

**Organizational Structure and Tax Avoidance:
Multinational Evidence from Business Group Affiliation**

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Abstract:

In this study we investigate how business group affiliation affects tax avoidance across different economic and legal systems. The business group structure should facilitate tax avoidance by allowing the ultimate owner to transfer resources and income across group firms. However, such activities are likely to incur non-tax costs. In this paper we identify three potential non-tax costs (price discount by minority shareholders, reputational and regulatory costs, and political costs) and consider how they differ across two key characteristics that are deemed to affect the tradeoff between cash tax savings and non-tax costs associated with a country's market development and legal origin. We find that, compared with stand-alone firms, business group firms exhibit greater tax avoidance in countries with developed economies or code law systems, where the non-tax costs are lower, and lower tax avoidance in countries with emerging economies or common law systems, where the non-tax costs are higher. Our results provide insights into the business group ownership structure and the impact of a country's legal origin and economic development on corporate tax avoidance.

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I. INTRODUCTION

A considerable literature has developed to identify factors that impact the extent of a firm's tax avoidance.¹ We add to this literature by examining how the business group as an organizational structure affects tax avoidance across countries with different institutional characteristics. The business group, in which an ultimate owner is the controlling shareholder for a set of companies, is prevalent around the world and is notable for the separation of ownership from control through pyramidal ownership structure and cross-shareholding (Bertrand, Mehta and Mullainathan 2002; Bae, Kang and Kim 2002; Joh 2003 and Baek, Kang, and Lee 2006).² A substantial stream of research has found that this structure facilitates capital flows and resource transfers among corporations within the group and has strong influence on the formation of national politics and economy. We therefore expect that a firm's affiliation with a business group facilitates corporate tax avoidance, for example, through income shifting across firms affiliated with the same business group. However, tax avoidance would also expose group affiliated firms to significant non-tax costs, including price discount by minority shareholders, reputational and regulatory costs, and political costs. In this study we consider how these non-tax costs are likely to vary, conditional upon two of the key country characteristics, i.e., economic development and legal origin, which are deemed to affect the tradeoff between cash tax savings and associated non-tax costs. Specifically, we examine how

¹ Examples include CEO characteristics (Dyreng, Hanlon, and Maydew 2010), CEO compensation structure (Rego and Wilson 2012), monitoring from labor unions (Chyz, Leung, Li, and Rui 2013) and hedge funds (Cheng, Huang and Li 2012), founding families (Chen, Cheng, Cheng and Shevlin 2010), dual-class shares, McGuire, Wang, and Wilson 2014), and individual country characteristics (Atwood, Drake, Myers and Myers 2012).

² "Pyramidal ownership structure is defined as an entity whose ownership structure displays a top-down chain of control. In such a structure, the ultimate owners are located at the apex and what follows below are successive layers of firms. A direct result of this pyramidal ownership structure is a separation of ultimate owners' actual ownership and control in firms located at the lower part of the pyramid structure." (Ariffin 2009, p.1)

business group affiliation differentially affects the extent of a firm's tax avoidance across different countries with differing economic development and legal origin. In so doing, we provide insights into how a firm's organizational structure combines with country-level economic and legal characteristics to influence corporate tax planning and strategy.

Business groups are organizations that include several legally independent firms that are connected via an ownership structure in which an ultimate owner is the controlling shareholder for a set of companies that are, in turn, the controlling shareholders of other firms. A key advantage of the business group structure is that it creates an internal capital market that facilitates the transfer of capital between corporations to overcome imperfect capital markets, especially in emerging market countries (e.g., Khanna and Rivkin 2001, Mahmood and Mitchell 2004, Chang, Chung and Mahmood. 2006). As such, the business group as an organizational form increases firm value by helping units take advantage of valuable investment opportunities. While the prior literature has focused on the ability of the business group to facilitate transfers of capital for investment, it could also enable ultimate owners to allocate resources across units to take advantage of favorable tax provisions such as tax credits for specific types of investments, and low tax rates in certain countries or jurisdictions (e.g., offshore financial centers). The common (and often centralized) control by ultimate owners could also allow group member firms to shift taxable income, through transfer pricing or resource allocation, to minimize the tax liability of the business group as a whole.³ As a result, firms affiliated with a business

³ "Transfer pricing happens whenever two companies that are part of the same multinational group trade with each other: when a US-based subsidiary of Coca-Cola, for example, buys something from a French-based subsidiary of Coca-Cola. When the parties establish a price for the transaction, this is transfer pricing.

group should be associated, in general, with a greater degree of tax avoidance than stand-alone firms.

However, prior research has documented evidence that the extent of tax avoidance is limited by non-tax costs associated with a firm's organizational form. We identify three such costs that are greater for business group firms than stand-alone firms. The first is the agency cost from the threat of wealth expropriation, which is exacerbated by the separation of cash flow rights from control rights, the second is the reputational and regulatory costs, and the third is the political cost imposed by local or central governments in the form of less favorable governmental contracts, regulations and policies.

The first cost comes from the ultimate owner's ability to direct resources in a manner that expropriates wealth from minority shareholders. Cognizant of this threat, minority shareholders would discount the price of their shares, a loss in value of the business group firm. Minority shareholders could also take legal action against the ultimate shareholder to protect their shareholder rights. Thus, when minority shareholders can impose costs on the firm through discounting shares or through taking legal action, ultimate owners are less likely to transfer resources to low tax regimes and may forego tax-planning opportunities to avoid the appearance of wealth expropriation. Studies of business groups in India and Korea find that minority shareholders use market or legal means to protect their interests, thereby passing the value loss from managerial expropriation back to the ultimate owner (Bertrand, Mehta

Transfer pricing is not, in itself, illegal or necessarily abusive. What is illegal or abusive is transfer mispricing, also known as transfer pricing manipulation or abusive transfer pricing. (Transfer mispricing is a form of a more general phenomenon known as trade mispricing, which includes trade between unrelated or apparently unrelated parties – an example is re-invoicing.)

It is estimated that about 60 percent of international trade happens within, rather than between, multinationals: that is, across national boundaries but within the same corporate group." (Tax Justice Network, <http://www.taxjustice.net/topics/corporate-tax/transfer-pricing/>)

and Mullainathan 2002, Bae, Kang and Kim 2002; Joh 2003; Baek, Kang, and Lee 2006; and Kim and Yi 2006). Additionally, the separation of cash flow rights from control rights, which is a salient feature of the business group, can further exacerbate a different type of agency costs, thereby leading to price discount by minority shareholders. This argument is supported by the findings of McGuire, Wang and Wilson (2014), who find that dual-class ownership firms pay higher tax rates because firm managers are more entrenched and thereby have lower incentives to exert effort to identify tax-planning opportunities. The argument is also consistent with the finding reported by Chen, Cheng, Cheng and Shevlin (2010), who find that family-controlled firms exhibit lower degrees of tax avoidance in the U.S. and conclude that family firms forgo tax benefits to avoid potential losses from a minority discount (i.e., price discount by minority shares in anticipation of non-tax costs).

The second cost is the reputational loss associated with detection or the appearance of tax evasion by ultimate owners. In general, reputation losses associated with aggressive tax planning and strategies is greater for group affiliated firms than for stand-alone firms. This is because news such as tax evasion about an affiliated firms, once leaked, could affect all other firms affiliated to the same group as well. Stated another way, the organizational ties among affiliated firms via complicated ownership structures such as cross shareholdings engender a spillover effects of an affiliated firm's aggressive tax strategies on all other firms in the same group, thereby exacerbating the reputation losses of all affiliates. In this environment, the affiliation to a business group can serve as a self-disciplining mechanism, particularly in countries with emerging (less developed) capital market.⁴ A group-affiliated firm in

⁴ Khanna and Rivkin (2001) and Khanna and Palepu (2000) argue that group reputation substitutes for underdeveloped legal and regulatory mechanisms that leave outside minority shareholders vulnerable to expropriation risks and information asymmetries.

such countries has a stronger incentive to bond themselves to “prudent” (as opposed to aggressive) tax planning and strategies.

The third cost comes from the government’s ability to affect firm value from government contracts, regulations, and policies. Prior research has also shown that group affiliated firms have better ability and more opportunities than stand-alone firms to receive benefits from governmental policies and decisions. These benefits include the speedy or timely approval of the government for businesses and contracts, preferential long-term loans and bailouts, among others.⁵ These benefits are more salient in countries where the institutional infrastructures such as the media, legal enforcement, and supervisory institutions are not well developed. In the absence of well-developed, formal institutional infrastructure (La Porta, Lopezde-Silanes, Shleifer, and Vishny, 1998), political connections or special relationships with the government or the powerful serve as an important form of informal institutions (Pearce, 2001). The political connections help firms look less risky in the eyes of outside stakeholders or the market, thereby reducing the cost of external finance (Boubakri, Guedhami, Mishra, Saffar, 2008; Khwaja and Mian, 2005). In this study, we argue that ultimate owners of business groups are more likely to use their political capital to reduce nontax costs.^{6,7} This is because the non-tax costs associated with tax

⁵ For example, Ramachandran, Manikandan, and Pant (2013) argue that the business group organizational structure is an efficient means of diversification. Chung, Mahmood, and Mitchell (2007) note that political ties (either through formal business relationships, or informal social relationships) are important to facilitate diversification. Thus, group-affiliated firms are likely to benefit more from access to information, government contracts, bank loans, and favorable regulatory conditions than stand-alone firms. This argument is consistent with evidence presented by Mills, Nutter, and Schwab (2012) that firms that rely more heavily on federal contracts tend to pay higher taxes.

⁶ As discussed in more detail below, Kim and Zhang (2013) using a sample of U.S. firms and Adhikari, Derashid, and Zhang (2006) using a sample of Malaysian firms, provide evidence that political connections are associated with lower taxes. While those papers suggest that firms use political connections to reduce their tax payments, we argue that business groups in emerging markets will pay higher tax rates in order to reduce their nontax costs.

⁷ It is also possible that the separation of control and cash flow rights will lead ultimate owners to use their political capital to reduce individual taxes than corporate taxes.

avoidance (e.g., failure to receive preferential loans and bailouts) far exceed the associated cash tax savings for group-affiliated firms versus stand-alone firms.

In summary, we expect business group affiliation to facilitate tax avoidance through the ability of the ultimate owner to shift resources to take advantage of favorable tax laws. However, the tax avoidance activities of business group firms are tempered by relatively high non-tax costs. We therefore expect group affiliated firms to engage less (more) in aggressive tax planning activities, or exhibit higher (lower) effective rates, than stand-alone firms, in countries where non-tax costs of tax avoidance are relatively high (low).

While these non-tax costs are not observable, they are likely to vary across countries, depending on country-specific characteristics. Two key country characteristics that are known to affect such costs are the country's economic development and legal origin. The first country characteristic we consider is the development of the country's capital markets. In emerging market countries with less developed capital markets and regulatory environments, the risk of expropriation by controlling shareholders is high. As a result, Khanna and Rivkin (2001), Khanna and Palepu (2000), Khanna and Yafeh (2005), and Gopalan, Nanda and Seru (2007) argue that in emerging markets business groups use their reputation as a bonding mechanism to reduce the minority discount. This suggests that in emerging markets, business groups may forego tax avoidance in order to avoid the perception of expropriation and incurring a higher minority discount.

As indicated above, the weaker regulatory and more opaque information environments associated with emerging market countries should also increase the value of political connections. In emerging market countries, business groups are therefore more likely to sacrifice tax avoidance in order to build political connections

to influence regulatory approvals and to obtain information regarding the economic and political environment. Thus, our first hypothesis is that group-affiliated firms exhibit a higher degree of tax avoidance than stand-alone firms in developed market countries where nontax costs are relatively smaller and a lower degree of tax avoidance in emerging market countries where nontax costs are greater.

The second home country characteristic we consider is the legal origin. English common law protects outside minority investors from ultimate inside owners more effectively than code law by enforcing contracts to constrain controlling insiders from extracting private control benefits (La Porta et al. 1998, 2002; Claessens et al. 2001; Dyke and Zingales 2002; Leuz et al. 2003).⁸ In addition, empirical evidence indicates that code law provides firms with greater opportunities for rent-seeking behavior.⁹ Stated another way, common law provides minority shareholders with a higher degree of legal protection that makes it easier for them to obtain relief. In this case, ultimate owners are less likely to pursue aggressive tax strategies that could cause minority shareholders to suspect rent extraction. This leads to our second hypothesis that business group affiliation will engender a higher degree of tax avoidance, relative to stand-alone firms in code law countries (where nontax cost is relatively low), and a lower degree of tax avoidance, relative to stand-alone firms in common law countries (where nontax cost is relatively high).

To test our hypotheses, we construct an international sample of firms for the sample period of 2000–2013 from 38 countries around the world. We collect financial

⁸ Private control benefits include opportunities to engage in tunneling, self-dealing, perquisite consumption, empire building, and the expropriation of corporate growth opportunities (Grossman and Hart 1980; Barclay and Holderness 1989; Shleifer and Vishny 1997; La Porta et al. 1997, 1998; Johnson et al. 2000; Nenova 2003; Dyck and Zingales 2004; Djankov et al. 2008).

⁹ For example, Leuz, Nanda and Wysocki (2005) find evidence that earnings management is more pervasive in code law countries, Ball, Kothari and Robin (2000) provide evidence that accounting income is less timely in code law countries, and Bushman, Piotroski and Smith (2004) show that there is less corporate governance transparency in code law countries

statement data from Compustat Global. Our empirical strategy requires us to identify whether a firm is affiliated with a business group or stand-alone and the extent to which a firm engages in tax avoidance. For this purpose, we first identify the control relationships among firms in a business group, using ownership data from the Osiris database that is provided by Bureau Van Dijk. Following Atwood, Drake, Myers, and Myers (2012), we measure the extent of a firm's tax avoidance by the difference between the country's statutory corporate tax rate and the firm's cash effective tax rate. The greater is the difference, the lower is the cash effective rate given the statutory tax rate, and thus, the higher is the extent to which firm engages in tax avoiding activities. Our tests include a series of firm-level and country-level controls that are expected to influence corporate tax rate. We use an index constructed by MSCI to classify a country as an emerging market or developed economy. We identify the country's legal origin from LaPorta et al. (1998). After applying the sample selection procedures above, we obtain an international sample of 3,829 business group firms from 36 countries around the around. Out of 36 countries, 22 (16) come from developed market (emerging market) countries, and 26 (12) come from code law (common law) countries.

Consistent with our first hypothesis, we find that group-affiliated firms display a greater degree of tax avoidance, or exhibit a lower effective tax rate, than stand-alone firms in developed countries where non-tax costs are relatively low, while these firms display a lesser degree of tax avoidance than stand-alone firms in emerging market countries where non-tax costs are relatively high. This finding supports the contention that the business group as an organizational form allows group affiliate firms to reduce their corporate income tax liability in countries with developed markets where the nontax costs (e.g., minority price discount, reputational costs,

political costs) are relatively small. However, the higher non-tax costs to business group firms in emerging market countries induce them to pay higher taxes than stand-alone firms.

Consistent with our second hypothesis, we find that group-affiliated firms display a greater degree of tax avoidance than stand-alone firms in code law countries and a lower degree of tax avoidance than those in common law countries. This suggests that in a code law system where the nontax costs are relatively low (e.g., low litigation risk), the business group as an organizational form facilitates tax avoidance. However, in a common law system where the nontax costs are relatively high (e.g., high litigation and political risk), business group firms tend to pay higher taxes than stand-alone firms.

Combining the above results, we also predict and find evidence that the incremental tax avoidance associated with the business group structure is greater in countries that have both developed markets and code law regimes, while it is lower in countries with both emerging markets and common law regimes. This finding suggests that a developed economic system and a code law system are both important factors determining the extent to which the business group structure facilitates tax avoidance.

Overall, our study contributes to the literature on the determinants of tax avoidance by showing that the organizational structure of the firm formed via complicated ownership networks combines with country level characteristics to influence the extent of a firm's tax avoidance. Prior studies on tax avoidance have focused on large multinational U.S. corporations (Rego 2003), including studies linking tax avoidance to ownership structure (Chen, et al. 2010; McGuire et al. 2014). While Atwood et al. (2012) examine the relations between country-level

characteristics and tax avoidance, our study contributes to this literature by providing evidence that a country's economic development and legal origin or rule of laws affect the impact of a common ownership structure on tax avoidance. Our study provides insight into how the trade-off between tax and nontax costs differs across countries by showing how country-level legal and economic institutions affect the business group's tax policies.

Our study also contributes to the literature on the economic effects of the business group affiliation. Most prior studies on the business group are constrained to a single country largely due to constraints on the data regarding the business group structure. One exception is Mahmood and Mitchell (2004), who document benefits associated with business group affiliation such as the increased access to internal financing and a greater degree of innovation. Using international data, Masulis et al. (2013) illustrate that family-controlled business group structure emerges in order to maintain control, as well as to circumvent external financing constraints. As such, our study contributes to an emerging body of business group literature by providing evidence on the effect of country-level institutional characteristics upon corporate tax policies for firms affiliated with the business groups. Our findings suggest that business groups also benefit their member firms in developed economies and code law countries by providing the opportunities for more efficient tax planning. In addition, we provide evidence that reputation effects in emerging markets and/or common law protections result in group-affiliated firms paying higher taxes than stand-alone firms. This evidence suggests that non-tax costs of tax avoidance in general and potential reputation losses in particular are higher for group-affiliated firms than for stand-alone firms in emerging market countries as well as in common law countries.

Finally, our study contributes to the multinational literature that investigates the economic consequences of country-level characteristics. While studies such as Atwood et al, (2012) and Williams (2015) investigate tax avoidance in a multinational context, our study also contributes to the broader literature on the impact of a country's legal system on the firm's governance structure and information environment (Ball, et al. 2000; Bushman et al. (2004); La Porta et al. 1998, 2002: Claessens et al. 2001; Dyke and Zingales 2002; Leuz et al. 2005).

II. HYPOTHESIS DEVELOPMENT

An important strand of the literature on tax planning and strategies focuses on the trade-off between non-tax costs and cash tax savings of tax avoidance (e.g., Scholes, Wilson, and Wolfson 1990), and theorizes that at equilibrium, a firm choose an optimal level of tax avoidance that balances cash tax savings against nontax costs associated therewith. Tax systems around the world provide opportunities for firms to reduce their effective tax rates to levels below domestic statutory tax rates. Examples include excluding foreign-sourced income and providing targeted tax credits for activities deemed to provide positive externalities or social benefits, such as research and development (R&D). In addition, many countries have progressive tax systems and asymmetrically treat profits and losses for the purpose of computing taxable income. As a result, the ability of a firm to take advantage of tax planning opportunities depends on the nature of their product markets, production functions, and organizational structure.¹⁰

¹⁰ For example, firms that rely on innovation to generate value are better able to take advantage of R&D tax credits and firms whose values are tied to intellectual property rights are better able to shift incomes from high-tax to low-tax jurisdictions. This suggests that a firm's tax rate depends on its ability to shift income and resources between economic activities or entities.

Organizational and ownership structures that allow firms to better transfer resources and income between units should enable them to engage in more aggressive tax planning and strategies. One such ownership structure is the business group. Khanna and Rivkin (2001, p. 47) describe business groups as “set of firms which, though legally independent, are bound together by a constellation of formal and informal ties, and are accustomed to taking coordinated action.” A business group typically has a pyramidal structure whereby an ultimate owner controls a set of firms, each of which controls another set of firms via cross shareholdings, etc., which creates the wedge between ownership and control rights. This is a fairly common structure that allows capital to flow more efficiently through different organizations, leading to greater and more effective investments in assets and R&D, particularly when external capital and input markets are not well developed (Almedia and Wofenzen 2006a, Masulis et al. 2011, Belenzon and Berkovitz 2010). On the other hand, prior studies illustrate that pyramidal ownership and control structure creates a wedge between control rights and cash flow rights, which can induce the ultimate owner of the business group to expropriate corporate resource via tunneling activities (Bertrand, Mehta and Mullainathan 2002, Bae, Kang and Kim 2002, Joh 2003, and Baek, Kang, and Lee 2006).

Given the evidence that the business group structure allows the ultimate owner to transfer resources to take advantage of investment opportunities, the control rights of the ultimate owner should also allow her to shift resources among firms affiliated with a business group. This incentivizes and facilitates the group’s ultimate owner to take advantage of tax saving opportunities. The financial flexibility provided by the business group structure should further facilitate the owner shifting resources among tax entities to take advantage of the favorable tax provisions. Thus, the business group

structure should facilitate the ability of the affiliates to reduce their tax payments or effective tax rates.

However, the business group structure faces three non-tax costs that limit their ability to engage in tax avoidance. The first is the relatively high potential agency costs associated with a separation of control and cash flow rights which is common to business group affiliated firms. This agency costs are typically reflected in the so-called minority discount associated with the threat of expropriation that leads minority shareholders to protect their interests through either minority price discount, or taking legal action. The second is the relatively high reputation losses upon detection of tax evasion or excessive tax avoidance. The third is the political costs generated by reducing the firm's contribution to local and/or national governments that shape the firm's legal or regulatory environments. We discuss each factor in turn.

Business groups are well characterized by the separation of control rights from cash flow rights via ownership structures such as pyramidal ownership and cross shareholding. In particular, the deviation of control rights from cash flow rights incentivizes the ultimate owner to shift resources from organizations for which the owner has low cash flow rights (i.e., those located at the bottom of the pyramid) to organizations for which the owner has high cash flow rights (i.e., those located at the top of the pyramid). This process, referred to as "tunneling," allows the ultimate owner to expropriate wealth from minority shareholders (Bae, Kang, and Kim 2002, Joh 2003, Bertrand, Mehta, and Mullainathan 2004, Baek, Kang, and Lee 2006). Anticipating these agency costs, outside minority investors price-protect themselves from the expropriation by requiring a higher rate of return on their investment or attaching a lower value to the firm, which is conveniently called "minority price discount." As a result, firms in the business group should take into account the above

agency-related non-tax costs against direct cash saving from tax avoidance when making their tax planning and strategies.

There is another type of agency costs, that is, non-tax costs associated with the separation of cash flow and control rights. McGuire et al. (2014) examine the relative tax avoidance of dual-class versus single-class ownership firms. These authors argue that managers of dual-class firms are protected from external disciplinary forces or the market for corporate control, because they are entrenched. Similarly, the divergence between control right and ownership right, which is a prominent characteristics of the business group, allows the ultimate owner of business group to be entrenched. This could in turn reduce managerial incentives to exert effort to identify profitable investment opportunities, including tax-planning opportunities. Consistent with their hypothesis, McGuire et al. (2014) find that dual-share firms exhibit a lower degree of tax avoidance than comparable single-class firms, and conclude that the separation of ownership from control leads to a lower level of tax avoidance.

Moreover, the business group as a whole is likely to incur higher reputation costs than stand-alone firms. If a member firm incurs a reputation loss (e.g., public discovery of excessive tax avoidance), all other firms affiliated with the same business group are likely to bear a similar reputation loss, and thus, to be investigated by tax regulators.¹¹ These reputation costs are higher for the ultimate owner of the business group than for the controlling owner of stand-alone firms, due to the contagious nature of negative corporate image, which affects all the affiliates within the same business group. The potential market discount associated with the perception that business group firms are transferring resources to reduce their tax payments could lead to firms in the group to forego tax planning opportunities. Stated another way,

¹¹ For example, the Korea Times reported a story that the National Tax Service conducted an audit of all 38 affiliates of the Hyundai Group in 2002 (Korea Times, February 1, 2002).

group affiliated firms may have to bond themselves from aggressive tax planning activities to convey to outside investors a credible signal that they do not engage in rent extraction through tax avoidance. In this respect, business group affiliation could serve as a bonding mechanism that helps group affiliated firms to avoid the potential loss in value from minority discounts and reputation losses. This is consistent with the findings reported by Chen et al. (2010), who find that family-run firms in the U.S. exhibit less tax avoidance due to family firms facing a higher minority shareholder discount.

Finally, business group firms are more likely to obtain nontax benefits from governmental agencies. Ramachandran, Manikandan, and Pant (2013) show that the business group organizational structure is a means by which firms accomplish diversification of their product markets. Firms in business groups therefore require more regulatory approvals and can benefit more from information obtained from government sources than stand-alone firms (Chung, Mahmood, and Mitchell, 2009). Several studies document the importance of political resources for business groups (Amsden, 1989; Dieleman and Sachs, 2008; Khanna and Yafeh, 2007; Khanna and Palepu, 2000; Kang, 2002). Political connections give access to valuable domestic resources (Wan, 2005), and groups tend to disproportionately be the recipients of political rents (Khanna and Palepu, 2000). Superior access to governmental agencies is said to constitute the very essence of business groups (Encarnation, 1989; Schneider, 2008). Thus, while stand-alone firms are likely to use political connections to reduce their tax payments, business group firms are likely to focus more on building relationships to obtain other governmental benefits or reduce non-tax costs, thereby leading group-affiliated firms to engage less in aggressive tax planning or to have higher effective tax rates than stand-alone firms.

Overall, the impact of business group affiliation on corporate tax avoidance should depend on the tradeoff between direct tax savings from tax avoidance and the associated non-tax costs. These non-tax costs include: (i) the potential minority price discount; (ii) reputational and regulatory costs, including the costs that may arise from managerial entrenchment of business group controlled firms; (iii) reputation losses; and (iv) political costs, including the value loss from foregoing non-tax-related governmental policies.

Cross-country differences in these factors should influence the tradeoff relation between direct tax savings and the non-tax costs that determines the optimal tax planning and strategy, and therefore the extent to which business group firms engage in tax avoidance. Two key country-level factors that influence the non-tax costs are: (i) the development of the country's economy or market (developed versus emerging market); and (ii) the country's legal origin (common versus code laws).

The incremental nontax costs generated by tax avoidance incurred by business groups are likely to be higher in emerging market countries. There is empirical evidence of minority discounts in emerging market countries (Bertrand, Mehta and Mullainathan 2002, Bae, Kang and Kim 2002; Joh 2003; Baek, Kang, and Lee 2006; and Kim and Yi 2006). In addition, emerging markets are characterized by less developed labor markets for managerial talents. This means that an alternative employment opportunity for corporate executives is more limited in the emerging market than in the developed market. This limited employment opportunity, combined with their career concerns, motivates corporate executives in emerging market countries to be concerned more about short-term performance and compensation in the emerging market, compared with those in developed market countries. This short-termism in emerging market economies could exacerbate the agency problems

generated by the separation of ownership from control that is a common characteristic of business groups. We therefore expect that the potential agency costs associated with the separation of ownership from control (e.g., self-serving resource diversion or private control benefits) are higher in emerging market economies than in developed market economies.

Finally, research has documented evidence that emerging market countries tend to have less developed regulatory regimes that may increase the potential value from political favors. For example, studies have shown that the effect of firm political connections on preferential lending and the higher likelihood of bailouts in the event of financial distress is an important feature of emerging market countries with weak market institutions (Baysinger, 1984; Shaffer, 1995; Schuler, 1996; McWilliams, Van Fleet and Cory, 2002; Hillman, Keim, and Schuler, 2004; Faccio, 2006; Claessens et al. 2008). The competitive advantage from political connections and government influence to benefit business group firms is also shown to be greater in emerging economies (Amsden, 1989; Khanna and Palepu, 2000; Dieleman and Sachs, 2008; Khanna and Yafeh, 2007; Khanna and Palepu, 2000; Kang, 2002; Wan, 2005). Thus, the value of non-tax governmental “favors” is likely to be higher in emerging market countries. In the absence of well-developed, formal institutional infrastructure such as strong market and legal institutions (La Porta, Lopezde-Silanes, Shleifer, and Vishny, 1998), some forms of informal institutions (e.g., guanxi in China, clientelism, patronage, etc) tend to emerge as an alternative to overcome formal institutional deficiencies and do play a substitutive role for (ill-functioning) formal institutions. In most emerging economies, political connections or special relationships with the government or the powerful serve as an important form of informal institutions (Pearce, 2001). Also, a firm’s affiliation with a business group structure has been

shown to have a competitive advantage in obtaining favorable government policies in the emerging economies. For group-affiliated firms, we expect that the non-tax costs may exceed cash tax savings in the emerging countries relative to the developed countries, thereby leading them to engage less in aggressive tax planning activities. Thus, in emerging market countries, owners of stand-alone firms might use their political connections to obtain favorable tax rates, whereas the ultimate owners of business groups are more likely to use their political capital to reduce their nontax costs.¹²

Therefore, in developed markets, relatively low non-tax costs for business group firms incentivize the ultimate owner of business group to shift income and resources among its member firms to take advantage of favorable tax provisions. As a result, in developed markets, business group firms are likely to engage more in aggressive tax planning, and thus exhibit lower effective tax rates, than stand-alone firms. However, in emerging markets, the various nontax costs could lead business group-affiliated firms to engage less in tax avoiding activities and thus display higher effective tax rates than stand-alone firms. This leads to the following hypothesis:

Hypothesis 1 (H1): *In developed market countries, firms affiliated with business groups exhibit a greater degree of tax avoidance than stand-alone firms.*

Hypothesis 1A (H1A): *In emerging market countries, firms affiliated with business groups exhibit a lower degree of tax avoidance than stand-alone firms.*

The nontax costs of tax avoidance for business group firms are also likely to vary based on the country's legal origin. Specifically, common law and code law countries tend to have three characteristics that are likely to influence the nontax costs

¹² Kim and Zhang (2013) using a sample of U.S. firms and Adhikari, Derashid, and Zhang (2006) using a sample of Malaysian firms, provide evidence that political connections are associated with lower taxes. While those papers suggest that firms use political connections to reduce their tax payments, we argue that business groups in emerging markets will pay higher tax rates in order to reduce their nontax costs because the reputational and regulatory costs upon detection may exceed potential tax savings.

faced by business groups. First, the greater degree of investor protection provided by common law versus code law (La Porta et al. 1998, 2002; Claessens et al. 2001; Dyke and Zingales 2002; and Leuz et al. 2003) increases the potential cost to the firm associated with minority investors' perception of controlling insiders' rent extraction. The additional investor protection provided by common law should therefore play a similar role as the minority discount in emerging markets to constrain the ultimate owner's ability to shift income and resources among group affiliated firms to reduce the total tax liability for the entire group.

The second relevant characteristic relates to the degree of shareholder monitoring associated with common law versus code law. Ball, Kothari and Robin (2000) note that code law countries tend to have a stakeholder governance approach, whereas common law countries tend to have a shareholder governance approach. In code law countries, this leads to direct monitoring over management by various stakeholders. This monitoring is likely to reduce the additional agency costs associated with the separation of ownership from control in the business group, leading management to identify tax planning opportunities that generate cash flows that can be shared among stakeholders.

Finally, common law differs from code law with respect to the degree of discretion provided to the government authorities in interpreting and enforcing regulations and policies. As described by Glaeser and Shleifer (2002), code law is considered to have a written tradition, whereas common law has an oral tradition. This means that code law has less flexibility than common law. Glaeser and Shleifer (2002) show how these two legal traditions permeate the manner in which governments operate. In our context, this is relevant with regard to the extent to which business group firms are likely to trade tax savings against nontax governmental

favors. In code law countries, where government officials have less flexibility, the potential gains from favorable nontax policies are lower, relative to common law countries. As a result, it is less likely that business group firms will forego tax saving opportunities in order to curry government favor in code law countries than in common law countries.

Therefore, in code law countries where the nontax costs are lower, we expect that business group firms are better able to shift income and resources to take advantage of favorable tax provisions. This allows business group firms to reduce their tax liability or effective tax rates. However, in common law countries, the higher nontax costs from the threat of expropriation, agency problems, and nontax governmental favors could lead group-affiliated firms to pay higher taxes than stand-alone firms. This leads to the following hypothesis:

Hypothesis 2 (H2) *In code law countries, firms affiliated with business groups exhibit a greater degree of tax avoidance than stand-alone firms.*

Hypothesis 2A (H2A) *In common law countries, firms affiliated with business groups exhibit a lower degree of tax avoidance than stand-alone firms.*

III. RESEARCH DESIGN

Sample and Descriptive Statistics

We construct our sample from the intersection of Compustat Global (for accounting data) and the Bureau van Dijk (BvD) Osiris database and the Worldscope database (for ownership-related data). BvD collects ownership information from companies, government agencies or associated information providers, such as company registrars of national statistical offices, credit registries, stock exchanges, and regulatory filings. Our sample period covers the 14-year period of 2000–2013. We identify business groups using detailed firm ownership links from the Osiris and

Worldscope databases, and merge business group data with accounting data from the Compustat Global database. We define a business group as a group where two or more listed firms are controlled by the same ultimate controlling owner. Control is typically enhanced through ownership pyramids, cross-shareholdings and to a less extent dual class shares. To identify whether a firm has an ultimate controlling owner, we use annual Osiris DVD updates from 2000 through 2013, supplemented by WorldScope.¹³ Osiris tracks control by computing voting rights rather than cash flow rights and identifies a shareholder of a firm to be the ultimate owner at a given threshold if that shareholder's stake in the firm exceeds that threshold directly or he controls it via a control chain whose links all exceed that threshold. A shareholder might be a corporation, an individual, a family, a foundation, or a government. In tracing control, Osiris presets the threshold of either 25 % or 50% and we choose a 25 percent threshold.¹⁴

We begin with all firm-year observations having sufficient data in the Compustat Global database to compute the variables used in our empirical analyses and merge them with the business group membership data from the Osiris database. Next, we apply a matching procedure to control for observable differences between group-affiliated firms and stand-alone firms.¹⁵ To address this issue, we use a propensity score matching (PSM) methodology (Dehejia and Wahba, 2002). We use the following logistic regression model to predict the business group affiliation:

¹³ We confirm the ownership variable by manually collecting shareholding data for these firms from various information providers in LexisNexis and Factiva. We further attain ownership information from the national stock exchange and securities regulator websites and from company annual reports available in the Mergent Online database or other websites.

¹⁴ We have used various thresholds to define the ultimate owner. Our results remain qualitatively unchanged.

¹⁵ Business groups could engage in "winner-picking" by identifying profitable stand-alone firms (Belenzon and Berkovitz 2010).

$$\text{Prob}(\text{Group}_{i,t}=1) = \alpha + \beta_1 \ln(\text{Total Assets})_{i,t-1} + \beta_2 \ln(\text{Cash Flow})_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \ln(\text{Firm Age})_{i,t-1} + \beta_5 \text{R\&D Intensity}_{i,t-1} + \beta_6 \text{External Finance Dependence}_{i,t-1} + \beta_7 \text{Lerner Index of Competition}_{i,t-1} + \gamma_{\text{Year}} + \eta_{\text{Country}} + \varepsilon \quad (1)$$

In the above, $\text{Prob}(\text{Group}=1)$ refers to the *ex ante* likelihood that a firm belongs to a business group and is *ex post* coded one for affiliates, and zero otherwise; $\ln(\text{Total Assets})$ is the natural logarithm of firms' total assets; $\ln(\text{Cash Flow})$ is the natural logarithm of cash flow from operating activities; ROA is net income divided by total assets; $\ln(\text{Firm Age})$ is the natural logarithm of the number of years since the date of incorporation. *R&D Intensity*, *External Finance Dependence* and *Lerner Index* are computed as their average values for each of Campbell (1996) industries using Compustat North America firms. *R&D intensity* is the ratio of R&D expenditures to sales. *External Finance Dependence* is capital expenditures less cash flow from operations divided by capital expenditures. *Lerner Index of Competition* is computed as the Campbell (1996) industry average of 1 minus profits over sales estimated. We measure all variables at the year of firms' initial public offering.¹⁶ We estimate Equation (1) using all firms included in Compustat Global with all information required to estimate the equation.

Panel A of Appendix C reports the estimation results for Equation (1). Equation (1) is a strong predictor of the business group affiliation as reflected in high proportion of concordant pairs (87.1%) and low proportion of discordant pair (12.9%). The results suggest that firms with greater profitability and larger size have a higher probability of affiliation. These findings are generally consistent with the winner-picking view: groups can identify stand-alone firms with higher expected success probability. Business groups are more prevalent in industries with higher

¹⁶ We collect firms' initial public offering (IPO) date from SDC Platinum database, and additionally supplemented any missing value in the IPO date with the date at which the Datastream database starts to cover a firm. We use the IPO date assuming that this is the closest to time at which the ownership structure (business group organization) is determined.

R&D intensity and external finance dependence. This is consistent with the view that the group structure fosters R&D activity through internal financing (Rajan and Zingales 1998; Belenzon and Berkovitz 2010).

We match each affiliate to four stand-alones domiciled in the same country with replacement. We identify four stand-alones per each affiliate whose propensity score distance is closest to that of the affiliate.¹⁷ Panel B of Appendix C provides the standardized differences in our control variables between group-affiliated and stand-alone firms. The results suggest that the procedure is effective in removing most of the differences between the two samples. However, a few differences, most notably firm size, remain.

We classify countries as being in an emerging or developed market based on the 2015 indexes constructed by MSCI, an investor research and analysis firm. We obtain the country's legal origin from LaPorta et al. (1998). According to MSCI, emerging market countries have lower degrees of openness to foreign ownership, lower capital inflows/outflows, lower efficiency of operational framework, and less stable institutional framework. Thus, emerging market countries generally have less developed capital markets with limited access to foreign capital. The efficiency of operational framework includes the "level of advancement of the legal and regulatory framework governing the financial market," and the stability of institutional framework includes the "basic institutional principles such as the rule of law and its enforcement." Therefore, firms in emerging market countries are more likely to suffer from issues of the expropriation of wealth from minority shareholders.

¹⁷Matching with replacement helps reduce bias and avoids results that are sensitive to the order in which the treatment units are matched (Dehejia and Wahba 2002). Dehejia and Wahba (2002, 154) state, "if there are only a handful of comparison units comparable to the treated units, then once these comparison units have been matched, the remaining treated units will have to be matched to comparison units that are very different. In such settings, matching with replacement is the natural choice."

Our measure of tax avoidance follows Atwood et al. (2014). They define tax avoidance as the reduction in explicit taxes paid relative to the country's statutory rate. Specifically, tax avoidance (*TaxAvoid*) for firm *i* in year *t* is defined as follows:

$$TaxAvoid_{it} = \frac{[\sum_{t-2}^t (PTEBX * \rho)_{it} - \sum_{t-2}^t CTP_{it}]}{\sum_{t-2}^t PTEBX_{it}} \quad (2)$$

where:

PTEBX = pre-tax earnings before exceptional items (*PI-XI* or Item 21–Item 57);¹⁸

ρ = home-country statutory corporate income tax rate;¹⁹ and

CTP = current taxes paid (*TX*–the change in *TXP* or Item 24–the change in Item 1000).²⁰

A higher value of *TaxAvoid* indicates that the amount of actual tax paid in current period is lower than the amount of statutory corporate tax to be paid under the current tax law. Therefore a higher value of *TaxAvoid* indicates that firms engage more aggressively in tax avoidance activities.

[Insert Table 1 About Here]

Panel A of Table 1 provides the number of firms and that of firm-year observations for stand-alone firms and business group affiliated firms by country. The table also provides the legal and market classification for each country. Japan is the country that has the largest representation with 25.31% (21.43%) of the stand-alone (group-affiliated) firm-year observations. Other countries that are prominently represented include India, Korea, France and Malaysia.

Panel B of Table 1 provides data regarding the ownership by the ultimate

¹⁸ Item numbers reference the Compustat Global FTP database.

¹⁹ We hand-collected these statutory rates from a KPMG LLP online summary, PricewaterhouseCoopers LLP's online information, and Coopers & Lybrand LLP's worldwide tax summary guides.

²⁰ When current tax expense (*txc*) is missing, we replace it with total tax expense less deferred taxes (*txt-txdl*) when available. We delete observations where current tax expense (*txc*) is missing and either total tax expense (*txt*) or deferred taxes (*txdl*) is missing.

owner (at the firm level) and the number of firms in each business group. Our sample imposes a minimum ownership of 25%. The mean (median) ownership is 70% (74%). The number of affiliates in a business group in our sample are relatively small, with the median equal to the minimum number of 2 firms. However, this number in our sample is highly skewed with several large business groups, which gives rise to a mean number of affiliates in each business group amounting to 8. At the firm level which is our level of analysis, larger business groups have greater representation, which leads to a mean (median) of 13 (3) firms.

[Insert Table 2 About Here]

Table 2 presents the data separated by market and legal origin. Panels A and B of Table 2 report the distribution of firms by industry (Campbell 1996) based on market development (Panel A) and legal origin (Panel B). Panel A of Table 2 shows that in both emerging and developed markets, a relatively high proportion of affiliates belongs to the Services and Leisure industries (17.08% and 20.00%, respectively, in emerging market; 17.36% and 11.81%, respectively, in developed markets). Panel B shows that similar effects are found in that both code law and common law countries have a relatively higher proportion of firms in the Services and Leisure industries.

Panels C and D of Table 2 present the summary statistics for the variables used in our analysis for emerging market countries and developed market countries, respectively. Consistent with our expectations, we find that in emerging market countries where the nontax cost of tax avoidance is relatively high (Panel C), the level of tax avoidance, captured by TaxAvoid, is lower for group-affiliated firms (median = 12.5%) than for stand-alone firms (median = 14.7%), indicating that group-affiliated firms engage less in tax avoidance than stand-alone firms in emerging market countries. In contrast, in developed market countries where the nontax cost is

relatively low (Panel D), we find that group-affiliated firms (median = 6.2%) tend to have a higher degree of tax avoidance than stand-alone firms (median = 4.9%). Though only suggestive of the underlying relation between business group affiliation and tax avoidance, the above results are in line with the predictions in H1. Further, we also find that, among group-affiliated firms, the degree of tax avoidance is higher for firms in emerging market countries (median = 0.125: Panel C) than those in developed market countries (median 0.062: Panel D).

Panels E and F of Table 2 present the summary statistics separated by a country's legal origin. Consistent with our expectations, we find that in code law countries (Panel E), group-affiliated firms (median = 5.5%) tend to have a higher level of tax avoidance than stand-alone firms (median = 3.4%). In contrast, in common law countries (Panel F), we find that group-affiliated firms (median = 17.9%) tend to have a lower degree of tax avoidance than stand-alone firms (median = 21.9%). The above findings are consistent with the predictions in H2. Further, we find that, among group-affiliated firms, the degree of tax avoidance is, in general, lower for firms in code law countries (median = 0.055: Panel E) than those in common law countries (median = 0.179: Panel F).

Empirical Model

We use the following baseline model to test for the general effect of the group affiliation on tax avoidance:

$$TaxAvoid_{it+1} = \beta_0 + \beta_1 Group_{it} + \Sigma \beta_n Z_{it} + \alpha_{Year} + \gamma_{Industry} + \eta_{Country} + \varepsilon. \quad (3)$$

where $TaxAvoid_{it+1}$ is the tax avoidance measure from Equation (2); and $Group_{it}$ is an indicator variable that equals one if the firm belongs to a business group and zero otherwise; Z_{it} is a vector of firm-level controls; and α_{Year} , $\gamma_{Industry}$, and $\eta_{Country}$ are indicator variables for the year, Fama-French 48 industry, and country, respectively.

Following Atwood et al. (2012), we include a set of firm-level controls, including pre-tax return on assets [*Pre-Tax ROA*], firm size [*LogSize*], cash size [*CashSize*], research and development expenditures [*R&D*], capital structure [*Leverage*], sales growth [*SalesGrowth*], asset mix [*CapInt* and *InvInt*], firm age [*FirmAge*] and an indicator variable for multinational operations [*Multi*]. We also include variables representing other ownership structure characteristics of firms that include the dual-class structure [*Dual*] and the family ownership [*FamilyFirm*].

We estimate the regression using either a vector of country-level controls, or country indicator variables.²¹ The country-level characteristics include the level of required book-tax conformity from Atwood et al. (2010) [*BTaxC*] to capture the effect of country-level book-tax conformity on firms' tax planning strategies; an indicator for countries with a worldwide approach [*WW*] to differentiate between firms in home countries with a worldwide versus territorial approach to imposing a tax on foreign income; the tax evasion index [*TaxEnf*] to capture perceived tax enforcement; and the statutory corporate tax rate in the home country [*TaxRate*] to capture the impact of tax system characteristics on tax avoidance. We also include the average of variable pay as a percentage of total compensation for firms in the country [*VarComp*] to capture management incentives for tax avoidance (Phillips 2003; Rego and Wilson 2008; Hanlon and Heitzman 2009; Gaertner 2010). Finally, we include the cross-sectional earnings volatility [*Earnvol*] to control for differences in the cross-sectional variance in pre-tax earnings.²²

IV. EMPIRICAL RESULTS

Test of Hypothesis 1

²¹ We provide detailed descriptions of the calculation of the country-level controls in Appendix B.

²² Atwood et al. (2010) include a variable for legal investor protection from LaPorta (1998) that incorporates legal origin and other variables. We use legal origin because it is the more commonly used variable that captures the underlying fundamental legal structure of a country. The results are qualitatively similar if we use the Atwood et al. (2010) measure.

H1 predicts that business group affiliation would be associated with a greater degree of tax avoidance in developed market countries where the nontax costs of tax avoidance for business group firms are relatively low. H1A predicts that business group affiliation would be associated with a lower degree of tax avoidance in emerging market countries where the nontax costs are relatively high. Table 3 provides the results. We report the results for the tests on our developed market country sample in columns (1) and (2) and for the tests on our emerging market country sample in columns (3) and (4). For each market we report the results incorporating country-specific control variables first, and then, the results using country indicator variables.

The results for the developed market countries support H1. In columns (1) and (2) the coefficient on the business group indicator is significantly positive. This is consistent with the prediction that in developed markets where the nontax costs associated with minority price discount associated with rent extraction and other agency costs, reputational and regulatory costs, and political costs associated with nontax political favors are relatively low, the business group ownership structure allows firms to allocate resources to take advantage of favorable tax provisions, thereby leading to a greater degree of tax avoidance.

The results for the emerging market countries are less clear. In column (3) the coefficient on the business group indicator is negative, but not significant at conventional levels. On the other hand, in column (4) with the broader sample using country indicator variables, the coefficient for the business group indicator variable is significantly negative. The negative coefficients on the group indicator variable in the emerging market countries, relative to the significantly positive coefficients for the business group variable in developed market countries, are consistent with the

contention that the no-tax costs of tax avoidance are higher in emerging market countries than in developed market countries. However, the evidence supporting H1's prediction that business group firms will exhibit a lower degree of tax avoidance than stand-alone firms in emerging market countries is mixed.

[Insert Table 3 About Here]

Test of Hypothesis 2

H2 predicts that business group affiliation would be associated with a greater degree of tax avoidance in code law countries where the nontax costs of tax avoidance for business group firms are relatively low. H2A predicts that business group affiliation would be associated with a lower degree of tax avoidance in common law countries where the nontax costs are relatively high. Table 4 provides the results. We report the results for the tests on our code law country sample in columns (1) and (2) and for the tests on our common law country sample in columns (3) and (4). For each market we report the results incorporating country-specific control variables first, and then, the results using country indicator variables.

The results for the code law countries support H2. In columns (1) and (2) the coefficient on the business group indicator is significantly positive. This is consistent with the prediction that in code law countries where the nontax costs associated with rent extraction, agency costs, and nontax political favors are relatively low, the business group ownership structure allows firms to allocate resources to take advantage of favorable tax provisions leading to a greater degree of tax avoidance.

The results for the common law countries support H2. In columns (3) and (4) the coefficient for the business group indicator variable is significantly negative. The negative coefficients on the group indicator variable in the common law countries are

consistent with the contention that in common law countries, the non-tax costs of tax avoidance are higher, and this higher non-tax costs lead business group firms to forego tax avoidance opportunities and to pay higher tax rates, compared with standalone firms.

[Insert Table 4 About Here]

Incorporating both Market Development and Legal Origin

The preceding analysis considers the country's market development and legal origin separately. However, as shown in Table 1, there is an overlap between the two characteristics. Therefore, we conduct an additional test to isolate the economic development results (Table 3) from the legal origin results (Table 4) as those results could be driven by countries that have both code law and emerging markets or both common law and developed markets. Because the sample size for certain economic development/legal origin combinations is relatively small, we conduct this analysis on the full sample and incorporate dummy interaction variables to capture the incremental effects of economic development and legal origin.

We report the results in Table 5. Panel A presents the regression results and in Panel B we aggregate coefficients to highlight the overall effects of economic development and legal origin. Consistent with the contention that business group affiliation enables firms to engage in greater tax avoidance, we find the coefficient for group affiliation (*Group*) to be significantly positive (0.026; $t = 5.98$). We also find the interactions between group and emerging markets and between group and common law to be significantly negative (-0.034; $t = -4.88$ for emerging markets and -0.069; $t = -8.31$, for common law respectively) These findings are consistent with the incremental effect of business group affiliation on tax avoidance being smaller for

emerging market countries and common law countries, and suggest that the nontax costs of tax avoidance to business group firms being higher in emerging market and common law countries than in developed market and code law countries, respectively. We also find a significantly positive coefficient for the interaction of the group indicator with both indicators, i.e., Group*Common*Emerging, to be significantly positive (0.064; $t = 5.90$). This is consistent with the view that a common law system and emerging market are substitutes for each other in inhibiting the business group structure from engaging in tax avoidance, such that the presence of one reduces the importance of the other.

In Panel B we relate the coefficients estimated in Panel A to the separate market development and legal origin groups. We find that the significantly positive relation between business group affiliation and tax avoidance is restricted to countries with developed markets and code law systems (coefficient = 0.026). The incremental impact of emerging markets and common law are significantly negative. Panel B of Table 5 also shows that the incremental impact of code law in enabling business group tax avoidance is greater in developed markets than in emerging markets (difference in coefficients = -0.034) and that the impact of developed markets in enabling business group tax avoidance is greater in code law countries than in common law countries (difference in coefficients = -0.069).

[Insert Table 5 About Here]

To conduct a more in-depth analysis of within-group characteristics, we examine the effect of group firm characteristics on corporate tax avoidance in a multivariate regression framework. The key independent variables are group characteristics employed in Table 6. First, we find that ultimate owners' direct ownership is negatively associated with firms' tax avoidance behavior. This result

supports the view that as the ultimate owners' direct ownership increases, the ultimate owner should face pro rata non-tax costs, providing the ultimate owners with economic incentive to reduce their aggressive tax planning activities. Second, as shown in Panel A of Table 6, we find that the number of affiliates increases the level of tax avoidance in developed markets, but decreases it in emerging market. As shown in Panel B of Table 6, we also find that the number of affiliates increase and decrease levels of tax avoidance for code law countries and for common law countries, respectively. These results are largely consistent with those reported in Table 4 and 5. Finally, tax avoidance behavior is negatively associated with the percentage of foreign sales revenue in the emerging market and in the common law countries. This finding reflects the fact that the affiliates with greater foreign sales are more visible and face greater non-tax costs such as reputational costs and political costs, thus balancing tax saving and non-tax costs by reducing levels of tax avoidance. Notably, this finding is contradictory with those reported by prior studies, which are largely based on standalone firms in the US market.

[Insert Table 6 About Here]

Next, motivated by a call for more tax research on the cross-sectional variation in corporate tax avoidance by Hanlon and Heitzman (2010), we investigate the effect of firm characteristics on tax avoidance. To do so, we interact a set of firm characteristics with the Group indicator. The coefficients on these interaction terms represent the incremental effect of firm characteristics on levels of corporate tax avoidance by the affiliates versus the standalones. Table 7 reports these results. First, compared to the standalones, business group-affiliated firms owned by a family are less likely to implement aggressive tax planning activities in two economies, that is, (i) countries with stronger legal institutions, as captured by the common law

countries; and (ii) countries with less developed capital markets, as captured by the emerging market. These results are consistent with the notion that minority price discounts, reputational costs, and political costs arising from corporate tax avoidance may be greater than potential tax benefits. However, we also note that compared to standalones, affiliates owned by family are more likely to engage in tax avoidance behavior in the developed market. Second, levels of tax avoidance for the affiliates is more negatively associated with firm profitability in the common law countries and in the emerging market, relative to for standalones. These results are consistent with Shevlin et al. (2016) reporting that corporate tax avoidance is partly driven by financial constraint. Third, levels of tax avoidance is negatively associated with firm size, supporting the view that larger affiliates may face greater reputational costs upon detection and penalization by tax regulators. Fourth, compared to standalones, the affiliates' corporate cash reserves and R&D expenditure are more negatively correlated with levels of tax avoidance in the emerging market and in the code law countries, respectively. Finally, compared to standalones, the affiliates' age is more positively associated with levels of tax avoidance in common law countries and in the emerging market. This result supports the notion that as the affiliates are in a more mature stage, they are more equipped with knowledge and methodology to save tax in a more efficient manner and are less concerned about their non-tax costs.

[Insert Table 7 About Here]

V. SUMMARY AND CONCLUSIONS

In this paper we investigate how organizational/ownership structure of business group and country-level characteristics combine to influence the degree of a firm's tax avoidance. We predict that the ability of a business group to access and

control the distribution of capital across group affiliates would allow business group firms to better take advantage of tax planning opportunities. However, in emerging market countries and countries with a common law legal origin, business group firms incur additional (non-tax) costs associated with tax avoidance activities that are driven by minority shareholders protecting against the threat of wealth expropriation (e.g., minority discount), higher agency costs and costs associated with losing non-tax governmental favors. As a result, we expect group affiliated firms to be associated with a greater degree of tax avoidance than stand-alone firms in countries with developed economies and countries with code law legal origins where non-tax costs are lower for business group firms.

To test our predictions, we use the MSCI emerging markets fund to classify countries as an emerging or developed economy, rely on the Osiris database, together with the Worldscope database, to identify firms as being affiliated with a business group, and identify the country's legal origin from La Porta et al. (1998). Our sample period covers the 14-year period of 2000–2013.

Consistent with our expectations we find that business group firms exhibit more tax avoidance than stand-alone firms in developed market countries and code law countries. In contrast, we find evidence that business groups exhibit less tax avoidance than stand-alone firms in emerging market countries and common law countries.

Overall, our findings provide new insights into how organizational and ownership structure affects a firm's tax avoidance and the institutional forces determining non-tax costs limit the extent to which firms engage in tax avoidance activities. Specifically, we find evidence that the costs associated with the threat of expropriation, from either a minority discount or legal action, the higher agency costs

from the separation of ownership from control and the greater non-tax costs from governmental favors associated with the business group structure leads group affiliated firms to forego tax saving opportunities, resulting in their paying higher taxes than comparable stand-alone firms.

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APPENDIX A Variable Definitions

Variables of interest		
Group	=	An indicator variable that equals one if a firm belongs to a business group. A business group is defined as a set of firms owned by the same ultimate owner. We define a shareholder of a firm to be the ultimate owner if that shareholder's stake in the firm exceeds 25 percent directly or via a control chain whose links all exceed 25 percent. (Source: Bureau van Dijk).
TaxAvoid	=	$\frac{[\sum_{t-2}^t (PTEBX * \rho)_{it} - \sum_{t-2}^t CTP_{it}]}{\sum_{t-2}^t PTEBX_{it}}$ <p>where: PTEBX = pre-tax earnings before exceptional items ($PI - XI$);²³ ρ = home-country statutory corporate income tax rate;²⁴ and CTP = current taxes paid ($TXC -$ the change in TXP).²⁵ (Source: Compustat Global).</p>
Firm-level control variables		
Pre-Tax ROA	=	Pre-tax income before exceptional items ($PI - XI$) divided by lagged total assets (AT). (Source: Compustat Global).
Size	=	The natural log of total assets (AT). Source: Compustat Global.
CashSize	=	Cash and Short-Term Investments (CHE) divided by lagged total assets (AT). Source: Compustat Global.
R&D	=	Research and development expense (XRD) divided by lagged total assets (AT). Source: Compustat Global.
Lev	=	Total long-term liabilities ($DLC + DLTT$) divided by total assets (AT). Source: Compustat Global.
SalesGrowth	=	The three-year average change in sales ($SALE$). Source: Compustat Global.
Multi	=	An indicator variable which equals zero if foreign income taxes is missing or zero, and equals one otherwise.
Idiosyncratic Risk	=	The standard error from estimating the one-factor market model on each firm's monthly stock returns in the five years prior to 2002. Source: Compustat Global.
Index Return at Listing	=	The annual market index return in the year of a firm's listing. Sources: Datastream and SDC Global Issue.
Dual	=	An indicator variable that equals one if the firm has dual-class shares. Sources: Data Stream, CRSP and National Stock Exchange Documents.
FamilyFirm	=	An indicator variable which equals zero if the type of direct ultimate ownership is "Individual(s) or family(ies)" or "One or more named individuals". Source: Osiris.

²³ Item numbers reference the Compustat Global database.

²⁴ We use statutory rates from KPMG LLP's online summary, PricewaterhouseCoopers LLP's online information, and Coopers & Lybrand LLP's worldwide tax summary guides.

²⁵ If current tax expense (Item24) is missing, we replace it with total tax expense less deferred taxes (Item23-Item25). We delete observations where current tax expense (Item 24) is missing and either total tax expense (Item 23) or deferred taxes (Item 25) is missing.

Appendix A (Continued)
Variable Definitions

<i>Industry-level control variables</i>		
RD_Intensity	=	R&D Intensity, External Finance Dependence and External Equity Dependence are computed as the average three-digit SIC level for the period 1995–2004 based on Compustat firms. . R&D intensity is the ratio between R&D expenditures and sales.
ExternalFinance	=	External Finance Dependence is the ratio between capital expenditures minus cash flow from operations and capital expenditures.
LernerIndex	=	Lerner Index of Competition is based on U.S. firms and is computed as the three-digit industry average of 1 minus profits over sales for the period 2002–2013.
<i>Country-level control variables</i>		
BTaxC	=	The level of book-tax conformity from Atwood et al. (2010)
WW	=	A dummy variable, which takes on the value of one for firms in home countries with a worldwide approach, and the value of zero for firms in home countries with a territorial approach;
TaxEnf	=	Managers' perceptions of the strength of tax enforcement in the country, from the 1996 World Competitiveness Report
TaxRate	=	The statutory corporate tax rate in the home country (Sources: a KPMG LLP online summary, PricewaterhouseCoopers LLP's online information, and Coopers & Lybrand LLP's worldwide tax summary guides)
VarComp	=	The country average of managers' variable pay as a percentage of management compensation (Source: Towers Perrin 2005)
Earnvol	=	The scaled descending decile rank of cross-sectional pre-tax earnings volatility by country-year
CommonL	=	An indicator variable that equals one if the country has a common law origin. (Source: La Porta et al. 1998)
Emerging	=	An indicator variable that equals one if the country is classified as an emerging capital market. (Source: MSCI emerging markets fund)

APPENDIX B
Measures of Country-Level Tax Characteristics from Atwood et al. (2012)

We use the four proxies for country-level tax characteristics from Atwood et al. (2012). *BTaxC* is a proxy for required book-tax conformity. Atwood, Drake and Myers (2010) develop this measure by computing the conditional variance of current tax expense (*CTE*) for a given level of pre-tax book income (*PTBI*) in a given country-year (i.e., $\text{Var}(CTE|PTBI)$). Countries with a lower conditional variance are assumed to have less flexibility in tax planning activities for a given level of reported pre-tax earnings, thereby requiring higher required book-tax conformity. That is, *CTE* is a proxy for the required level of book-tax conformity in the firm's home country. Specifically, Atwood et al. (2010) measure the conditional variance of current tax expense from the following model, which is estimated by country-year:

$$CTE_t = h_0 + h_1 PTBI_t + h_2 ForPTBI_t + h_3 DIV_t + e_t \quad (4)$$

CTE is current tax expense (Item #23 – Item #25); *PTBI* is pre-tax book income (Item #21); *ForPTBI* is estimated foreign pre-tax book income (foreign tax expense (Item #51)/total tax expense (Item #23) * *PTBI*); *DIV* is total dividends (Item #34); and *e* is the error term. We scale all variables by average total assets (Item #89). *BTaxC* is computed as the ranking of the root mean squared errors (RMSEs) from the equation (4). Countries with higher rankings of RMSEs in a given year have higher required book-tax conformity.

The second control is an indicator variable (*WW*) for firms domiciling in home countries that use a worldwide approach to taxing foreign income as opposed to taking a territorial approach (Atwood et al. 2012). These data are extracted from PricewaterhouseCoopers Corporate Taxes: A Worldwide Summary guides and from the Ernst & Young Worldwide Corporate Tax Guide for years 1990 through 2008. These guides document the percentage of dividends from foreign subsidiaries that are

subject to tax. We categorize countries as territorial if they exempt from tax at least 75 percent of foreign subsidiary dividends. The level of tax avoidance is expected to be lower when countries adopt the worldwide approach to taxing foreign income.

TaxEnf is a proxy for perceived tax enforcement. Following Attwood et al. (2012), we use the tax evasion index from the 1996 World Competitiveness Report, which is constructed based on a survey of more than 2,000 business executives per country. Respondents answer their agreement with the statement “Tax evasion is minimal in your country” on a scale from one through six (where one denotes strongly disagree and six denotes strongly agree). Therefore, higher numbers suggest that tax enforcement is considered to be stronger. Attwood et al. (2012) predicts that the association between tax avoidance and *TaxEnf* will be negative. Finally, the statutory corporate tax rate is included as a significant control variable capturing the impact of tax system characteristics on tax avoidance. As a general rule, the benefits of engaging in tax avoidance are predicted to be greater when the statutory tax rate is higher. Following Attwood et al. (2012), we collect the statutory corporate tax rates (*TaxRate*) from a KPMG LLP online summary, PricewaterhouseCoopers LLP’s online information, and Coopers & Lybrand LLP’s worldwide tax summary guides.

APPENDIX C
Propensity Score Matching

Panel A: Logistic regression results on probability of business-group affiliation

Variable	Coefficient (p-value)
<i>Firm characteristics:</i>	
ln(Total Assets)	0.085***
ln(Cash Flow)	0.003***
ROA	0.000***
ln(Firm Age)	0.013***
<i>Industry characteristics:</i>	
R&D Intensity (R&D/Sales)	6.772***
External Finance Dependence	2.679***
Lerner Index of Competition	2.479***
N	119,694
Pseudo R ²	0.07
Percent concordant	87.1
Percent discordant	12.9

Panel B: Covariate balance—Standardized difference between affiliates and stand-alones

Variable	Standardized Diff.
Dual	0.100
FamilyFirm	0.050
Pre-Tax ROA	-0.047
Size	0.519***
CashSize	-0.108*
R&D	-0.072
Lev	0.092
SalesGrowth	0.007
Multi	-0.085
BTaxC	-0.229**
WW	-0.145*
TaxEnf	-0.159*
TaxRate	-0.134*
VarComp	-0.027
Earnvol	-0.047
LegalFactor	-0.250

Panel A reports coefficient estimates from estimating a logistic model to predict business group affiliation. Panel B reports the standardized differences between group firms and the matched stand-alone firms for covariate balancing. Standardized differences of 0.2, 0.5, and 0.8 correspond to small, medium, and large differences between the treatment sample and the control sample, respectively (Cohen 1988). ***, ** and * indicate significance at the 0.2, 0.5, and 0.8 level, respectively. The dependent variable, *Group*, is equal to 1 if a firm belongs to a business group, and 0 otherwise. Independent variables include $\ln(\text{Total Assets})$, a natural logarithm of firms' total assets, and *Cash Flow*, cash flow from operating activities. *ROA* is profits over total assets. *Age* is the number of years since the date of incorporation. *R&D Intensity*, *External Finance Dependence* and *Lerner Index* are computed as the average Campbell (1996) industry level for the period 2002–2013 based on Compustat North America firms. *R&D intensity* is the ratio between R&D expenditures and sales. *External Finance Dependence* is the ratio between capital expenditures minus cash flow from operations and capital expenditures. *Lerner Index of Competition* is computed as the Campbell (1996) industry average of 1 minus profits over sales for the period 2002–2013. All regressions include a complete set of country and year dummies. The sample period spans 2002 to 2013, containing firms affiliated with the business group and stand-alone firms during this period. Only firm-year observations at the IPO year are included in the sample. Robust standard errors are estimated and are clustered at the firm level.

Table 1 Sample Firms

Panel A: Distribution by Country						
Country	Legal	Economy	Stand-alone Firms		Group-affiliated firms	
			Firms	Firm-years	Firms	Firm-years
Australia	Common	Developed	223	1,354	91	552
Austria	Code	Developed	37	206	17	117
Belgium	Code	Developed	46	332	29	235
Brazil	Code	Emerging	123	863	93	600
Canada	Common	Developed	103	511	37	67
Chile	Code	Emerging	69	563	64	514
Colombia	Code	Emerging	15	84	8	53
Denmark	Code	Developed	47	361	20	159
Finland	Code	Developed	58	513	25	125
France	Code	Developed	272	2,081	170	1,237
Germany	Code	Developed	266	1,831	146	956
Greece	Code	Emerging	82	539	54	300
Hong Kong SAR	Common	Developed	248	1,664	94	660
India	Common	Emerging	743	5,969	310	2,100
Indonesia	Code	Emerging	118	587	73	335
Ireland	Common	Developed	11	79	5	38
Israel	Common	Developed	126	578	92	400
Italy	Code	Developed	105	657	74	515
Japan	Code	Developed	1,761	12,962	825	5,101
Korea, Republic of	Code	Emerging	316	1,546	246	1,289
Malaysia	Common	Emerging	339	2,209	171	1,187
Mexico	Code	Emerging	56	425	26	126
Netherlands	Code	Developed	71	537	39	296
New Zealand	Common	Developed	51	419	22	153
Norway	Code	Developed	70	380	45	230
Peru	Code	Emerging	43	300	39	306
Philippines	Code	Emerging	43	244	52	357
Poland	Code	Emerging	130	734	75	437
Portugal	Code	Developed	24	189	14	91
Singapore	Common	Developed	255	1,626	120	822
South Africa	Common	Emerging	135	915	86	559
Spain	Code	Developed	57	498	39	309
Sweden	Code	Developed	135	932	64	446
Switzerland	Code	Developed	103	861	62	472
Taiwan	Code	Emerging	514	2,942	199	1,038
Thailand	Common	Emerging	121	976	55	376
Turkey	Code	Emerging	113	507	77	383
United Kingdom	Common	Developed	466	3,259	171	863
Total			7,495	51,233	3,829	23,804

Panel B: Business group ownership structure

	Mean	Median	Q1	Q3
Direct ownership by the ultimate owner	70.55	74.06	44.99	100.00
Number of affiliated firms (Business group level)	8.22	2.00	2.00	3.00
Number of affiliated firms (Firm Level)	13.35	3.00	2.00	7.00

This table displays information regarding the stand-alone and business-group affiliated firms in our sample. Panel A provides the number of firms and firm-years by country and each country's

classification. For each business group, Panel B provides the percentage of direct ownership by the ultimate owner, and the number of affiliated firms for each business group and the number of firms in the sample affiliated with a given business group.

Table 2 Sample Descriptions

Panel A: Sample distribution by industry based on Market								
Industry (Campbell 1996)	<i>Emerging Market</i>				<i>Developed Market</i>			
	<i>Stand-alones</i>		<i>Business-group Affiliates</i>		<i>Stand-alones</i>		<i>Business-group Affiliates</i>	
	Firm- years	%	Firm- years	%	Firm- years	%	Firm- years	%
Basic industry	231	1.16	341	3.29	433	1.39	351	2.61
Capital goods	1,581	7.91	621	5.99	4,607	14.74	1,579	11.75
Construction	24	0.12	11	0.11	106	0.34	50	0.37
Consumer durables	780	3.9	391	3.77	1,787	5.72	768	5.71
Finance & real estate	2,017	10.09	572	5.52	4,009	12.83	1,161	8.64
Food & tobacco	749	3.75	1,291	12.46	1,156	3.7	1,019	7.58
Leisure	4,083	20.43	2,072	20	3,534	11.31	1,588	11.81
Others	196	0.98	305	2.94	209	0.67	242	1.8
Petroleum	1,600	8.01	835	8.06	1,978	6.33	1,153	8.58
Services	4,453	22.29	1,770	17.08	6,012	19.24	2,334	17.36
Textiles & trade	510	2.55	422	4.07	1,636	5.23	936	6.96
Transportation	1,993	9.97	1,181	11.4	2,565	8.21	1,250	9.3
Utilities	1,764	8.83	548	5.29	3,220	10.3	1,013	7.53
Total	19,981	100	10,360	100	31,252	100	13,444	100

Panel B: Sample distribution by industry based on Law								
Industry (Campbell 1996)	<i>Code Law</i>				<i>Common Law</i>			
	<i>Stand-alones</i>		<i>Business-group Affiliates</i>		<i>Stand-alones</i>		<i>Business-group Affiliates</i>	
	Firm- years	%	Firm- years	%	Firm- years	%	Firm- years	%
Basic industry	291	0.92	355	2.22	373	1.91	337	4.33
Capital goods	3,785	11.95	1,491	9.3	2,403	12.29	709	9.12
Construction	21	0.07	15	0.09	109	0.56	46	0.59
Consumer durables	1,298	4.1	556	3.47	1,269	6.49	603	7.75
Finance & real estate	4,186	13.22	1,305	8.14	1,840	9.41	428	5.5
Food & tobacco	1,155	3.65	1,589	9.91	750	3.83	721	9.27
Leisure	4,194	13.24	2,509	15.65	3,423	17.5	1,151	14.8
Others	245	0.77	231	1.44	160	0.82	316	4.06
Petroleum	2,210	6.98	1,449	9.04	1,368	6.99	539	6.93
Services	6,957	21.96	2,934	18.31	3,508	17.94	1,170	15.04
Textiles & trade	1,485	4.69	869	5.42	661	3.38	489	6.29
Transportation	2,740	8.65	1,560	9.73	1,818	9.29	871	11.2
Utilities	3,107	9.81	1,164	7.26	1,877	9.6	397	5.1
Total	31,674	100	16,027	100	19,559	100	7,777	100

Table 2 Sample Descriptions (Continued)

Panel C: Descriptive statistics for variables—Emerging Market

	<i>Stand-alones</i>				<i>Business-group affiliates</i>			
	N	Mean	Median	Std	N	Mean	Median	Std
Key variable:								
TaxAvoid	19,981	0.178	0.147	0.223	10,360	0.169***	0.125***	0.216
Firm-level:								
Dual	19,981	0.011	0.000	0.103	10,360	0.027***	0.000***	0.163
FamilyFirm	19,981	0.040	0.000	0.196	10,360	0.055***	0.000	0.229
Pre-Tax ROA	19,981	0.099	0.080	0.080	10,360	0.105***	0.084***	0.084
Size	19,981	4.931	4.698	2.036	10,360	6.338***	6.196***	2.127
CashSize	19,981	0.160	0.101	0.169	10,360	0.161	0.109***	0.164
R&D	19,981	0.007	0.000	0.023	10,360	0.005**	0.000	0.017
Lev	19,981	0.251	0.210	0.226	10,360	0.266***	0.242***	0.217
SalesGrowth	19,981	0.212	0.155	0.271	10,360	0.213	0.156***	0.272
CapInt	19,981	0.341	0.322	0.207	10,360	0.354***	0.345***	0.215
InvInt	19,981	0.145	0.125	0.118	10,360	0.114***	0.095***	0.104
FirmAge	19,981	8.104	8.000	5.027	10,360	8.928***	8.000***	5.200
Multi	19,981	0.030	0.000	0.171	10,360	0.047***	0.000**	0.212
Country-level:								
BTaxC	19,943	0.013	0.012	0.006	10,333	0.012***	0.011***	0.006
WW	14,869	0.851	1.000	0.356	6,899	0.828***	1.000***	0.377
TaxEnf	19,981	2.847	2.460	0.777	10,360	2.900***	2.530***	0.807
TaxRate	19,981	0.284	0.300	0.061	10,360	0.277***	0.280**	0.059
VarComp	15,603	0.285	0.240	0.141	7,336	0.320***	0.360***	0.140
Earnvol	19,981	0.596	0.583	0.188	10,360	0.623***	0.605***	0.191

Panel D: Descriptive statistics for variables—Developed Market

	<i>Stand-alones</i>				<i>Business-group affiliates</i>			
	N	Mean	Median	Std	N	Mean	Median	Std
Key variable:								
TaxAvoid	31,252	0.082	0.049	0.222	13,444	0.089***	0.062***	0.220
Firm-level:								
Dual	31,252	0.006	0.000	0.073	13,444	0.016***	0.000***	0.120
FamilyFirm	31,252	0.038	0.000	0.192	13,444	0.041	0.000***	0.199
Pre-Tax ROA	31,252	0.087	0.068	0.071	13,444	0.079***	0.062***	0.063
Size	31,252	5.904	5.768	1.706	13,444	6.908***	6.789***	1.999
CashSize	31,252	0.179	0.132	0.164	13,444	0.150***	0.106***	0.147
R&D	31,252	0.012	0.000	0.027	13,444	0.012	0.000	0.026
Lev	31,252	0.211	0.170	0.197	13,444	0.231***	0.200***	0.199
SalesGrowth	31,252	0.141	0.093	0.214	13,444	0.139	0.089	0.227
CapInt	31,252	0.282	0.249	0.203	13,444	0.298***	0.270***	0.207
InvInt	31,252	0.118	0.096	0.111	13,444	0.104***	0.082***	0.099
FirmAge	31,252	11.429	11.000	6.430	13,444	12.302***	12.000***	6.442
Multi	31,252	0.096	0.000	0.295	13,444	0.090**	0.000***	0.286
Country-level:								
BTaxC	31,252	0.012	0.010	0.004	13,444	0.011***	0.010***	0.004
WW	29,105	0.627	1.000	0.483	12,531	0.562***	1.000***	0.496
TaxEnf	31,252	4.187	4.410	0.682	13,444	4.067***	4.410***	0.789
TaxRate	31,252	0.326	0.333	0.078	13,444	0.325**	0.333***	0.078
VarComp	29,105	0.317	0.280	0.118	12,531	0.327***	0.280***	0.121
Earnvol	31,252	0.799	0.806	0.124	13,444	0.803***	0.806***	0.126

Table 2 Sample Descriptions (Continued)

Panel E: Descriptive statistics for variables—Code law

	<i>Stand-alones</i>				<i>Business-group affiliates</i>			
	N	Mean	Median	Std	N	Mean	Median	Std
Key variable:								
TaxAvoid	31,674	0.059	0.034	0.206	16,027	0.084***	0.055***	0.212
Firm-level:								
Dual	31,674	0.012	0.000	0.106	16,027	0.030***	0.000	0.168
FamilyFirm	31,674	0.051	0.000	0.221	16,027	0.058***	0.000***	0.234
Pre-Tax ROA	31,674	0.083	0.065	0.069	16,027	0.081***	0.064**	0.068
Size	31,674	5.958	5.756	1.780	16,027	7.002***	6.824***	2.032
CashSize	31,674	0.180	0.135	0.160	16,027	0.151***	0.108***	0.145
R&D	31,674	0.013	0.000	0.027	16,027	0.011***	0.000	0.025
Lev	31,674	0.213	0.176	0.194	16,027	0.239***	0.212***	0.199
SalesGrowth	31,674	0.134	0.094	0.192	16,027	0.147***	0.100	0.223
CapInt	31,674	0.296	0.272	0.194	16,027	0.318***	0.298***	0.205
InvInt	31,674	0.122	0.104	0.106	16,027	0.109***	0.090***	0.097
FirmAge	31,674	10.939	10.000	6.291	16,027	11.409***	11.000***	6.242
Multi	31,674	0.021	0.000	0.145	16,027	0.028***	0.000**	0.165
Country-level								
BTaxC	31,636	0.010	0.010	0.004	16,000	0.010***	0.010**	0.004
WW	26,467	0.733	1.000	0.443	12,620	0.687***	1.000***	0.464
TaxEnf	31,674	3.653	3.860	0.842	16,027	3.495***	3.410	0.898
TaxRate	31,674	0.322	0.333	0.078	16,027	0.314***	0.314***	0.077
VarComp	27,201	0.296	0.220	0.102	13,057	0.315***	0.240***	0.104
Earnvol	31,674	0.752	0.771	0.142	16,027	0.760***	0.777***	0.153
Factor	30,803	2.780	2.728	1.052	15,532	2.643***	2.704	1.090

Panel F: Descriptive statistics for variables—Common law

	<i>Stand-alones</i>				<i>Business-group affiliates</i>			
	N	Mean	Median	Std	N	Mean	Median	Std
Key variable:								
TaxAvoid	19,559	0.219	0.202	0.226	7,777	0.205	0.179***	0.219
Firm-level:								
Dual	19,559	0.001	0.000	0.032	7,777	0.002	0.000***	0.041
FamilyFirm	19,559	0.019	0.000	0.135	7,777	0.026***	0.000***	0.158
Pre-Tax ROA	19,559	0.106	0.086	0.083	7,777	0.109***	0.088**	0.083
Size	19,559	4.823	4.683	1.883	7,777	5.956***	5.891***	1.984
CashSize	19,559	0.159	0.096	0.175	7,777	0.163*	0.106***	0.172
R&D	19,559	0.006	0.000	0.022	7,777	0.004***	0.000	0.017
Lev	19,559	0.249	0.204	0.231	7,777	0.261***	0.231***	0.225
SalesGrowth	19,559	0.226	0.155	0.294	7,777	0.221	0.153***	0.293
CapInt	19,559	0.319	0.284	0.224	7,777	0.331***	0.302***	0.227
InvInt	19,559	0.139	0.114	0.128	7,777	0.108***	0.078***	0.110
FirmAge	19,559	8.826	8.000	5.65	7,777	9.647***	9.000***	5.827
Multi	19,559	0.150	0.000	0.357	7,777	0.161**	0.000***	0.368
Country-level:								
BTaxC	19,559	0.015	0.013	0.005	7,777	0.014***	0.013**	0.005
WW	17,507	0.658	1.000	0.474	6,810	0.599***	1.000***	0.490
TaxEnf	19,559	3.682	4.340	1.153	7,777	3.691	4.340***	1.132
TaxRate	19,559	0.29	0.300	0.064	7,777	0.283***	0.300***	0.062
VarComp	17,507	0.321	0.300	0.157	6,810	0.342***	0.360***	0.164
Earnvol	19,559	0.667	0.673	0.222	7,777	0.653***	0.662***	0.211
Factor	19,453	4.938	5.354	0.750	7,742	4.831***	5.346***	0.760

This table presents univariate comparisons regarding the differences between stand-alone firms and business-group affiliated firms. Variable definitions are in Appendix I. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

Table 3
The effect of business group affiliation on corporate tax avoidance:
Emerging versus developed markets

	<i>Developed Market</i>		<i>Emerging Market</i>	
	(1)	(2)	(3)	(4)
Group	0.007**	0.007***	-0.003	-0.006**
	(2.36)	(2.71)	(-0.94)	(-2.11)
<i>Firm-level controls:</i>				
Dual	-0.026**	-0.017*	0.046**	0.012
	(-2.12)	(-1.70)	(2.00)	(0.74)
FamilyFirm	-0.016	-0.024***	-0.011	-0.014*
	(-1.62)	(-3.23)	(-1.07)	(-1.77)
Pre-Tax ROA	0.253***	0.192***	0.165***	0.159***
	(6.48)	(5.55)	(5.06)	(6.91)
Size	-0.004***	-0.003***	-0.001	0.000
	(-3.41)	(-2.80)	(-0.83)	(0.16)
CashSize	0.004	0.027**	-0.017	-0.021**
	(0.32)	(2.52)	(-1.50)	(-2.19)
R&D	0.067	0.010	0.048	0.083*
	(1.59)	(0.28)	(1.09)	(1.77)
Lev	0.036***	0.036***	0.022**	0.023***
	(4.02)	(4.55)	(2.32)	(2.94)
SalesGrowth	0.118***	0.099***	0.048***	0.055***
	(12.32)	(10.80)	(6.73)	(8.43)
CapInt	0.023***	0.031***	0.016	0.001
	(2.74)	(4.50)	(1.26)	(0.14)
InvInt	-0.025**	-0.041***	0.022	-0.002
	(-2.03)	(-3.42)	(1.37)	(-0.13)
FirmAge	0.001**	0.001*	-0.002***	-0.000
	(2.23)	(1.90)	(-3.91)	(-0.80)
Multi	0.057***	0.032**	0.018	0.001
	(3.63)	(2.04)	(1.24)	(0.10)
<i>Country-level controls:</i>				
BTaxC	-8.657***		2.832	
	(-5.90)		(1.12)	
WW	0.038**		-0.153***	
	(2.49)		(-3.19)	
TaxEnf	-0.025***		-0.080**	
	(-3.28)		(-2.60)	
TaxRate	-0.360***		0.932***	
	(-3.84)		(4.28)	
VarComp	0.148***		0.278***	
	(3.04)		(3.36)	
Earnvol	0.251***		-0.298***	
	(3.97)		(-4.35)	
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	No	Yes	No	Yes
Obs.	41,357	45,674	21,636	29,363
Adj. R ²	0.21	0.22s	0.26	0.23

The table presents OLS regression results with the dependent variable representing the extent of tax avoidance. “Group”, is an indicator variable set equal to one if the firm is affiliated with a business group, and 0 otherwise. Variable definitions are provided in Appendix A. T-statistics in parentheses are based on robust standard errors clustered by country and year (Petersen, 2009). ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

Table 4
The effect of business group affiliation on corporate tax avoidance:
Code versus common law

	<i>Code Law</i>		<i>Common Law</i>	
	(1)	(2)	(3)	(4)
Group	0.012***	0.012***	-0.021***	-0.015***
	(5.34)	(6.18)	(-6.39)	(-5.18)
<i>Firm-level controls:</i>				
Dual	-0.020	-0.012	-0.009	-0.042
	(-1.58)	(-1.12)	(-0.29)	(-1.50)
FamilyFirm	-0.028***	-0.020***	0.023**	-0.013
	(-3.97)	(-3.45)	(2.17)	(-1.07)
Pre-Tax ROA	0.256***	0.236***	0.126***	0.107***
	(5.57)	(6.96)	(5.60)	(5.26)
Size	-0.001	-0.001	-0.002	-0.005***
	(-1.01)	(-1.40)	(-1.29)	(-3.61)
CashSize	0.016	0.006	0.008	0.003
	(1.50)	(0.69)	(0.69)	(0.26)
R&D	0.183***	0.069*	-0.015	0.032
	(3.76)	(1.65)	(-0.47)	(0.98)
Lev	0.029***	0.030***	0.016*	0.032***
	(3.18)	(3.94)	(1.94)	(4.24)
SalesGrowth	0.122***	0.109***	0.037***	0.041***
	(10.66)	(11.69)	(7.16)	(8.21)
CapInt	0.031***	0.021***	0.015	0.014
	(3.82)	(3.24)	(1.43)	(1.58)
InvInt	-0.034**	-0.041***	0.003	-0.013
	(-2.45)	(-3.38)	(0.24)	(-1.16)
FirmAge	0.002***	0.002***	-0.002***	-0.001**
	(4.11)	(5.48)	(-4.82)	(-2.50)
Multi	0.159***	0.136***	0.032***	0.001
	(6.74)	(6.66)	(3.30)	(0.15)
<i>Country-level controls:</i>				
BTaxC	-0.727		-6.853***	
	(-0.44)		(-4.16)	
WW	-0.073***		-0.129***	
	(-6.30)		(-7.37)	
TaxEnf	-0.042***		-0.025**	
	(-7.07)		(-2.56)	
TaxRate	0.309***		-0.269*	
	(3.41)		(-1.85)	
VarComp	0.180***		0.106**	
	(3.08)		(2.00)	
Earnvol	-0.062		-0.307***	
	(-0.97)		(-6.88)	
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	No	Yes	No	Yes
Obs.	38,922	47,701	24,071	27,336
Adj. R ²	0.17	0.20	0.23	0.20

The table presents OLS regression results with the dependent variable representing the extent of tax avoidance. “Group”, is an indicator variable set equal to one if the firm is affiliated with a business group, and 0 otherwise. Variable definitions are provided in Appendix A. T-statistics in parentheses are

based on robust standard errors clustered by country and year (Petersen, 2009). ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

Table 5
The effect of business group affiliation on corporate tax avoidance

Panel A: Pooled regression results

Variables	Estimate
Common	0.123***
	(31.19)
Emerging	0.039***
	(10.05)
Group (β_1)	0.026***
	(5.98)
Group*Common (β_2)	-0.069***
	(-8.31)
Group* Emerging (β_3)	-0.034***
	(-4.88)
Group*Common*Emerging (β_4)	0.064***
	(5.90)
<i>Firm-level controls:</i>	
Dual	0.002
	(0.17)
FamilyFirm	0.008
	(1.31)
Pre-Tax ROA	0.332***
	(17.06)
Size	0.002**
	(2.05)
CashSize	-0.055***
	(-6.07)
R&D	0.016
	(0.55)
Lev	0.040***
	(5.74)
SalesGrowth	0.097***
	(19.09)
CapInt	-0.006
	(-0.76)
InvInt	0.007
	(0.49)
FirmAge	-0.001*
	(-1.84)
Multi	0.042***
	(6.61)
Year dummies	Yes
Industry dummies	Yes
Country dummies	Yes
Obs.	75,037
Adj. R ²	0.21

Table 5 (Continued)
The effect of business group affiliation on corporate tax avoidance

Panel B: Two-by-two analysis of the emerging market versus the developed market, by legal origin

The coefficients on Group (N=74,697)			
	Developed market <i>(i)</i>	Emerging market <i>(ii)</i>	<i>(ii)-(i)</i>
Code law <i>(iii)</i>	0.026*** (β_1)	-0.008** ($\beta_1+\beta_3$)	-0.034*** (β_3)
Common law <i>(iv)</i>	-0.043*** ($\beta_1+\beta_2$)	-0.013 ($\beta_1+\beta_2+\beta_3+\beta_4$)	0.030 ($\beta_3+\beta_4$)
<i>(iv)-(iii)</i>	-0.069*** (β_2)	-0.005*** ($\beta_2+\beta_4$)	0.064*** (β_4)

Table 7, Panel A presents OLS regression results. The dependent variable is the extent of tax avoidance, defined as the difference in taxes paid versus the amount that would be due under the statutory rate, scaled by pretax income, all accumulated over a three-year period. The test variable, “Group”, is an indicator variable set equal to one if the firm is affiliated with a business group, and 0 otherwise. The regressions are estimated separately for firms in emerging markets countries and developed market countries as well as in code law countries and common law countries. Panel B reports two-by-two analysis where control variables are included but not reported. Data are annual for the period 2002–2013. Variable definitions are provided in Appendix I. T-statistics in parentheses are based on robust standard errors clustered by country and year (Petersen, 2009). ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 6
The effect of business group affiliation on corporate tax avoidance:
Code versus common law—Within group analysis

Panel A: Capital market development—Emerging market versus developed market

	<i>Developed Market</i>	<i>Emerging Market</i>	<i>Developed Market</i>	<i>Emerging Market</i>	<i>Developed Market</i>	<i>Emerging Market</i>
Ultimate owners' direct ownership	-0.014	-0.062***				
	(-1.44)	(-5.45)				
# Affiliates			0.002**	-0.001**		
			(2.32)	(-2.39)		
PctForeignSales					-0.012	-0.066***
					(-0.83)	(-4.51)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	No	Yes	No	Yes	No	Yes
Obs.	45,674	29,363	45,674	29,363	45,674	29,363
Adj. R ²	0.21	0.22	0.19	0.20	0.19	0.20

Panel B: Legal origin—Common law versus code law countries

	<i>Code Law</i>	<i>Common Law</i>	<i>Code Law</i>	<i>Common Law</i>	<i>Code Law</i>	<i>Common Law</i>
Ultimate owners' direct ownership	-0.002**	-0.001***				
	(-2.14)	(-6.38)				
# Affiliates			0.001***	-0.002*		
			(2.84)	(-1.80)		
PctForeignSales					-0.010	-0.106***
					(-0.76)	(-7.95)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	No	Yes	No	Yes	No	Yes
Obs.	47,701	27,336	47,701	27,336	47,701	27,336
Adj. R ²	0.21	0.22	0.19	0.20	0.19	0.20

The table presents OLS regression results with the dependent variable representing the extent of tax avoidance. “Group”, is an indicator variable set equal to one if the firm is affiliated with a business group, and 0 otherwise. Variable definitions are provided in Appendix A. T-statistics in parentheses are based on robust standard errors clustered by country and year (Petersen, 2009). ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

Table 7
The effect of business group affiliation on corporate tax avoidance:
Code versus common law—Conditional on firm attributes

	<i>Code Law</i>	<i>Common Law</i>	<i>Developed Market</i>	<i>Emerging Market</i>
Group	0.044***	0.010	0.025*	0.015
	(4.12)	(0.76)	(1.94)	(1.21)
<i>Firm-level controls:</i>				
Dual	-0.010	-0.034	-0.020*	0.001
	(-0.86)	(-1.19)	(-1.84)	(0.03)
FamilyFirm	-0.021***	-0.001	-0.031***	-0.005
	(-3.28)	(-0.10)	(-4.07)	(-0.49)
Pre-Tax ROA	0.244***	0.136***	0.201***	0.197***
	(6.51)	(5.77)	(5.43)	(8.06)
Size	0.000	-0.004**	-0.002	0.001
	(0.08)	(-2.20)	(-1.57)	(0.35)
CashSize	0.006	0.007	0.025**	-0.006
	(0.60)	(0.72)	(2.21)	(-0.53)
R&D	0.149***	0.040	0.034	0.085**
	(2.90)	(1.49)	(0.67)	(2.48)
Lev	0.031***	0.028***	0.037***	0.022**
	(3.70)	(3.35)	(4.34)	(2.51)
SalesGrowth	0.122***	0.039***	0.107***	0.055***
	(11.36)	(6.59)	(9.90)	(7.32)
CapInt	0.023***	0.018**	0.032***	0.017*
	(2.69)	(2.11)	(3.81)	(1.67)
InvInt	-0.041***	-0.017	-0.053***	0.014
	(-3.15)	(-1.43)	(-4.33)	(0.85)
FirmAge	0.002***	-0.002***	0.001**	-0.001**
	(4.24)	(-2.84)	(2.06)	(-2.45)
Multi	0.119***	0.001	0.027*	0.004
	(6.31)	(0.13)	(1.75)	(0.27)
Dual*Group	-0.002	-0.024	0.006	0.022
	(-0.19)	(-0.39)	(0.42)	(1.51)
FamilyFirm*Group	0.004	-0.033**	0.022**	-0.023*
	(0.53)	(-2.06)	(2.25)	(-1.87)
Pre-Tax ROA*Group	-0.029	-0.113***	-0.030	-0.117***
	(-1.02)	(-2.98)	(-0.85)	(-3.23)
Size*Group	-0.003***	-0.005***	-0.002	-0.001
	(-2.60)	(-2.63)	(-1.15)	(-0.84)
CashSize*Group	-0.001	-0.011	0.006	-0.033**
	(-0.06)	(-0.69)	(0.40)	(-2.14)
R&D*Group	-0.238***	-0.134	-0.071	-0.074
	(-4.14)	(-1.04)	(-0.95)	(-0.37)
Lev*Group	-0.004	0.014	-0.005	-0.001
	(-0.38)	(0.96)	(-0.43)	(-0.04)
SalesGrowth*Group	-0.033***	0.005	-0.024*	-0.002
	(-3.12)	(0.50)	(-1.90)	(-0.16)
CapInt*Group	-0.004	-0.015	-0.002	-0.036**
	(-0.31)	(-1.09)	(-0.13)	(-2.29)
InvInt*Group	0.000	0.032	0.056**	-0.037
	(0.01)	(1.31)	(2.46)	(-1.32)
FirmAge*Group	0.000	0.001*	-0.001	0.002***
	(0.28)	(1.96)	(-1.24)	(4.30)
Multi*Group	0.043***	-0.000	0.016	-0.007
	(3.13)	(-0.04)	(1.43)	(-0.56)

Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
Obs.	27,336	47,701	45,674	29,363
Adj. R ²	0.20	0.20	0.22	0.24

The table presents OLS regression results with the dependent variable representing the extent of tax avoidance. “Group”, is an indicator variable set equal to one if the firm is affiliated with a business group, and 0 otherwise. Variable definitions are provided in Appendix A. T-statistics in parentheses are based on robust standard errors clustered by country and year (Petersen, 2009). ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.