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## Competition and corporate tax evasion: An institution-based view<sup>☆</sup>

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### ABSTRACT

Why do firms evade taxes? We tackle this question by studying firms in the formal sector operating in countries with different institutional backgrounds, and comparing the incentives and constraints of staying within the formal sector against the competitive pressures originating from the informal sector. We argue that it is the combination of these factors that largely explains formal firms' tax evasion decisions. Our findings highlight the dark side of competition, particularly when it originates from perceivably unfair sources (i.e. from the informal sector). We also shed light on how this effect is moderated by the institutional conditions of the environment.

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### 1. Introduction

In international business, the institution-based view asserts that firm behaviors around the world are affected by the rules of the game—specifically institutions that govern the “do’s” and the “don’ts” (Dunning & Lundan, 2008; North, 1990; Peng, Ahlstrom, Carraher, & Shi, in press; Peng, Wang, & Jiang, 2008). However, not all firms comply with all the rules and regulations. Instead, corporate misconduct is frequent around the world. One of the most ubiquitous illegal corporate behaviors in almost every country is corporate tax evasion, which is defined as a managerial decision not to fully report taxable corporate profit in order to reduce tax payments (Sandmo, 2005).<sup>1</sup> Past research has identified several factors that influence the likelihood of corporate tax evasion (Andreoni, Erard, & Feinstein, 1998), such as public sector corruption (Friedman, Johnson, Kaufmann, & Zoido-Lobaton, 2000; Goerke, 2008), tax rates (Cowell, 2004; Fisman & Wei, 2004), degree of penalties (Gordon, 1990), fairness of the tax code

(Cullis and Lewis, 1997), and effectiveness of corporate governance mechanisms (Desai & Dharmapala, 2006; Desai, Dyck, & Zingales, 2007). However, the interplay between formal and informal firms is underexplored in the literature (Mathias, Lux, Crook, Autry, & Zaretzki, 2015). Due to significant variations in the prevalence of the informal economy across countries, international business (IB) research would benefit from a better understanding of the dynamics of competition between these two groups of firms, and the resulting effects on formal firms' tax compliance decisions.

Specifically, what is the effect of *informal* economic activity on formal firms' tax evasion decisions? What are some boundary conditions that affect formal firms' tolerance of such informal competitive pressures? Defined as “economic activities that occur outside of formal institutional boundaries but which remain within the informal institutional boundaries for large societal groups” (Webb, Bruton, Tihanyi, & Ireland, 2012, p. 599), the informal economy operates in every country. Today the informal economy contributes between 10%–20% of the gross domestic product (GDP) in developed economies, and 40%–60% of GDP in developing economies (Godfrey, 2011; Webb et al., 2012). Informal firms are defined as “businesses that are unregistered but derive income from the production of legal goods and services” (Nichter & Goldmark, 2009, p. 1456; see also: Bruton, Ireland, & Ketchen, 2012). Following such a definition, our definition of informal firms does not include firms that are dealing with illegal goods and services (i.e. drugs, weapons that are traded outside of the law, or other sorts of criminal activity). Instead, we focus on the informal firms that transact in the market of legal products and services, albeit not complying with governments' reporting requirements. Thus, it is the means they choose to carry out their business that

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<sup>1</sup> Tax evasion is different from tax avoidance, which is defined as exploiting loopholes in tax law in order to reduce the firm's tax liability within legal boundaries (Sandmo, 2005). In other words, tax evasion is often illegal, and tax avoidance is often legal.

situates them outside of the formal economy. On the other hand, formal firms are defined as the registered businesses bound by governments' rules and regulations.

The old view that “the informal sector is the traditional economy that will wither away with modern industrial growth” is replaced with the understanding that the informal economy is here to stay—in practically every country (Chen, 2008, p. 5). For instance, studying the size of the informal economy in 151 countries, Schneider, Buehn, and Montenegro (2010) found that on average, the share of the informal economy has remained largely the same between 1999 and 2007 (33% and 31% of GDP, respectively, as world average).

Given that informal firms are not going away, the strategies used by formal firms to cope with such “unfair” competition from the informal sector are therefore of particular interest. While the activities of informal firms circumvent any government regulation, many formal firms also locate themselves on the boundaries of formality by not fully complying with the regulatory authorities (Bruton et al., 2012). Scholars have called for research on this topic to “examine in a more nuanced way what drives the decision regarding where along the formal-informal continuum a firm chooses to locate” (Bruton et al., 2012, p. 3). We look at both informal and formal institutional factors that affect such choices. Leveraging the institution-based view (Ahuja & Yayavaram, 2011; Khanna, Palepu, & Sinha, 2005; Meyer & Peng, 2016; Peng, Sun, Pinkham, & Chen, 2009), we argue that the degree of competition from the informal economy changes the rules of competition such that formal firms must not only deal with other formal firms, but also with informal firms. Informal firms have inherent advantages through cost savings generated by circumventing government oversight in matters such as taxes, labor laws, and other regulations (Karlinger, 2014; Schneider & Enste, 2000). Formal firms may therefore refrain from fully reporting their revenues for tax purposes in an effort to survive and compete with informal competition.

Furthermore, while increased informal competition may lead firms in the formal sector to evade taxes, the efficiency of the formal institutions will likely determine the degree to which such informal competition is tolerated by firms in the formal sector. We find that when the costs of compliance with formal rules increase (i.e. a burdensome tax system), firms will lower their compliance levels to stay competitive vis-a-vis the informal sector. On the other hand, when institutions provide sufficient advantages to firms staying within the formal sector (i.e. ease of access to finance), the effects of competitive threats from the informal sector will likely be less pronounced. A firm's degree of compliance with reporting requirements while facing competition from informal firms will accordingly depend on the costs and benefits of operating within the formal sector.

This paper endeavors to make three contributions to IB research. First, we contribute to the understanding of an important corporate strategic (although illegal) decision in various countries around the world. Despite its ubiquity, corporate tax evasion has received scarce attention in the IB literature. In a comparative lens, we explore the perceived challenges with respect to informal competition and costs and benefits of staying formal in various countries to understand the dynamics of competition between formal and informal firms. Second, there is a growing literature about the dark side of competition and the requisite institutions, showing that in more competitive environments firms are more likely to behave in illicit ways (Acemoglu & Robinson, 2012). We contribute to that stream by showing the impact of informal competition above and beyond the formal competition on firm misconduct. We believe this is important since managers dealing with dysfunctional competition from “unfair” (i.e. informal) sources may perceive their illicit behavior less of an issue than

firms that are dealing with formal competitive pressures. Finally, we contribute to the institution-based view of business strategy (Peng et al., 2008) by studying both informal and formal institutions with respect to their impact on firms' tax evasion decisions. This implies that with their liability of foreignness multinational enterprises (MNEs) may be in a difficult position if they naively expect just formal market competition in some countries where informal competitive pressures are strong.

## 2. Theory and hypotheses

### 2.1. Effects of competitive pressures on firm misconduct

Firms operate under varying degrees of competitive pressure within their markets. On the one hand, competition is associated with greater internal efficiency in organizations, increased incentives for innovation, and higher market efficiency by selecting out inefficient firms (Ahlstrom, 2010). On the other hand, the consequence of increased competition within a market is reduction of profits (at least in the short run). This competitive pressure leads firms to find ways to improve the bottom line and enhance chances of survival (Porter, 1990).

While the positive effects of competition such as improvements in productivity, quality, and efficiency in process designs have been amply documented, scholars have recently pointed to the negative effects of competition on firms' decision to engage in tactics that may not be market-based, and sometimes may not even be legal (Bennett, Pierce, Snyder, & Toffel, 2013; Bliss & Di Tella, 1997; Emerson, 2006; Sethi & Sama, 1998). While some firms may choose to lobby and influence regulatory agencies in order to manipulate policies for competitive advantage (Hillman, Keim, & Schuler, 2004), others may opt for illegal practices such as bribery or other forms of corrupt behavior (Lee & Weng, 2013), or they may choose to escape from regulatory oversight by hiding from the government to reduce their liabilities and costs (Cai & Liu, 2009; Fisman & Wei, 2004; Witt & Lewin, 2007). The latter is of specific concern, because unlike other strategies, tax evasion is not only illegal, but it also has direct negative consequences in terms of a potential loss in tax base that in turn impedes the healthy regulation of the very market within which firms compete.

In one of the earliest studies that focused on the antecedents of firm misconduct, Staw and Sz wajkowski (1975) found that resource limitations in market environments are associated with an increased likelihood of illegal and unfair trade activities by firms. Campbell (2007) theorized that the relationship between competition and socially responsible acts may be curvilinear where too much competition can give firms incentive “to cut corners and save money wherever possible” in order to survive; and too little competition (such as a monopoly) would cause a similar result due to reduced incentives to be socially responsible (2007, p. 953).<sup>2</sup> Looking at the dark side of competition, Bennett et al. (2013) showed that when vehicle inspection facilities faced increased competition, they passed vehicles in emission tests fraudulently.

Scholars have recently examined the effects of competition on tax evasion as well. Cai and Liu (2009) found that increased competition in product markets leads firms to conceal greater amounts of their business from government. Goerke and Runkel (2011) argued that increased competition (with reduced market entry costs) leads to increased tax evasion by firms. Yet these studies have exclusively focused on the effects of competition from the formal economy. What they have not considered is the

<sup>2</sup> Meng, Zeng, Xie and Qi (2016) empirically showed this case with a sample of Chinese listed firms.

competition from the informal (unregistered) portion of the economy, a subject to which we turn next.

## 2.2. Informal competition and tax evasion

The institution-based view holds that managers rationally pursue their firms' interests and make strategic decisions within the constraints of formal and informal institutional frameworks (Peng et al., 2009). The prevalence and persistence of the informal economy in a given country is an example of "informal rules of the game" and pose a constraint to formal firms' interests in those product markets (Mathias et al., 2015). Therefore, when it comes to formal firms' compliance with rules and regulations (i.e. reporting requirements), the degree to which informal firms operate in their markets and to which competition is dysfunctional or functional becomes a critical factor. Mathias et al. (2015) argued that in such cases the system may "perversely reward informal activities instead of socially beneficial formal activities... making it increasingly difficult for entrepreneurs engaged in the formal economy to establish a competitive advantage" (2015, p. 2).

Compared with competition from the formal economy (as the focus of most existing studies), competition from the informal economy is more troublesome for at least two reasons. First, firms operating within the informal economy achieve "unfair" competitive advantages by undercutting formal firms on price, thanks to reduced variable costs of operation (i.e., avoiding taxes, employing illegal and cheap labor) (Karlinger, 2009). According to a McKinsey Global Institute report, the cost savings of avoiding taxes and regulations account for approximately 10% of the final price of goods and services (Farrell, 2004). According to the same study, informal dairy-processors in Turkey enjoy 20% cost savings compared to their formal counterparts. Similar examples can be found in construction projects in South America, textile companies in India, food retailers in Russia, and many other sectors in emerging markets (Haller & Portes, 2005). That is probably why recent reports of the Organization for Economic Co-operation and Development (OECD) from various developing economies show that governments increasingly view the practices of informal firms as a competitive disadvantage for firms operating within the formal economy (OECD Policy Roundtable Report, 2009).

Second, informal firms circumvent government regulations that may be burdensome due to tedious bureaucracy and corrupt officials (Nwabuzor, 2005). Ironically, while formal firms try to follow the rules, they are exposed to these additional costs particularly in countries with weak institutional settings and sluggish rule of law. Anti-competitive practices may prevail under weak market institutions, leading to dysfunctional competition (Li & Zhang, 2007). Facing such dysfunctional competition, formal firms are left at a competitive disadvantage. As an analyst from *The Washington Times* observed in Brazil:

*"Brazil finds itself in a Catch-22. . . . While the informal sector manages to sell cheaper, the formal economy sells less. Lower profits stifle investments and hiring in the formal economy. With fewer formal jobs available, consumer spending drops, causing law-abiding companies to commit tax fraud in order to survive. As the formal market weakens, government tax receipts fall, and it raises taxes to pay for services and debts" (Rapoza, 2004, p. A15).*

Informal firms not only have advantages in cost savings compared to their formal counterparts, they can also offer services to their customers that may not be allowed by the rules and regulations by which formal firms must abide (González & Lamanna, 2007). This is another factor that leaves formal firms at a disadvantage vis-à-vis informal competition. In his interviews with executives from four different industries, Zahra (1994) found that rising competition led firms to think that "companies do

anything to make a profit" and "competition is war; and in war everything is permissible" (1994, p. 57). Similarly, Shleifer (2004) reported that increased market competition makes firms more likely to commit unethical conduct such as using child labor, bribing officials to evade taxes, and manipulating earnings. Furthermore, when this competitive threat comes from firms that do not play with the same rules of the game, formal firms will perceive the competition as unfair. Formal firms are therefore likely to see corporate tax evasion as more acceptable to offset the "unfair" competitive threats from the informal economy.

**Hypothesis 1.** The degree of competition from the informal economy will be positively associated with tax evasion by formal firms.

## 2.3. Benefits of staying in the formal economy

While being in the formal sector situates formal firms at a significant disadvantage, it does not mean it is always more costly to stay in the formal sector. In return for paying their taxes, formal firms can enjoy services such as the protection of their property rights, access to credit, contract regulation, and judicial redress (Marcouiller & Young, 1995). While all of these are legitimate advantages associated with staying within the formal sector, we choose to focus on the advantage of access to financing for three reasons. First, firms often need to raise capital for their investments, and one of the common sources of such capital is borrowing from banks (Cassar, 2004; Van Auken & Holman, 1995). In most cases banks require collateral and official documentation. Firms in need of such capital are therefore likely to be compliant with formal regulations concerning the reporting of their businesses.

Second, the threat from informal competition often comes in the form of reduced prices that undercut formal firms' price levels. We therefore believe that focusing on an institutional variable that would at least partially offset this disadvantage from the perspective of the formal firm is necessary. Finally, while benefits such as access to legal dispute mechanisms and property rights are more on an issue-basis, access to credit markets is one of the fundamental sources of entrepreneurial growth and survival (Beck, Demircug-Kunt, & Maksimovic, 2005). Informal firms also often avoid industries that require conspicuous fixed assets or technology (McCulloch, Schulze, & Voss, 2010). Formal firms' use of intellectual property protection via judicial redress is therefore less critical in competing with informal firms compared to financing access. Therefore, we focus on the ease of access to financing as a prime benefit associated with staying in the formal sector.

Prior research has identified access to credit markets as a crucial resource for formal firms (Beck & Demircug-Kunt, 2006). However, countries with various institutional backgrounds show a great variance in their external finance availability (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997; Yiu, Su, & Xu, 2013). For instance, Beck et al. (2005) showed that financing obstacles constitute the most serious issue for firms, particularly for the growth of small and young firms that are in the beginning of their entrepreneurial pursuits. Access to external financing may therefore be a serious advantage for formal firms in both the formation and growth stages depending on the institutional framework.

From a signaling perspective, capital markets suffer from a significant information asymmetry, where managers know more about the true value of their firms than the external investors, who rely on a wide variety of signals, such as credit history, financial reporting, and corporate governance mechanisms, to judge the value and the risk of the loan proposals (Hope, Thomas, & Vyas,

2011; Spence, 1974).<sup>3</sup> This is particularly an endemic problem in countries with less developed institutions (Hope et al., 2011) where the line between formal and informal sectors is blurred, and access to sophisticated credit information is limited. Under such a highly uncertain environment, adverse selection such as unintended investments in lemons is hard to avoid (Akerlof, 1970; Lee, Bach & Baik, 2011; Sanders & Boivie, 2004). Formal firms in these environments evaluate their real opportunity of accessing external credit and compare it with other means to achieve the same end (informal sources). If informal sources become a more viable alternative, and access to external finance becomes too costly or unattainable, firms are likely to risk deviating from formal reporting requirements.

However, when external financing is readily available, formal firms will be more likely to abide by reporting requirements so as not to disrupt the signal they send to creditors, which would reduce the incentive for these firms to evade taxes. In other words, the opportunity cost of not being able to obtain financing would be higher when external financing is easily accessible than when external financing is harder to access. This is because when access to finance is relatively easy, losing the opportunity to obtain financing would leave these firms at a competitive disadvantage given that other formal firms would enjoy the benefits that will separate them from informal firms.

In sum, when formal firms have greater access to finance, they are less likely to evade taxes because (i) they would be financially more comfortable to be more cooperative with tax reporting requirements, (ii) they would be more cautious about the signals they send to creditors so as not to lose the financing options, and (iii) since they receive a service in return, they would be more willing to honestly report their revenues to the government. Thus:

**Hypothesis 2.** Ease of access to external financing will be negatively associated with tax evasion by formal firms.

#### 2.4. Informal competition and access to finance

Access to finance is not only one of the most critical resources that firms expect to obtain as a result of staying within the formal sector, but also an important factor influencing firms' competitive positions within the market. Specifically, it also moderates the relationship between informal competition and formal firms' tax evasion. Depending on the institutional development of the economy, when such access is either limited or too costly, firms will not be able to obtain the expected benefits from staying within the formal sector. When such an expectation is unmet or difficult to achieve, formal firms may see the informal competition gaining advantage at their expense, and the perceived threat of competition from informal firms may be magnified.

When the difficulty of access to finance is accompanied by a strong informal economy, firms operating in the formal economy feel cornered in two respects. First, as explained above, the informal competition will exert most pressures in the form of more competitive pricing. With the added costs of complying with regulations (such as registering, paying taxes and benefits for workers, and obtaining permits and licenses), formal firms often have higher costs of operation and they need to obtain loans from banks. When access to such credit is difficult or costly, the pressure from informal competition may be more pronounced.

Second, informal firms have another significant advantage by being more agile in their practices and offerings that formal firms would find it hard to cope with due to added red tape dealing with regulatory requirements. In Brazil, Estrin and Prevezer (2011)

reported that more than half the firms that need loans do not apply simply because of the complex requirements. In Poland, Steinerowska-Streb and Steiner (2014) found that when firms face challenges with accessing external financing they are more likely to reduce prices for their goods and services to attract more customers, since they do not have the financial cushion to manage their accounts payable. The inflexibility in their financial and operational management, and the dire need to maintain their liquidity puts them in a difficult position of reduced margins they have to live with. With added costs of regulatory compliance, these firms likely perceive the competition from informal economy (often with very competitive prices) even stronger, and they would be less able to absorb these threats while still complying fully with reporting requirements. Frustrated with the difficulties in obtaining external financing, these firms may consider tax evasion as a means to stay competitive vis-à-vis their informal counterparts.

On the other hand, when access to finance is easier, it is the formal firms properly registering their operations that would benefit from this access. Informal firms by definition will be screened out from the formal credit market due to a lack of suitable collateral and business documentation (Wongtada, 2014). Apart from family or friends, the external financing options for informal firms would be money-lenders that typically charge much higher interest to compensate for the higher risk of default. When formal firms' access to finance is easier and less costly, the added financial cushion would at least help alleviate some of the threat from informal competition, resulting in less motivation for tax evasion. For instance, Beck, Lin, and Ma (2014) showed that firms in countries with effective systems of credit information sharing and higher bank branch penetration are less likely to evade taxes. They found the effect stronger for smaller firms, and concluded that a financial system that provides easier access to credit increases the opportunity cost of tax evasion. We expect that when proper institutions that facilitate access to finance are in place, firms in the formal sector will more likely tolerate the competition from the informal economy and be less likely to evade taxes in return. Therefore:

**Hypothesis 3.** Ease of access to external financing will weaken the positive relationship between informal competition and tax evasion by formal firms.

#### 2.5. Costs of staying in the formal economy

Notwithstanding the benefits of staying formal, there are costs: abiding by the tax authority and paying taxes due to the government. In some countries, the burden of taxes is considerable because of the inefficient tax administration and high corporate tax rates (Loree & Guisinger, 1995; Miller & Parkhe, 1998). This results in an unfair burden on the formal firms that actually pay taxes. A McKinsey Global Institute study found that while in developed countries formal firms' contribution to the total government tax revenue is approximately 50%, in developing countries a smaller percentage of formal firms that actually pay taxes take the most of the burden (up to 80%) of all taxes, which creates a significant incentive for firms to hide their output (Farrell, 2004). In Uganda, Fisman and Svensson (2007) showed that higher tax rates lead to decline in firm growth. We thus define the "cost of staying formal" as the tax burden faced by formal firms.

Prior research suggests that the more aggressive the tax system, the greater the incentives to seek alternative ways to escape from fully complying with the tax agency (Hibbs & Piculescu, 2010; Ibrig & Moe, 2004). The business news media is flooded with examples of firms trying to circumvent tax liabilities through using loopholes in the tax code, suggesting that firms in general prefer lower tax rates, and they do not refrain from relocating for that goal. While some of those efforts are within the law, similar behavior is observed by

<sup>3</sup> We thank an anonymous reviewer for bringing this point to our attention.

scholars studying the effects of tax burden on fraudulent behavior. For instance, when examining trade between China and Hong Kong, Fisman and Wei (2004) found that misreporting of trade documents is correlated with tax rates (more widespread in higher-taxed products). In a similar vein, Fung, Yau, and Zhang (2011) showed that fraudulent reports in international trade documents is closely linked to firms' attempts to go after the preferential tax incentives accorded to foreign investors.

From an institution-based view, the cost of playing by the rules of the game becomes higher when tax burden is increased. Hence, all else equal, increased tax burden will make firms more likely to try to circumvent such liabilities and hide portion of their revenues from the government.

**Hypothesis 4.** Greater tax burden will be positively associated with tax evasion by formal firms.

### 2.6. Informal competition and tax burden

If all actors in the economy pay their taxes, then their relative standing in competition would presumably not be affected despite the increased tax burden. Yet, firms that operate within the informal sector completely circumvent these tax liabilities. When the perceived burden of taxes (both the rates and the bureaucracy required for full compliance) is considerable, the gap between formal firms' liabilities to the government and informal firms' freedom from such regulations widens (Hibbs & Piculescu, 2010). This makes competition from the informal sector even more problematic since formal firms face an increase in variable costs, while informal firms enjoy more low-cost advantages. Frustrated with the outcome, formal firms are likely to look for opportunities to cut corners, and potentially justify under-reporting their taxable revenues to combat this *unfair* competition. Amendolagine, Capolupo, and Ferri (2014) found that when Italian manufacturing firms faced increased competition from emerging markets and a cumbersome tax code at home at the same time, they resort more to informal practices such as hiring undocumented (and less costly) labor and tax evasion.

By a similar rationale, at a given level of tax burden, the existence of greater informal competition will amplify the effect of the tax burden on tax evasion. In other words, firms facing more threats from informal competition are more likely to blame the tax burden as one of the factors that leave them behind, and less willing to comply with reporting requirements. Therefore, the burden of taxes and prevalence of informal practices interact with each other in exacerbating their relationship with tax evasion.

**Hypothesis 5.** A greater tax burden will strengthen the positive relationship between informal competition and tax evasion by formal firms.

## 3. Methodology

### 3.1. Sample

Our data come from the World Bank's Productivity and the Investment Climate Survey. The survey is conducted at the firm level in 107 countries between the years 2002 and 2006.<sup>4</sup> The survey covers firms from countries with various institutional backgrounds and varying levels of informal economy. Surveyed firms also show a considerable variance in their size, age, ownership characteristics, as well as tax compliance behavior,

making the data a suitable platform for testing our theory. The use of survey data allows studying sensitive topics such as corruption and tax evasion, subjects with limited-to-none available data in archival sources. That is why versions of the data have been used by past research in economics (Tedds, 2010), finance (Beck & Demircug-Kunt, 2006; Beck et al., 2014), IB (Hope et al., 2011; Lee & Weng, 2013; Luo & Han, 2009), and legal studies (Uslaner, 2008). While the survey was administered in different countries in different years between 2002 and 2006, each firm in the sample is surveyed once, thus making this a pooled cross-sectional sample. Scholars employing such surveys in their research have followed a similar approach, by adding year dummies to control for time-variant factors that may affect global or local business environments (Beck et al., 2014; Hope et al., 2011). Since we focus on formal firms' tax evasion, it is important to note that the survey we use covers only formal firms. Accordingly, while these firms may hide part of their revenues from tax authorities, the governments are aware of their business (La Porta & Shleifer, 2008). After accounting for missing variables of interest, our final sample consisted of a pooled cross-section of 15,278 firms from 46 countries.<sup>5</sup>

### 3.2. Main variables

#### 3.2.1. Tax evasion

Following prior research using similar survey data from the World Bank (Joulfaian, 2009), this variable is measured using a survey response as the percentage of sales not reported to the tax authority. Since this is a sensitive issue, directly questioning the survey respondents would not provide healthy results. Therefore, World Bank researchers formulated the questions in an indirect fashion, and encouraged more managers to participate.<sup>6</sup> Similar measures about corruption are used in past research (Lee & Weng, 2013). We see that firms in our sample have a high variance in their tax evasion behavior with an average rate of 17% tax evasion and a standard deviation of 26%.

#### 3.2.2. Informal competition

As part of the survey, managers are asked for "the degree of obstacle anti-competitive and informal practices bring for the operation and growth of their businesses." On a five-point Likert scale, answers range from (0) indicating "no obstacle" to (4) indicating a "very severe obstacle." As used in past research (Gonzalez & Lamanna, 2007; Mathias et al., 2015), this variable captures the degree to which firms perceive *informal competition* as a threat for their business.

#### 3.2.3. Access to finance

The survey captures the ease of *access to financing* with two questions by asking managers "the degree of obstacle (1) access to finance and (2) cost of financing bring for the operation and growth of their businesses" where the (0) to (4) categorical variable indicates the firm's difficulty in obtaining credit (Beck et al., 2005). We took the average of the answers to these questions and reverse coded this variable to reflect the ease of access to financing.

<sup>5</sup> We conducted a *t*-test comparing the sub-sample with missing values in our main variables of interest with the sample used in our analysis using firm size and age. Results suggested that these subsamples are qualitatively similar, and the final reduced sample is representative of the original.

<sup>6</sup> Specifically, managers are asked the question: "Recognizing the difficulties many enterprises face in fully complying with taxes and regulations, what percentage of total sales would you estimate the typical establishment in your area of activity reports for tax purposes?"

<sup>4</sup> This time-frame is chosen because the data for our critical variables of interest were only available in these years.

### 3.2.4. Tax burden

In a similar fashion, the answers to the two questions (*the degree of obstacle (1) tax rates and (2) tax administration bring for the operation and growth of their businesses*) captures the measure for our construct *tax burden* (La Porta & Shleifer, 2008).

### 3.3. Control variables

Firms' decision to evade taxes is likely to be influenced by many factors. Therefore, we tried to capture the most salient factors by including twelve control variables at the firm, industry, and country levels to provide reliable estimates for our variables of interest. We control for *firm age* since it has been reported that firms in start-up phases evade taxes more often compared to older enterprises (Kirchler, 1999). We include *firm size* measured as the number of employees (Beck et al., 2005; Lee & Weng, 2013) in our models since larger firms may find it more difficult to evade taxes (Dabla-Norris, Gradstein, & Inchauste, 2008).<sup>7</sup> We used the natural logarithmic transformation of both variables in our analyses.

We also control for various ownership types that have been found to affect firms' tax evasion. First, prior research found that foreign-owned firms are less likely to evade taxes because they often lack the necessary political capital with bureaucrats to do so successfully, and they are vulnerable to additional scrutiny due to their liability of foreignness (Uslaner, 2008; Zaheer, 1995). We therefore control for *foreign ownership*. Second, the extant literature suggests a positive relationship between *state ownership* and tax compliance (Tedds, 2010), a variable we also control for in our analysis. Finally, the literature has mixed findings on the tax evasion behavior of family-owned firms. On the one hand, Chen, Chen, Cheng, and Shevlin (2010) argued that family ownership reduces the likelihood of tax evasion due to increased concerns for reputation. On the other hand, Johnson, Korsgaard, and Sapienza (2002) argued that family ownership makes collusion for cheating easier; it is therefore positively related to tax evasion. We accordingly control for *family ownership* as well. All ownership variables are dummy-coded.

Since tax compliance is affected by country institutional and cultural environments (Christie, Kwon, Stoeberl, & Baumhart, 2003; Earle, Spicer, & Peter, 2010; Scholtens & Dam, 2007; Spicer, Dunfey, & Bailey, 2004), we control for these factors in our study. First, we control for the level of *corruption* in a country by including Transparency International's Corruption Perception Index scores (CPI).<sup>8</sup> CPI draws on multiple sources to gauge the perception of business people of the level of corruption in the public sector in a given country, and it is an established measure that has been frequently used in past research (Wilhelm, 2002). Next, earlier studies showed that the effectiveness of rules and regulations and the deterrence mechanisms in place are important in determining how compliant firms will be in their dealing with government reporting requirements (Allingham & Sandmo, 1972; Alon & Hageman, 2013). Therefore, we control for rule of law by including a measure from the survey question that asks how confident managers are with the courts' enforcement of their contractual rights in business disputes. This is a categorical variable that takes the values of 1–6 where higher scores indicate a more effective *rule of law* in a given country.<sup>9</sup>

<sup>7</sup> It is possible for larger firms (particularly multinational enterprises) to avoid taxes via income-shifting and other methods, but they may find it harder to evade taxes within the host countries (Fung et al., 2011), which is the focus of our paper.

<sup>8</sup> <http://www.transparency.org/research/cpi/overview>.

<sup>9</sup> We also tapped into external data on rule of law. However, we found that the external country level measures of rule of law were highly correlated with the CPI measure. We opted for keeping CPI in our estimation models since corruption is a critical control variable, and used the available survey question for the rule of law variable, which is from a different sub-section of the survey than the other variables in this study.

Importantly, we control for competition from formal firms, to be able to show the effect of informal competition above and beyond what has been shown in prior research about formal competition (Cai & Liu, 2009; Goerke & Runkel, 2011). The prior literature used several measures to estimate competition, such as industry concentration, number of competing firms, average profit margins and price elasticity (Alexeev & Song, 2013; Cai & Liu, 2009). We use *four-firm industry concentration ratio* to gauge the competitiveness of the market environment, where the larger ratios imply less competition. This ratio has been extensively used in past IB research (Chacar, Newbury, & Vissa, 2010). It captures the extent to which in an industry is dominated by the largest four firms. Since it is practically impossible for the largest firms in an industry to be informal firms, this is likely the best variable to separate out the *formal* part of the competition firms face in their business environment. Other measures of competition are likely to reflect the underlying formal and informal forces together, hence not ideal to capture only the formal competition.

Concurring with past research (Hope et al., 2011; Tedds, 2010), we expect that firms that have their financial statements reviewed by external auditors would differ in their compliance with reporting requirements for two reasons. First, the very decision to have their financial statements reviewed by external auditors implies that these firms may be systematically different in their approaches to reporting their revenues. Second, in general external auditors are less likely to have an interest in firms' tax evasion, and as professional service firms under scrutiny they would be more likely to push client firms into complying with regulations. Thus, we include a dummy variable *external audit* to control for such effects.

Another factor that may influence the level of tax evasion by firms is the source of their finances. The survey has a question where firms are asked the percentage of their finances (both for new investments and for working capital) provided by informal sources (friends, family, and other sources such as a money lender). Firms that finance their operations by these informal sources are (i) more likely to be able to keep part of their finances off the books, (ii) less likely to need access to formal credit, hence less incentive to be compliant with regulations to achieve that end. Thus, we include a control variable called *informal funding*.

Prior research has reported different compliance patterns for firms within different industries (Tedds, 2010). The assumption that informal firms have lower variable operation costs would more likely hold true in low-efficiency minimum-scale industries, and informal firms would arguably have an easier time attacking industries with lower entry barriers (Karlinger, 2014). We therefore include *industry dummies* in our models to control for such effects. Finally, we include *year dummies* to account for any possible differences in the business environments in the time periods where survey was conducted in different countries.

### 3.4. Analytical approach

Our dependent variable is inflated with zeros as 53% of the firms did not engage in tax evasion. This potentially signals an endogenous self-selection problem, where firms that do not commit tax evasion at all may systematically differ from those that do evade taxes at varying degrees. To address this problem, we conducted Heckman's (1979) two-stage model where in the first stage we estimated a probit selection model with the dependent variable being whether a firm evades any taxes or not, and in the second stage we estimated the *degree* of tax evasion. We calculated the inverse Mill's ratio after the selection model and included it in the second stage regressions to adjust for the possible selection issue. In Heckman's correction model an additional variable is included in the first stage selection equation which does not

appear in the second stage models in order not to force the model to estimate the same set of parameters and to improve reliability of the findings (Sartori, 2003). We included the dummy variable “Sales to affiliate firms” only in the first stage, since whether or not firms do business with their parent company or other affiliated subsidiaries is likely to affect the likelihood of hiding their true revenues from the government. We found that this variable is significantly related to a firm’s likelihood of being a tax evader. We also found that the inverse Mills ratio computed in the first stage is significant in the second stage models (Models 2–7), indicating the existence of a selection problem. By including the Mill’s ratio in the second stage regressions, we addressed this endogenous self-selection problem (Sartori, 2003).

**4. Results**

We report descriptive statistics in Table 1. Some 10% of the firms in our sample are foreign-owned, whereas 3% have state ownership. The ratio of firms with the largest shareholder being a family member is 22%. Correlations reveal that our dependent variable corporate tax evasion is related to our explanatory variables in the directions we proposed. To avoid concerns about multi-collinearity, we checked the variance inflation factors (VIF) scores. All VIF scores loaded below 2, much lower than the threshold of 10, suggesting that multicollinearity is not likely to be a significant concern (Hair, Black, Babin, Anderson, & Tatham, 2006).

In Table 2, we report the results of our second-stage hierarchical regressions in Models 2–7. In Model 2 we can see that *informal competition* is positively and significantly associated with corporate tax evasion at the  $p < 0.01$  significance level, providing support for Hypothesis 1. This result suggests that formal firms that face increased cases of informal competition are more likely to evade taxes. Model 3 introduces Hypothesis 2, where we argued that ease of *access to external financing* decreases the likelihood of tax evasion by formal firms. As expected, easier access to finance is significantly negatively related to formal firms’ tax evasion, supporting H2 ( $p < 0.01$ ). In Hypothesis 3 we argued that the ease of access to financing would weaken the relationship between informal competition and corporate tax evasion. As can be seen in Model 4, the interaction coefficient between informal competition and access to financing is negative and significant at  $p < 0.01$ , supporting Hypothesis 3.

On the costs of staying in formal sector, we argued the amplifying effects of tax burden in Hypotheses 4 and 5. Model 5 shows that when firms perceive greater tax burden they are more likely to evade taxes, supporting Hypothesis 4 ( $p < 0.01$ ). Finally, we argued that an increased tax burden would make the competitive threat from the informal sector more troublesome since the costs of staying formal increase. The coefficient for this interaction variable is positive and significant ( $p < 0.01$ ), providing support for Hypothesis 5. Model 7 provides the full model and all variables are significant in proposed directions.<sup>10</sup>

We plotted these interaction effects on graphs in Figs. 1 and 2 to interpret these results in more detail (Aiken & West, 1991). In Fig. 1, we can see that the positive relationship between informal competition and corporate tax evasion is weakened for firms with better access to finance. Firms with better access to finance are therefore more likely to tolerate some informal competition. On the other hand, Fig. 2 shows that when firms perceive a higher tax burden on their businesses then informal competition is more likely to be associated with increased tax evasion.

**Table 1**  
Descriptive Statistics and Correlations.

Variables	Mean	s.d.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1. Tax evasion	16.70	25.68	0	100	1															
2. Informal competition	1.56	1.38	0	4	0.20	1														
3. Access to finance	2.39	1.30	0	4	-0.20	-0.39	1													
4. Tax burden	1.75	1.23	0	4	0.19	0.40	-0.50	1												
5. Tax rate	27.19	7.47	10	38.31	0.13	0.05	-0.12	0.09	1											
6. Foreign owned	0.10	0.30	0	1	-0.08	-0.05	0.12	-0.04	-0.02	1										
7. State owned	0.03	0.17	0	1	-0.07	-0.06	0.06	-0.07	-0.07	-0.05	1									
8. Family owned	0.22	0.41	0	1	0.11	0.08	-0.09	0.07	0.09	-0.11	-0.09	1								
9. Firm age <sup>a</sup>	3.03	0.58	1.79	5.32	-0.03	0.02	0.03	-0.03	0.08	0.02	0.11	0.11	1							
10. Firm size <sup>a</sup>	3.29	1.66	0	9.84	-0.02	0.06	0.00	0.05	0.10	0.25	0.15	0.04	0.36	1						
11. Extremal audit	0.52	0.50	0	1	-0.14	-0.04	0.13	-0.11	-0.06	0.19	0.08	0.00	0.18	0.33	1					
12. Corruption	5.78	1.89	1.80	8.10	0.24	0.18	-0.20	0.18	-0.04	0.00	0.02	0.01	-0.06	0.14	-0.12	1				
13. Informal funding	3.40	12.41	0	100	0.13	-0.07	-0.03	-0.07	0.03	-0.05	-0.04	0.04	-0.05	-0.05	-0.08	0.14	1			
14. Rule of law	3.70	1.47	1	6	-0.12	-0.17	0.16	0.18	0.11	0.05	0.04	-0.03	0.04	0.06	0.07	-0.25	-0.04	1		
15. Industry concentration	0.44	0.22	0.11	1	-0.16	-0.13	0.15	-0.19	-0.28	0.06	0.03	-0.06	0.06	0.01	0.13	-0.24	-0.01	0.07	1	
16. Sales to affiliate	0.08	0.27	0	1	0.01	0.03	0.01	0.02	0.00	0.09	0.01	0.01	0.05	0.16	0.10	0.02	0.00	0.02	0.00	-0.02

N = 15,278.  
All correlations above |0.03| are significant at ( $p < 0.01$ ) level.  
<sup>a</sup> Variables are logged in regression models.

<sup>10</sup> All variables that are involved with interactions are mean-centered.

**Table 2**  
Results of Heckman Two-Stage Regression Analysis.

First stage selection equation (DV: Tax evasion dummy)	Second stage outcome equations (DV: Tax evasion as %)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Foreign owned	−0.24*** (0.04)	−3.18*** (0.63)	−2.81*** (0.63)	−2.81*** (0.63)	−3.13*** (0.63)	−3.10*** (0.63)	−2.88*** (0.63)
State owned	−0.47*** (0.07)	−3.49*** (0.92)	−3.47*** (0.92)	−3.50*** (0.92)	−3.11*** (0.92)	−3.16*** (0.92)	−3.23*** (0.92)
Family owned	0.16*** (0.03)	4.06*** (0.53)	3.96*** (0.53)	3.97*** (0.53)	3.93*** (0.53)	3.92*** (0.53)	3.89*** (0.53)
Firm age <sup>a</sup>	−0.02 (0.02)	−1.03*** (0.37)	−0.91** (0.37)	−0.92** (0.37)	−0.90** (0.37)	−0.88** (0.37)	−0.84** (0.37)
Firm size <sup>a</sup>	−0.08** (0.01)	−0.63*** (0.15)	−0.62*** (0.15)	−0.63*** (0.15)	−0.71*** (0.15)	−0.73*** (0.15)	−0.71*** (0.15)
External audit	−0.28*** (0.02)	−4.38*** (0.43)	−4.13*** (0.43)	−4.09*** (0.43)	−4.07*** (0.43)	−4.02*** (0.43)	−3.91*** (0.43)
Corruption	0.02** (0.01)	1.47*** (0.10)	1.47*** (0.10)	1.49*** (0.10)	1.46*** (0.10)	1.49*** (0.10)	1.50*** (0.10)
Informal funding	0.01*** (0.00)	0.15*** (0.02)	0.15*** (0.02)	0.15*** (0.02)	0.15*** (0.02)	0.15*** (0.02)	0.15*** (0.02)
Rule of law	−0.05*** (0.01)	−0.58*** (0.15)	−0.52*** (0.15)	−0.53*** (0.15)	−0.47*** (0.15)	−0.47*** (0.15)	−0.46*** (0.15)
Industry concentration	−0.95*** (0.06)	−12.0*** (1.16)	−11.6*** (1.16)	−11.6*** (1.16)	−11.0*** (1.16)	−10.8*** (1.16)	−10.8*** (1.16)
Sales to affiliate	0.08 (0.04)						
Hypothesis testing:							
Informal competition (H1 +)		<b>1.99***</b> (0.16)	1.65*** (0.17)	1.60*** (0.17)	1.55*** (0.17)	1.31*** (0.18)	1.21*** (0.19)
Access to finance (H2 −)			<b>−1.11***</b> (0.18)	−0.91*** (0.19)	−0.91*** (0.19)	−0.47*** (0.15)	−0.55*** (0.21)
Informal × Access (H3 −)				<b>−0.34***</b> (0.12)			−0.25*** (0.14)
Tax burden (H4 +)					<b>1.43***</b> (0.19)	1.22*** (0.20)	1.02*** (0.22)
Informal × Tax burden (H5 +)						<b>0.42***</b> (0.13)	0.31*** (0.15)
Inverse Mill's Ratio		−2.65*** (0.85)	−2.57*** (0.85)	−2.43*** (0.86)	−2.55*** (0.85)	−2.37*** (0.85)	−2.28*** (0.86)
Constant		24.3*** (3.11)	21.9*** (3.11)	21.7*** (3.12)	22.4*** (3.14)	21.9*** (3.14)	20.7*** (3.13)
Observations	15,278	15,278	15,278	15,278	15,278	15,278	15,278
Wald $\chi^2$ /Adjusted R <sup>2</sup>	1869.2***	0.15	0.15	0.15	0.15	0.15	0.15
F		160.2	156.6	149.6	160.8	153.7	141.9

Unstandardized regression coefficients are shown. Robust standard errors are in parentheses.

Industry and year dummies are included in all models but not reported on the table.

<sup>a</sup> Variables are logged.

\*  $p < 0.1$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

#### 4.1. Robustness tests

We carried out additional tests to make sure that our results are robust to different model specifications and alternative variable measurements. The most common concern with use of survey data and perceptual measures is over the common method bias (Chang, Witteloostuijn, & Eden, 2010). Aware of this potential issue, the World Bank surveyors ensured the anonymity and confidentiality of the data during surveys. The researchers conducting these surveys are trained by the World Bank, and they ask the sensitive corruption related questions rather indirectly, and towards the end of the survey, ensuring that some level of comfort is established between the interviewer and the respondent (Lee & Weng, 2013).

The perceptual measures used in this study are important, since managers base their decisions on their views and perceptions of their business environment, especially when it comes to sensitive issues that are outside of legal rules (Mathias et al., 2015). Nevertheless, to make sure that common method variance is not a problem for our analysis, we tried estimating our models by using alternative measures from external sources for some of our

variables. First, we used the share of the informal economy within the GDP as reported by the World Bank (Schneider et al., 2010) as an alternative measure for the *informal competition* variable. This measure captures the concealed portion of the economy (% of GDP) due to escaping income and value-added taxes, social security contributions, and avoiding labor and other regulatory standards. While our original measure captured firms' own perception of the informal competition that they face in their immediate business environment, this variable is an external and objective measure of the degree to which the shadow economy persists in different countries. This measure will also allow us to see how consistent firms' perceptions of their environments are with the externally verified, objective data about the level of informal practices in their countries.

In a similar fashion, we introduced an alternative measure for the *tax burden* variable, by replacing it with the corporate tax rate levels for each country. Again, while our original measure captured firms' perception of tax burden, corporate tax rate measure is an objective data point (country level) that still captures the idea of "tax burden" since higher rates would imply higher burden for



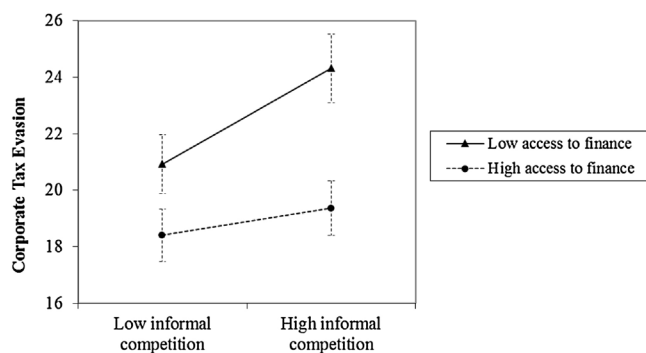


Fig. 1. Moderating effect of access to financing.<sup>13</sup>

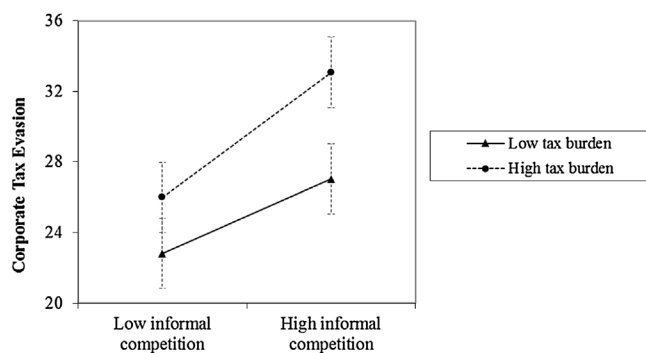


Fig. 2. Moderating effect of tax burden.

firms.<sup>11</sup> The use of these external, objective data as alternative measures for our survey measures effectively eliminates any concerns about a potential common method variance steering our findings. We calculated the interaction variables with these alternative measures and used the same set of control variables to run the new models. Chang et al. (2010) argued that specifying complex relationships that are unlikely to be in respondents' cognitive maps while answering questions (i.e. including interaction terms rather than simple direct relationships) reduce the concern for common method variance as well. Results from the models with these alternative specifications remain qualitatively identical, and quantitatively stronger than those with our original measures, effectively eliminating any concern regarding common method bias clouding our results.

We also ran additional robustness tests by using different estimation models. Recently scholars have suggested the use of zero-inflated beta (ZOIB) model in estimation models where the dependent variable is a proportion and there is a potential self-selection issue (Cook, Kieschnick, & McCullough, 2008). While popular models such as Tobit is a good fit when it is believed that the zeros in the dependent variable are a result of a censoring in the sampling process, the ZOIB model treats the zeros in the dependent variable as meaningful, fitting the data with a mixture of beta and Bernoulli distributions (Cook et al., 2008). In other words, with this model, firms that report no tax evasion are not censored from our estimation; rather a binary outcome for tax evasion is estimated separately from the continuous estimation of the degree of tax evasion. Results of this model are similar for all

our hypotheses, except Hypothesis 3.<sup>12</sup> Finally, we also ran OLS regressions with Huber-White robust standard errors and obtained very similar results to our original models.

## 5. Discussion

### 5.1. Contributions

Our paper makes at least three contributions. In the IB literature, scholars examine the differences in various firm behaviors across countries due to institutional, cultural, and economic differences (Hope et al., 2011). However, despite its prevalence in many countries at different levels, firms' tax compliance behavior is underexplored in IB research. We contribute to the understanding of tax evasion decisions of local and foreign owned firms in countries with different institutional settings by examining an understudied factor, the competitive threat posed by the informal economy. The pressures originating from informal sector are real, and have significant outcomes not only through their direct competitive implications for competing firms in product markets, but also indirectly by eradicating the tax base that sustain the institutions meant to help firms (such as better financing system and more efficient tax administration). Following Bruton et al. (2012), we conceptualized firms' decision to hide their outputs as a strategic—although illegal—choice, and found that firms resort to tax evasion more when they perceive the informal competition as a larger threat. Interestingly, while many large firms and MNEs avoid paying taxes by strategically using offshore tax havens, our data show that firm size is negatively related to tax evasion. Perhaps an interpretation is that small and medium-sized firms (SMEs) may not have the sophisticated workaround mechanisms to avoid the tax bite as their larger counterparts do. Rather, small firms may opt to evade taxes more when they face the informal firms' competitive threats. Given that informal firms are typically small, they are a direct competitive threat to SMEs in the formal sector more than to the large firms. Thus, formal SMEs may be the ones that take the biggest hit from such dysfunctional competition.

Second, we contribute to the research studying the dark side of competition (Shleifer, 2004). While competition has ample benefits such as increased innovativeness, efficiency, and overall better products for consumers, recent studies point to its negative effects as well, where higher competition is linked with increased likelihood of firm misconduct (Alexeev & Song, 2013; Bennett et al., 2013). Our results support previous studies that increased competition from formal firms in an industry is associated with higher likelihood of corporate tax evasion (Cai & Liu, 2009; Goerke & Runkel, 2011). Furthermore, we show that even after controlling for the formal competition, the competition from informal firms has a significant effect on formal firm's compliance with tax authority. The latter is our unique contribution to this emerging literature stream, as to our knowledge no previous study has identified the distinctive effect of competition from informal firms on formal firms' tax compliance decisions. We believe this is important since managers dealing with dysfunctional competition from "unfair" (i.e. informal) sources may perceive their illicit behavior less of an issue than firms that are dealing with formal competitive pressures.

<sup>12</sup> We also tried including country dummies in our regressions and we found qualitatively similar results. However, because of the correlation between some of our country level controls and the country dummies, multicollinearity became a concern. Hence, we used country level explanatory and control variables to capture country-specific conditions instead of using dummy variables.

<sup>13</sup> In Figs. 1 and 2, the high vs. low values for the variables are distinguished with one standard deviation above or below their respective means.

<sup>11</sup> We obtained corporate tax rates for the countries in our survey for the respective years from multiple sources, including KPMG databases, Tax Foundation ([www.taxfoundation.org](http://www.taxfoundation.org)), various reports from Congressional Budget Office ([www.cbo.gov](http://www.cbo.gov)) and Fortune magazine ([www.fortune.com](http://www.fortune.com)).

Third, we contribute to the institution-based view by providing an answer to the question “how do institutions matter” raised by IB scholars (Khanna & Palepu, 2013; Lee et al., 2011; Meyer & Peng, 2016; North, 1990; Peng et al., 2009; Peng et al., in press). In this respect, institutions are argued to directly influence the strategic behavior of firms beyond being background conditions. As Young, Tsai, Wang, Liu, and Ahlstrom (2014) noted, the institution-based view helps us understand why and how firms’ strategic decisions differ in developed versus emerging markets. Among the institutional factors studied in the literature that affect strategic firm behavior, one important facet is the informal institutions (how the games are played in different context differently). Our study makes a unique contribution to an under-researched part of this, where we show how informal firms distort the rules of the game and impact the players (formal firms) that try to follow the rules. On the formal institutions side, while the effects of capital market structures and taxation systems on various IB decisions have been studied (Chacar et al., 2010), this is one of the first studies linking these institutional factors to firms’ *illicit* behavior. The contingency framework we developed whereby the costs and benefits of staying in the formal sector influence firms’ tolerance of informal competition is a significant step in understanding the formal firms’ decision making in these challenging institutional environments.<sup>14</sup> While the literature has approached these institutional factors as a stand-alone analysis (Cowell, 2004), we argue that these factors also bring moderating effects into the relationship between informal competition and formal firms’ tax evasion. Our findings highlight that strengthening formal institutions in terms of making the formal system more advantageous for the firms conforming to the rules and regulations (i.e. an efficient and fair tax code, as well as a well-functioning financial market) can work towards weakening the informal economy.

An example from our findings can help illustrate the point here. Let us compare the cases of Germany and Brazil. In 2005, while Germany had the highest corporate tax rate in our sample (38%), it had one of the lowest average corporate tax evasion (5%). Brazil had a slightly lower corporate tax rate (34%), but the average tax evasion in Brazil was a whopping 33%. This seemingly puzzling result is explained by the fact that Germany ranks the highest in the sample in terms of rule of law, and the lowest in terms of informal economy (16% of GDP); whereas Brazil has a very high share of informal economy (40% of GDP) and the second highest score (after Kenya) when it comes to how firms *perceive* the informal competition. Adding insult to injury, Brazil also has the absolute worst scores in terms of *perceived* tax burden as well as ease of access to financing among the 46 countries represented in our sample. Thus, formal firms in Brazil face the highest informal competition and the worst tax burden, while they have the least access to external financing. No wonder Brazilian firms end up hiding *one-third* of their revenues from the government. Germany, on the other hand, can sustain higher corporate taxes in return for providing the least corrupt environment for business, as well as a high level of rule of law and easy access to financing. Thanks to these factors, German firms’ perceived tax burden is actually middle of the pack in our sample (26th out of 46 countries) despite the actual tax rate being the highest. Thus, as we theorized in our paper, it is the *combination* of informal competition and various institutional factors that determine

firms’ perception of the system and their ultimate decision to comply with reporting requirements.

## 5.2. Managerial and policy implications

Our findings have managerial implications for both local and multinational firms. MNEs from institutionally distant countries looking to invest in countries where there is significant informal economic activity along with notorious finance and tax systems may find it especially hard to cope with those markets due to their liability of foreignness (Young et al., 2014; Zaheer, 1995). In particular, MNEs that allow more autonomy to their strategic business units in these markets should be cautious about potential adverse behavior by their subsidiaries. When a subsidiary of a multinational firm commits tax evasion and is caught, the host country media pays more attention to this and the ramifications to the reputation of the MNE often go beyond the local market environment and harm it at home and elsewhere as well.

Managers of both domestic and international firms operating in countries with a widespread informal economy and weak institutions should try to lobby the governments in those countries and show the adverse effects of poor financial systems and tax administration. Rather than cutting corners by evading taxes to help short term results (which undermines the system and creates a vicious cycle as explained above), they should consider contributing to the improvement of institutions that will likely bring a more sustainable advantage to them by reducing the prevalence of the informal economy as well.

Our arguments and findings have some important implications for policy makers as well. Informal firms are a threat to the growth and success of formal competitors and a more efficient functioning market. While we acknowledge the fact that the informal economy may provide the only chance to work and make a living for millions of people, particularly in the developing world (De Soto, 1989), we also note that if institutions are not improved in the long run, then this situation may not be sustainable and may even lead to a vicious cycle for all (North, 1990).

The size of the informal economy may create a vicious cycle since formal firms may also opt to reduce their regulatory compliance in an effort to stay competitive. However, the attractiveness of the formal economy can mitigate this behavior by formal firms. Our results suggest that if the government improves the burdensome institutions such as the financial institutions for easier access to credit and the corporate tax system for easier compliance, then formal firms would likely pay less attention to unfair competition from the informal economy and comply more with tax enforcement. Tax revenue will accordingly increase, allowing better institutions to emerge that would in turn reduce future tax evasion. The size of the informal economy will then shrink, reducing future competitive threats from this sector to the formal economic sector. Policymakers can therefore turn the vicious cycle to a *virtuous* cycle by improving these institutions and making the formal sector more attractive.

## 5.3. Limitations and future research

This paper has its own limitations that can be addressed in future research. First, we used survey data that have their shortcomings such as the common method bias. However, we tried to account for this issue in the robustness test by triangulating our data sources. Second, the measures of variables for sensitive issues such as illicit or unethical practices are inherently problematic, yet in the absence of perfect measures these proxies are used for studying important research questions (for some examples using similar variables from the World Bank survey data see: Fisman & Svensson, 2007; Lee & Weng, 2013).

<sup>14</sup> While addressing this issue in a recent forum, World Bank Research Director Asli Demirguc-Kunt said “The persistence of informality suggests there may be too much focus on becoming formal but not enough focus on the costs and benefits of being formal for businesses” (World Bank Feature Story, 2013).

Finally, due to data limitations we used cross-sectional data in our analysis that would give a snapshot of managerial perceptions at the time of study (Zahra, 1994). A longitudinal design to study the time-variant factors behind the drivers of tax evasion would be helpful.

## 6. Conclusion

This research is an attempt to understand the drivers of corporate tax evasion in various countries through an understudied aspect: Competition from the informal sector. Highlighting the dark side of competition, we offer a unique, institution-based view on this issue. Our findings suggest that when formal firms face increased competitive threats from the informal economy, some of them may opt to evade taxes to decrease the costs of compliance and to stay competitive. This relationship is moderated by the costs and benefits of staying within the formal sector. While business-friendly institutions help formal firms tolerate some informal competition, burdensome rules and regulations exacerbate the negative effects of such dysfunctional competition and lead formal firms to conceal more of their activities in an effort to stay competitive. The varying levels of institutional development around the world suggest that when proper mechanisms are not in place, the threat from the informal economy can become contagious, leading to a vicious cycle where formal firms find themselves increasingly at the borderline of regulatory compliance.

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