individual shareholder is at least 20%, and 0 otherwise, and (iii) a dummy variable taking the value of 1 when the percentage of outstanding shares owned by the controlling family or by the largest individual shareholder is at least 50%, and 0 otherwise. Regardless of the family ownership measure used, we found qualitatively similar results.

the numbering of years since incorporation. Lastly, to capture both performance (*PERF*), we used (i) Return on Assets (*ROA*), as computed by the ratio of earnings before tax to the book value of total assets, and (ii) Return on Equity (*ROE*), as computed by the ratio of earnings before tax to the book value of total equity.⁴¹

Model Specification

We use regression analysis on unbalanced panel data to analyze the effects of board characteristics on corporate tax avoidance. Following Dyreng et al.'s (2010) model⁴², we incorporate board characteristics (i.e. board size, board independence, CEO-Chair duality, gender diversity, board age, and board-level education) into our models as independent variables. We also include family ownership, industry dummy variables and year dummy variables to control for fluctuations in corporate tax avoidance that are due to macroeconomic or market-wide shocks across industries and over time (Unite, Sullivan, & Shi, 2016). Therefore, we estimate the regression equation:

$$CTA_{it} = \beta_0 + \sum_m \beta_m BCHAR_{it}^m + \beta_n FAM_{it} + \sum_k \beta_k CONTROL_{it}^k + \sum_j \beta_j PSE_{it}^j + \sum_t \beta_t YEAR_t + \varepsilon_{it} \quad (9)$$

$$CONTROL = [FSIZE, FAGE, FPERF]'$$

$$BCHAR = [BSIZE, BINDP, CDUAL, AGE, UEDUC, PEDUC, DIV]$$

⁴¹ We also used Tobin's Q as an alternative measure of firm performance and found qualitatively similar results with that of ROA and ROE. Tobin's Q is measured by the sum of the book value of total assets and the market value of common equity, minus the book value of total equity and deferred tax liabilities, divided altogether by the book value of total assets, following Bertrand and Schoar (2003) and Fogel, Ma, and Morck (2014).

⁴² Dyreng et al. (2010) examined whether individual executives have an effect on their firms' tax avoidance by looking into the executives' characteristics (i.e., age, gender, educational background, tenure, optimism, and title).

where CTA_{it} is a measure of corporate tax avoidance, either ETR (long run ETR and cash ETR) or residual BTG,⁴³ $CONTROL_{it}$ is a vector of time-varying and firm-level controls, PSE_{jt} is a vector of dummy variables from the PSE industry classification⁴⁴, $YEAR_t$ is a vector of dummy variables from 2004 to 2015⁴⁵, $BCHAR_{it}$ is a vector of board characteristics, FAM_{it} is a measure of family ownership, and ϵ_{it} represents the error term.

Model Estimation

GMM estimation of dynamic panel models. One of the advantages of using panel data is that it is one of the few extensions of the classical model that can capture heterogeneity (i.e., time-invariant entity-specific characteristics) across groups, especially in the use of microeconomic data (Greene, 2002). Classic panel data regression methods (i.e., fixed and random effects procedures) have been used to account for unobserved heterogeneity across entities. Moreover, several estimation procedures, such as ordinary least squares (OLS) and two-stage least squares (2SLS), have been employed to examine the relationship between corporate governance indicators and various aspects of the firm. However, Wintoki, Linck, & Netter (2012) noted that in most cases, these methods fail to account for dynamic endogeneity⁴⁶ and simultaneity⁴⁷. For instance, in both fixed and random effects models, the problem arises when an independent variable is proven to be correlated with the disturbance term, even if the residual term is not autocorrelated (Greene, 2002).

In any empirical estimation in the corporate governance literature, endogeneity arises as a serious concern since it is likely that governance mechanisms and its determinants will be jointly

⁴³ We winsorized our dependent variables at the 1st and 99th percentiles to mitigate the effects of outliers.

⁴⁴ Industry type is classified based on the Philippine Stock Exchange Industry Classification system. In our regressions, we used the holding sector as our base industry dummy.

⁴⁵ We used 2003 as our base year dummy.

⁴⁶ Dynamic endogeneity describes data as not strictly exogenous and changes over time due to firm shocks, and whose past realizations affect current observations (Minnick & Noga, 2010).

⁴⁷ Simultaneity or reverse causality refers to the bi-directional causality between the independent and dependent variables.

determined (Hermalin & Weisbach, 2001). Specifically, these issues pertain to unobserved (individual effects) heterogeneity, simultaneity, and dynamic endogeneity. The issue of simultaneity, on the other hand, arises from the bi-directional causality between corporate tax avoidance and corporate governance quality (or quality of board measures), that is, the level of tax avoidance can be determined by the firm's corporate governance structure and the levels of tax avoidance may affect the governance structure of the firm as well. Lastly, although the issue of dynamic endogeneity is often overlooked in corporate governance studies, Wintoki et al. (2012) regarded it as the most important source of endogeneity since there are dynamic relations present among a firm's observable characteristics (i.e., in our study, past levels of tax avoidance may be correlated with current board appointments in the firm). In our study, the issue of dynamic endogeneity arises when past levels of tax avoidance influence current firm performance (Minnick & Noga, 2010), that is, the tax avoidance activities of the firm would lead to higher after-tax cash flows, which would improve firm performance in the following period. Consistent with the theory of dynamic endogeneity, Minnick and Noga (2010) found in their study on U.S. firms that the tax avoidance strategies of a firm are carried on to its next year of operations. Annuar, Salihu, & Obid (2014) also reported that "the prior year avoidance strategies of a tax-avoidant firm do transcend to the subsequent year" (p. 157) through the self-assessment system⁴⁸ of Malaysian firms.

To account for the issues mentioned above, we estimated Equation (9) using the Blundell-Bond System Generalized Method of Moments (GMM) estimator, instead of the Arellano-Bond Difference GMM estimator. Both Arellano-Bond and Blundell-Bond estimation on dynamic panel data are designed to account for datasets with (i) few time periods and many

⁴⁸ These firms are tasked to calculate and submit their tax liabilities to the Inland Revenue Board of Malaysia, according to their implemented self-assessment system where it is permissible to modify their submitted calculations while the assessment period is ongoing (Annuar, Salihu, & Obid, 2014)

entities, (ii) linear functional relationship, (iii) one dynamic left-hand-side variable, (iv) independent variables that can be correlated with past and current realizations of the error, (v) fixed individual effects, (vi) reverse causality, and (vii) heteroskedasticity and autocorrelation within entities (Roodman, 2009a). However, Wintoki et al. (2012) argued that the system GMM estimators obtain more efficient estimates that control for time-invariant unobserved heterogeneity, simultaneity, and the dynamic relationship between current values of the explanatory variable and past values of the dependent variable.⁴⁹ Moreover, Blundell and Bond (2000) found that the instruments used in the standard first-differenced GMM estimator “become insignificant as the value of the autoregressive parameter increases towards unity, and as the variance of country-specific effects increases relative to the variance of the transitory shocks” (p. 4-5). Relative to the difference GMM estimator, the system GMM estimator yields more unbiased and precise estimates when there are persistent variables (Grohmann, 2015), that is, in our study, this implies that the level of tax avoidance does not deviate systematically from its path over time and, therefore, approaches a random walk.

Moreover, although the two-step Arellano-Bond and Blundell-Bond estimators are hypothesized to be more efficient than the one-step variants, their standard errors tend to be biased downwards (Arellano & Bond, 1991). Windmeijer (2005) addressed this issue using his correction procedure that renders the two-step estimators unbiased, consistent, and more efficient than the one-step estimators.

All in all, we estimated Equation (9) using the two-step Blundell-Bond System GMM technique because its estimator yields more efficient estimates and performs better for datasets with persistent variables. Similar to Minnick and Noga (2010), we augmented Equation (9) by

⁴⁹ The Blundell–Bond estimator assumes that the first differences of instrument variables are not correlated with the fixed effects, thus allowing for the inclusion of additional instruments, which would improve efficiency (Roodman, 2009b).

including the one- and two-period lags of the dependent variable as additional independent variables. Furthermore, we used the third and fourth lags of the independent variables as instruments, except for CEO-Chair duality, year dummies, and firm age. To test for the validity of the instrument set used in System GMM, we employed the Arellano-Bond first- and second-order autocorrelation test and the Sargan-Hansen test for overidentifying restrictions. Failure to reject the null hypotheses of no second-order autocorrelation and that the model is correctly specified, respectively, implies that the moment conditions and instruments used are valid. Lastly, we reported standard errors that have been corrected for heteroskedasticity and within-firm serial correlation.

Results

Table 4 shows the descriptive statistics on the measures of tax avoidance, board characteristics, and control variables across all years. Specifically, we reported the mean, standard error, minimum, and maximum values of each of our variables. The residual book-tax gap (RBTG) has a mean value of PhP3,011.94 million. Surprisingly, we also observe an average cash-effective tax rate of 36%, despite the Philippines having a corporate income tax rate that peaked at 35% for the period 2004 to 2008. Botman, Klemm, and Baqir (2010) reported that effective tax rates in the Philippines are relatively higher than its neighboring countries, especially for companies that do not receive tax incentives.⁵⁰ However, the long-run cash effective tax rate has a mean value of 27%, when the minimum corporate tax rate was set at 30% within the sample period.

⁵⁰ The researchers further note that the marginal effective tax rate in the Philippines is similar across its neighboring countries; however, “as profitability increases, the average effective rate converges to the statutory CIT rate, which is the highest in the Philippines” (Klemm et al., 2010, p.11).

The average board in our sample consists of nine directors, and on average, one-fourth of these are independent directors. Moreover, the average age of a board is 59, while 40% of the observations have CEOs who simultaneously hold the role of Chairman of the Board within the firm. Furthermore, similar to Unite et al. (2016), the average proportion of females on the board is 14%, although the maximum proportion of women is 1. This implies that there is a firm included in our sample with an entire board composed of female directors.⁵¹

The average book value of total assets and age of a firm within our sample is PhP62,054,259,381 and 39.76 years, respectively. Meanwhile, the two measures of firm performance (i.e., ROA and ROE) have average values of 8.27% and 15.87%, respectively. The average proportion of outstanding shares owned by members of the controlling family or by the largest individual shareholder is 49.66%.

Tables 5 to 7 report the results from estimating Equation (9) across our sample of firm-years. Table 5 presents the results using RBTG to measure corporate tax avoidance, Table 6 uses the CETR to measure tax avoidance, and finally, Table 7 uses the LRETR to measure tax avoidance. Accordingly, each table also reports the results using the three measures of gender diversity (proportion of women in the board, Blau Index, and Shannon Index), as represented by the columns, and the two measures of firm performance (ROA and ROE), as represented by each panel. The findings, as shown in Tables 5 to 7, display mixed results, depending on the dependent variable that is being examined.

We first discuss Panel A.1. and Panel A.2. of Table 5, where we used RBTG as a measure of corporate tax avoidance across different gender diversity measures and performance measures. Panel A.1. reports the results using ROA as the measure of firm performance, while Panel A.2. shows the results using ROE as the firm performance measure. When we used ROA

⁵¹ Upon closer inspection, we note that this firm had only one director, who happened to be a female.

and ROE as measures of firm performance, board age has a positive and statistically significant relationship with corporate tax avoidance across all gender diversity measures used. This is consistent with Lestari and Wardhani's (2015) findings on 442 firms listed in the Indonesia Stock Exchange (IDX), where old directors tend to increase the incidence of tax avoidance because they are posited to be more engaged in tax-planning activities when in the age range of 40 to 50 years old.

Moreover, we found certain firm characteristics, such as firm size and firm performance, to have a positive and statistically significant relationship with corporate tax avoidance, regardless of the measure of gender diversity and firm performance used. This may be attributed to firms taking advantage of economies of scale (Streefland, 2016; Hanlon & Slemrod, 2009; Gupta & Newberry, 1997). Furthermore, we found past corporate tax avoidance, as measured by the one- and two-period lags of RBTG, to be significant and positively related to current corporate tax avoidance, which implies that successful tax avoidance activities encourage a firm to engage in tax avoidance in the next period.

Panel B.1. and Panel B.2. of Table 6 summarize the results using cash ETR as an alternative measure of corporate tax avoidance. Again, Panel B.1. and Panel B.2. report results using ROA and ROE as the firm performance measures, respectively. When we employ ROA as a measure of firm performance, we found board age to have a negative and weakly significant relationship with cash ETR when using the Shannon index as a measure of gender diversity. Similarly, when we employed ROE as a measure of firm performance, board age has a negative and weakly significant relationship with cash ETR when using the Blau index as a measure of gender diversity. Because higher cash ETR values imply lower corporate tax avoidance, our

results imply that older boards tend to increase the incidence of corporate tax avoidance, although the evidence of such is weak.

Moreover, when we used ROE as our firm performance measure, our results suggest that board independence has a positive and weakly significant relationship with cash ETR when the proportion of female board members is used to measure gender diversity. This indicates that a more independent board is associated with lower levels of corporate tax avoidance. Such finding is consistent with Fama and Jensen (1983), who argued that a higher percentage of independent directors increases the board's effectiveness in monitoring management because they act as arbiters during periods of disagreement among internal managers and they, likewise, oversee decisions that involve serious agency issues. Moreover, Ibrahim et al. (2003) found similar results, indicating that independent directors tend to be more responsive to the society's needs.

In addition, we found that having a board with more post-graduate degree holders on specific business and economics courses is significantly associated with lower cash ETR values, regardless of the firm performance measure used. This indicates that a board that is more educated on Business and Finance-related matters tends to be associated with higher levels of corporate tax avoidance. Such finding is similar to Lestari and Wardhani (2015), who argued that directors majoring in either Economics, Business, or Finance are more knowledgeable regarding tax laws, which allows them to engage more effectively in tax-planning activities. We also found firm performance, as measured by ROA and ROE, to have a significant and negative relationship with cash ETR, regardless of the gender diversity measure used. This indicates that better firm performance is associated with higher levels of corporate tax avoidance, similar to the findings of Lisowsky (2010).

Lastly, we found that the one-period lag of cash ETR has a significant and positive relationship with current cash ETR, regardless of the firm performance and gender diversity measure used. This indicates that engaging in current tax avoidance activities tends to induce the firm to lessen its engagement in the same activities during the next period due, perhaps, to the presence of supervising tax authorities and audit committees.

Panel C.1. and Panel C.2. of Table 7 report the regression results using long run cash ETR as the measure of corporate tax avoidance. Our results show that firm performance, as measured by ROA and ROE, has a significant and negative relationship with long-run cash ETR. Similar to our findings from Table 5 and Table 6, this result indicates that better firm performance is associated with higher levels of corporate tax avoidance. We also found the one-period lag of the long-run cash ETR to be significantly and positively related to current long-run cash ETR, which implies that past corporate tax avoidance is negatively associated with current corporate tax avoidance. Moreover, we found that board characteristics do not significantly explain much of the variation on corporate tax avoidance, as measured by the long-run cash ETR.

Overall, using the cash effective tax rate measure, we found a significant relationship between certain board characteristics (i.e., board age, board independence and the post-graduate education of the board in Business and Economics-related courses) and corporate tax avoidance. However, such board characteristics are insignificant when using the long-run effective tax rate as a tax avoidance measure. A possible reason for this finding is the change in the stability of the board structure over time. In line with this, Annuar, Salihu, & Obid (2014) explained that board composition structure is typically stable over time and would, therefore, be unlikely to change or at least change quickly in response to changes in the firm's tax position. Hence, although our estimates using cash effective tax rate as the measure of corporate tax avoidance report

statistically significant results, the influence of the board diminishes over longer periods of time (i.e., the board may be becoming less effective rather than more effective over time), thus potentially indicating a statistically insignificant relationship between board characteristics and corporate tax avoidance when measured by the long-run cash ETR.

Conclusion

Taxes are primarily imposed to increase public revenue; however, it is burdensome to most individuals. Consequently, tax avoidance has become popular among firms as an inexpensive financing tool that brings large economic benefits to most corporations. However, the extent of corporate tax avoidance is often blurred because the government, although it initiates efforts to earn tax revenues, also continues to provide tax advantages to attract investments towards the country. Nevertheless, tax avoidance creates moral issues with respect to tax fairness because it adds pressure on public spending and, consequently, impedes the government from providing public services. In fact, the declining tax effort in the Philippines is said to be a big contributor to the fiscal crisis that currently grips the country. Thus, as a mechanism of corporate governance, it becomes increasingly paramount to emphasize the role of the board of directors in influencing the tax strategies and decisions made within the firm. In this study, we look at the relationship between board characteristics and the growing culture of tax avoidance.

Using an unbalanced panel of approximately 1,500 firm-years for the period 2003 to 2015, we found that board age is positively associated with corporate tax avoidance, as measured by the residual book-tax gap. We also found board independence and the proportion of board members conferred with post-graduate degrees in Business and Economics to have a negative

and positive relationship, respectively, with corporate tax avoidance, as measured by the cash effective tax rate. Moreover, we found certain firm characteristics, such as firm size and firm performance (ROA and ROE), to increase the levels of corporate tax avoidance. However, when we use the long-run effective tax rate as a measure of corporate tax avoidance, we do not find board characteristics to be significant determinants.

In any corporate finance-related research, issues about unobserved heterogeneity, simultaneity, and dynamic endogeneity usually abound (Minnick & Noga, 2010). However, many researchers still overlook some of the endogeneity issues when examining corporate tax management issues. In our study, we used the two-step Blundell-Bond System GMM technique to address the aforementioned issues. Likewise, we emphasized that the System GMM estimator yields more efficient estimates and performs better for datasets with persistent variables, such as in our case.

Policy Recommendations

Tax avoidance is evidently associated with corporate financial decision-making. Our study provides further evidence that links board characteristics to tax avoidance using different measures. Moreover, we found evidence that observable board characteristics (e.g., board size, CEO-Chair duality, board diversity, etc.) are not strongly correlated with the influence of the board members in tax management, thus expanding the literature on unobservable board characteristics (e.g., expertise, interpersonal relationship and communication skills, emotions, etc.) that may also highlight the directors' effectiveness. Furthermore, we used empirical measures of tax avoidance that can serve as a foundation for other researchers who wish to explore the corporate tax-paying activities of firms in the Philippines.

Given that our study helps extend the literature on the topic of corporate governance, the implications of our findings should also be beneficial to tax policymakers who seek to identify and evaluate the laws that can affect the resource costs of paying taxes. Based on the results of our study, which confirm a significant relationship between certain board characteristics and corporate tax avoidance, the country's regulatory framework and corporate governance practices must be strengthened. In particular, our study provides empirical evidence that supports certain recommendations of the SEC. First, we support the recommendation of the SEC⁵² to include retirement age policies for directors, as having older directors can encourage tax avoidance activities. Secondly, because we observe the average age of boards in our sample to be 59 years, we also support the SEC's recommendation⁵³ to have diversity in the board regarding age, in order to reduce the incidence of corporate tax avoidance. Lastly, we support the SEC's recommendation⁵⁴ to have more independent directors, on the basis that doing so may help reduce the incidence of tax avoidance among Philippine publicly-listed firms. In effect, investors will have increased confidence in corporations that are backed with sound legal and regulatory structures.

⁵² SEC Memorandum Circular No. 19 Series of 2016 Recommendation 2.4 stated that: "The Board should be responsible for ensuring and adopting an effective succession planning program for directors, key officers and management to ensure growth and a continued increase in the shareholders' value. This should include adopting a policy on the retirement age for directors and key officers as part of management succession and to promote dynamism in the corporation."

⁵³ SEC Memorandum Circular No. 19 Series of 2016 Recommendation 1.4 stated that: "Having a board diversity policy is a move to avoid groupthink and ensure that optimal decision-making is achieved. A board diversity policy is not limited to gender diversity. It also includes diversity in age, ethnicity, culture, skills, competence and knowledge. On gender diversity policy, a good example is to increase the number of female directors, including female independent directors."

⁵⁴ SEC Memorandum Circular No. 19 Series of 2016 Recommendation 5.1 stated that: "The Board should have at least three independent directors, or such number as to constitute at least one-third of the members of the Board, whichever is higher."

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Appendix

Table 1
A priori Expectations and Hypotheses

Variable/Theory	Agency	Stewardship	Resource dependence	CSR/ Legitimacy	Other Theories
<i>Board Characteristics</i>					
Board size	(+)	--	(+)	--	--
Board independence	(-)	--	(+)	(-)	--
CEO-Chair duality	(+)	(+)	--	--	--
Gender diversity	(-)	--	(-)	(-)	(-)
Board age	--	--	(-)	--	(-)
Board-level education	--	--	(+)	--	--
<i>Ownership Structure</i>					
Family ownership	--	--	--	(-)	(-)
<i>Control Variables</i>					
Firm size	--	--	--	--	(+/-)
Firm age	--	--	--	--	(+/-)
Firm performance	--	--	--	--	(+/-)

Table 2.1
Sample Data Elimination (RBTG)

RBTG	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	Total
Initial number of firms	264	260	255	255	252	252	247	245	243	238	235	233	234	3213
Financial firms	(31)	(31)	(32)	(31)	(30)	(31)	(31)	(31)	(31)	(30)	(30)	(30)	(29)	(398)
Firms that did not trade within the year	(13)	(14)	(16)	(16)	(17)	(25)	(27)	(25)	(22)	(22)	(16)	16	(22)	(251)
PEZA firms	(9)	(8)	(7)	(6)	(4)	(5)	(4)	(3)	(3)	(2)	(2)	(2)	(2)	(57)
Missing information	(58)	(40)	(56)	(37)	(16)	(12)	(11)	(12)	(11)	(12)	(17)	(26)	(30)	(280)
Firms with negative earnings	(52)	(51)	(33)	(46)	(53)	(47)	(50)	(56)	(48)	(58)	(58)	(64)	(76)	(692)
Remaining firms	101	116	111	119	132	132	124	118	128	114	112	95	75	1,477

<i>CEO-Chair duality (CDUAL)</i>	A dichotomous variable taking the value of 1 if the CEO is also the Chair of the board, and 0 otherwise
Board-level gender diversity (<i>DIV</i>)	Proportion of female board members Blau Index (<i>see equation 7</i>) Shannon Index (<i>see equation 8</i>)
Board age (<i>AGE</i>)	Average age of the directors
Board-level education (<i>UEDUC; PEDUC</i>)	Proportion of directors in the board who graduated with a business degree
Family ownership (<i>FAM</i>)	Proportion of outstanding shares owned by the controlling family or largest individual shareholder where effective control is defined as at least 20%.
Firm size (<i>FSIZE</i>)	Natural logarithm of the book value of total assets
Firm age (<i>FAGE</i>)	Natural logarithm of years since incorporation
Firm performance (<i>PERF</i>)	Return on Assets (<i>ROA</i>), measured as net income before tax divided by the book value of total assets Return on Equity (<i>ROE</i>), measured as net income before tax divided by the book value of total equity

Table 4
Summary of Descriptive Statistics

	Mean	Std. Dev.	Min	Max
DEPENDENT VARIABLES				
Residual Book-Tax Gap (<i>RBTG</i>) (in PHP millions)	3,011.94	5,959.70	159.93	38,243.39
Cash Effective Tax Rate (<i>CETR</i>)	0.36	0.69	-0.81	5.168
Long-Run Cash Effective Tax Rate (<i>LRETR</i>)	0.27	0.39	-0.83	2.48
INDEPENDENT VARIABLES				
Board Size	9.52	2.36	1	18
Board Independence	0.25	0.10	0	0.71
Board Age	59.19	6.00	33.20	75.29
Proportion of firms with CEOs who are also the Chairman of the Board	0.40	0.49	0	1
Proportion of Females in the Board	0.14	0.14	0	1
Blau Index	0.20	0.17	0	0.49
Shannon Index	0.31	0.24	0	0.69
Proportion of Board Members with Business-related Undergraduate Degrees	0.47	0.21	0	1
Proportion of Board Members with Business-related Postgraduate Degrees	0.36	0.20	0	1

CONTROL VARIABLES				
Firm Size (Book Value of Total Assets) (in PHP millions)	62,054.2	163,579.7	6.8	1,863,649
Firm Age (In years)	39.76	25.00	0.84	108.39
Return on Assets (%)	8.27	8.96	0.07	51.57
Return on Equity (%)	15.87	15.09	-2.14	87.32
Family Ownership (%)	49.66	30.16	0	99.97

Table 5
Regression Results on RBTG
Regression results using the two-step Arellano-Bover/Blundell-Bond System GMM Procedure *Regression results using the two-step Arellano-Bover/Blundell-Bond System GMM Procedure*

	Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)		Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)
PANEL A.1: RBTG				PANEL A.2: RBTG			
Board Size	0.0466 (1.0204)	0.2680 (1.1037)	0.4267 (1.1498)	Board Size	-0.1608 (1.2315)	-0.0387 (1.2621)	-0.0005 (1.2570)
Board Independence	0.7623 (3.0620)	0.8701 (3.1741)	0.7283 (3.3828)	Board Independence	1.4058 (2.8728)	1.4380 (3.1042)	0.9189 (2849.594)
Board Age	0.1055 ** (0.0510)	0.1111 ** (0.0515)	0.1154** (0.0473)	Board Age	0.0936* (0.0538)	0.1081 * (0.0574)	0.1189 ** (0.0536)
CEO-Duality	0.3604 (0.6180)	0.3323 (0.6084)	0.3276 (0.6255)	CEO-Duality	0.6285 (0.6453)	0.5468 (0.6436)	0.4930 (0.5993)
Board-level gender diversity	-1.7897 (1.6817)	-1.9359 (1.4616)	-0.9424 (0.9218)	Board-level gender diversity	-0.7690 (1.8637)	-0.8791 (1.5313)	-0.3746 (1.0329)
Business Undergraduate Degree	-0.8888 (1.4817)	-0.8717 (1.4962)	-0.9234 (1.5224)	Business Undergraduate Degree	-1.7028 (1.6854)	-1.7227 (1.6976)	-1.5904 (1.6143)
Business Postgraduate Degree	-0.3970 (1.5753)	-0.3929 (1.5311)	-0.4716 (1.5622)	Business Postgraduate Degree	0.0268 (1.5929)	0.1223 (1.7654)	0.2269 (1.6362)
Firm Size	0.9181 *** (0.2892)	0.9247 *** (0.2771)	0.9230 *** (0.2825)	Firm Size	0.8258 *** (0.2872)	0.8133 *** (0.2755)	0.8256 *** (0.2788)
Firm Age	-0.1555 (0.3446)	-0.1601 (0.3411)	-0.1745 (0.2775)	Firm Age	-0.2175 (0.3508)	-0.2902 (0.3575)	-0.3104 (0.3172)
Return on Assets	0.0736 *** (0.0272)	0.0712 *** (0.2582)	0.0728 *** (0.0287)	Return on Equity	0.0568 ** (0.0181)	0.0563 *** (0.0173)	0.0564 *** (0.0182)
Family Ownership (20%)	-0.0164 (0.0139)	-0.0153 (16.6886)	-0.0150 (0.0169)	Family Ownership (20%)	-0.0152 (0.0174)	-0.0141 (0.0166)	-0.0144 (0.0167)
Lagged (1) of RBTG	0.4967 *** (0.0700)	0.5055 *** (0.0725)	0.5084 *** (0.0750)	Lagged (1) of RBTG	0.5026 *** (0.0724)	0.5032 *** (0.0746)	0.5082 *** (0.0748)
Lagged (2) of RBTG	0.3055 *** (0.0862)	0.3027 *** (0.0933)	0.3007 *** (0.0956)	Lagged (2) of RBTG	0.3075 *** (0.0961)	0.3067*** (0.0964)	0.3009 *** (0.0997)
Constant	-25.6246 *** (7.66394)	-26.5195 *** (7.7798)	-27.0888 *** (7.7906)	Constant	-22.4498 *** (7.9839)	-23.0010 *** (7.4421)	-24.0236 *** (7.5018)
Hansen	8.59	4.04	8.59	Hansen	9.71	11.13	6.74
AR(1)	-2.57 ***	-2.56 ***	-2.57 ***	AR(1)	-2.50 **	-2.49 **	-2.49 ***
AR(2)	-0.27	-0.25	-0.27	AR(2)	-0.30	-0.29	-0.26
Number of observations	1,477	1,477	1,477	Number of observations	1,477	1,477	1,477
Industry dummies	Yes	Yes	Yes	Industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Year dummies	Yes	Yes	Yes

* significant at the 0.10 significance level
** significant at the 0.05 significance level
*** significant at the 0.01 significance level

* significant at the 0.10 significance level
** significant at the 0.05 significance level
*** significant at the 0.01 significance level

Table 6
Regression Results on Cash ETR
Regression results using the two-step Arellano-Bover/Blundell-Bond System GMM Procedure

	Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)		Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)
PANEL B.1: CASH				PANEL B.1: CASH			
Board Size	-0.0135 (0.0716)	0.2868 (0.2541)	0.2644 (0.0441)	Board Size	0.0265 (0.3043)	0.3855 (0.2935)	0.2827 (0.2896)
Board Independence	-0.0152 (0.1831)	0.7522 (0.5372)	0.6610 (0.6037)	Board Independence	0.8343 * (0.4301)	0.8020 (0.5317)	0.7633 (0.6157)
Board Age	-0.0006 (0.0031)	-0.0172 (0.0105)	-0.0190 * (0.0110)	Board Age	-0.0149 (0.0137)	-0.0200 * (0.0119)	-0.0198 (0.0128)
CEO-Duality	0.0233 (0.0354)	0.1603 (0.1246)	0.1519 (0.1117)	CEO-Duality	0.1739 (0.1490)	0.1971 (0.1786)	0.1669 (0.1815)
Board-level gender diversity	0.0860 (0.1189)	-0.0167 (0.4334)	-0.0357 (0.2696)	Board-level gender diversity	-0.0501 (0.4406)	-0.0458 (0.4413)	-0.0683 (0.2787)
Business Undergraduate Degree	-0.4552 (0.0938)	-0.0606 (0.0986)	0.4420 (0.5102)	Business Undergraduate Degree	0.1876 (0.3886)	0.2372 (0.4294)	0.2181 (0.4908)
Business Postgraduate Degree	-0.8189 ** (0.3568)	-0.7880 ** (0.3685)	-0.8002 ** (0.3264)	Business Postgraduate Degree	-0.5794 * (0.3057)	-0.5902 (0.3763)	-0.6381 * (0.3782)
Firm Size	-0.0181 (0.0299)	-0.0195 (0.0401)	-0.0187 (0.0357)	Firm Size	0.0045 (0.0103)	0.0035 (0.0408)	0.0027 (0.0414)
Firm Age	0.0193 (0.0234)	0.0207 (0.0304)	0.0509 (0.0821)	Firm Age	-0.0046 (0.0258)	-0.0242 (0.0695)	-0.0220 (0.0718)
Return on Assets	-0.7402 *** (0.2175)	-0.7142 *** (0.1926)	-0.0149 ** (0.0061)	Return on Equity	-0.5080 *** (0.1131)	-0.7538 *** (0.1838)	-0.4778 *** (0.1068)
Family Ownership (20%)	0.0017* (0.0021)	0.0021 (0.0025)	0.0024 (0.0023)	Family Ownership (20%)	0.0157 (0.0453)	0.0012 (0.0026)	0.0010 (0.0029)
Lagged (1) of CASH	0.2033 *** (0.0687)	0.1886 *** (0.0643)	0.2074 *** (0.0731)	Lagged (1) of CASH	0.2084 *** (0.0657)	0.1853 *** (0.0652)	0.2074 *** (0.0731)
Lagged (2) of CASH	0.1213 ** (0.0505)	0.1036 ** (0.0544)	0.1246 *** (0.0485)	Lagged (2) of CASH	0.0988 ** (0.0507)	0.1164 ** (0.0516)	0.1246 *** (0.0486)
Constant	0.1003 (0.3015)	0.7368 (1.088)	0.9185 (0.9945)	Constant	0.6804 (1.0140)	0.5836 (1.1583)	0.8905 (1.3277)
Hansen	-11.67	-12.17	-12.93	Hansen	-1.52	-3.28	-0.70
AR(1)	-4.18 ***	-4.10 ***	-4.13 ***	AR(1)	-4.21 ***	-4.08 ***	-4.04 ***
AR(2)	-0.81	-0.66	-0.70	AR(2)	-0.15	-0.80	-0.83
Number of observations	1,636	1,636	1,636	Number of observations	1,636	1,636	1,636
Industry dummies	Yes	Yes	Yes	Industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Year dummies	Yes	Yes	Yes
* significant at the 0.10 significance level				* significant at the 0.10 significance level			
** significant at the 0.05 significance level				** significant at the 0.05 significance level			
*** significant at the 0.01 significance level				*** significant at the 0.01 significance level			

Table 7**Regression Results on LRETR**

Regression results using the two-step Arellano-Bover/Blundell-Bond System GMM Procedure

Regression results using the two-step Arellano-Bover/Blundell-Bond System GMM Procedure

	Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)		Proportion of females in the board (1)	Blau Index (2)	Shannon Index (3)
PANEL C.1: LRETR				PANEL C.2: LRETR			
Board Size	0.0270 (0.0957)	0.0392 (0.0839)	0.0073 (0.0804)	Board Size	0.0571 (0.0940)	0.0524 (0.0896)	0.0994 (0.0965)
Board Independence	-0.1886 (0.1738)	-0.2098 (0.1817)	-0.1158 (0.1865)	Board Independence	-0.1455 (0.1973)	-0.1983 (0.1933)	-0.1072 (0.1844)
Board Age	0.0026 (0.0045)	0.0024 (0.0039)	0.0021 (0.0045)	Board Age	0.0023 (0.0041)	0.0029 (0.0043)	0.0015 (0.0046)
CEO-Duality	-0.0043 (0.0431)	-0.0004 (0.0357)	0.0184 (0.0364)	CEO-Duality	-0.0112 (0.0357)	-0.0198 (0.0372)	0.0077 (0.0295)
Board-level gender diversity	0.0207 (0.1607)	-0.0146 (0.1654)	-0.0098 (0.1180)	Board-level gender diversity	0.0514 (0.1535)	-0.0227 (0.1754)	-0.0170 (0.1033)
Business Undergraduate Degree	0.0276 (0.1437)	0.0269 (0.1342)	0.0319 (0.1125)	Business Undergraduate Degree	-0.0443 (0.1086)	-0.0424 (0.1157)	-0.0824 (0.1137)
Business Postgraduate Degree	0.1425 (0.1340)	0.1026 (0.1290)	0.0984 (0.1272)	Business Postgraduate Degree	0.1577 (0.1349)	0.1457 (0.1488)	0.1669 (0.1511)
Firm Size	0.0035 (0.0109)	0.0048 (0.0109)	0.0027 (0.0094)	Firm Size	0.0078 (0.0111)	0.0073 (0.0112)	0.0038 (0.0105)
Firm Age	-0.0188 (0.0268)	-0.0234 (0.0266)	-0.0196 (0.0254)	Firm Age	-0.0404 (0.0314)	-0.0234 (0.0321)	-0.0284 (0.0293)
Return on Assets	-0.4504 ** (0.2192)	-0.4146 ** (0.2044)	-0.0056 ** (0.0023)	Return on Equity	-0.1992 *** (0.0835)	-0.0031 *** (0.0012)	-0.0031 *** (0.0105)
Family Ownership (20%)	0.0003 (0.0011)	0.0003 (0.0109)	0.0004 (0.0010)	Family Ownership (20%)	0.0001 (0.0010)	0.0001 (0.0010)	0.0001 (0.0011)
Lagged (1) of LRETR	0.7260 *** (0.0565)	0.7456 *** (0.0508)	0.5703 *** (0.0804)	Lagged (1) of LRETR	0.7502 *** (0.0503)	0.5680 *** (0.0869)	0.5738 *** (0.0888)
Lagged (2) of LRETR	0.0408 (0.0559)	-0.0673 (0.0614)	-0.0672 (0.0623)	Lagged (2) of LRETR	0.0408 (0.0058)	-0.0619 (0.0628)	-0.0646 (0.0652)
Constant	-0.0860 (0.3889)	-0.0867 (0.3743)	-0.1411 (0.3363)	Constant	-0.1156 (0.3277)	-0.1645 (0.3149)	-0.1051 (0.3106)
Hansen	2.24	-4.13	-5.15	Hansen	-2.99	0.75	-13.52
AR(1)	-3.29 ***	-2.07 **	-2.11 **	AR(1)	-2.05 **	-2.05 **	-2.04 **
AR(2)	-0.06	-0.11	-0.08	AR(2)	0.01	-0.01	0.03
Number of observations	1,5700	1,570	1,570	Number of observations	1,570	1,570	1,570
Industry dummies	Yes	Yes	Yes	Industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Year dummies	Yes	Yes	Yes
* significant at the 0.10 significance level				* significant at the 0.10 significance level			
** significant at the 0.05 significance level				** significant at the 0.05 significance level			
*** significant at the 0.01 significance level				*** significant at the 0.01 significance level			