FINANCIAL ACCOUNTING STANDARDS, AUDIT PROFESSION

DEVELOPMENT, AND FIRM-LEVEL TAX EVASION

by

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A DISSERTATION

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DISSERTATION ABSTRACT

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In this study I investigate the relation between (1) country-level financial accounting standards and audit profession development and (2) firm-level tax evasion. I investigate this relation using a dataset compiled by the World Bank that provides an estimate of the percent of a firm's sales reported to the tax authority as well as information on local corruption and economic development. This database includes firms both with and without externally audited financial statements. After controlling for corruption, economic development, rule of law, and other firm, local, and country-level variables I find that firms in countries with more rigorous financial accounting standards and a more developed audit profession evade less tax and that this effect is stronger when firms have externally audited financial statements and thus are more directly influenced by the financial accounting standards and level of audit profession development in their country. These results have important implications for tax authorities and for other policy makers debating whether to dedicate scarce resources to improving their countries' financial reporting environment.

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CHAPTER I

INTRODUCTION

In this study I investigate whether more rigorous financial accounting standards and a more developed audit profession are associated with lower levels of a form of tax evasion prevalent in many countries, the underreporting of sales. Firm-level tax evasion is an important policy issue that is economically significant, with estimates of tax evasion above fifty percent in many low-income countries (Schneider and Ernste 2000; Beck, Lin, and Ma 2014).[1] The ability to accurately and fairly collect taxes is essential to fund legal and social systems and also for the competitiveness of a country's economy – to ensure all firms are treated equally. Identifying institutions and systems that are able to reduce tax evasion is therefore important to both academics and policy makers (Beck et al 2014).

Greece's central bank estimates the extent of tax evasion in the country to be approximately one-third of its total tax revenue, or about the size of the country's budget deficit (Suroweicki 2011). There are further concerns that the extent of tax evasion in countries such as Italy may result in additional sovereign debt crises (Bhatti et al 2011). In extreme cases, widespread tax evasion can even help to destabilize a country, leaving it vulnerable to unfriendly foreign powers. For example, Stecklow, Piper and Akymenko (2014) note that an "examination of the rampant tax and extortion rackets finds that the toll on the Ukrainian treasury was so great that the state was mortally weakened, leaving it at the mercy of outside powers."

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[1] In the United States the non-compliance rate is officially estimated at 14% with $385 Billion in owed taxes not remitted to the tax authority (IRS 2007). The IRS estimates that of the $385 Billion in total non-compliance, $122 Billion is due to evasion related to business income.

The setting of this study differs from the majority of concurrent and previous tax research in accounting. Much of this research examines large, public, U.S. based multinational corporations and uses the data found in these firms' financial statements to investigate corporate tax avoidance, tax sheltering, or income shifting. While these are important issues that are deserving of study, both the amount of tax a firm pays relative to its pretax income ("tax avoidance") and how a firm allocates income across different tax jurisdictions ("income shifting") typically involve legal tax planning opportunities. Additionally, while tax sheltering is often considered an aggressive activity, even the most aggressive tax shelters have some legal basis that the firm or its tax provider uses to defend the position. In contrast to prior research, in this study I do not examine U.S. based companies and I do not examine tax avoidance, income shifting or tax sheltering. Instead I focus in an international context on a cruder and clearly illegal activity, tax evasion, in which firms hide sales from tax authorities. By not reporting sales to any tax authority, the firm is clearly engaging in a potentially criminal activity with no legal basis.[2]

There are several avenues through which more rigorous financial accounting standards or increased development of the financial audit profession may decrease tax evasion. Many developing countries have surprisingly lax financial accounting standards as well as surprisingly low levels of audit profession development. For example some countries' financial accounting standards do not require firms to create a statement of cash flow or to disclose related party transactions while other countries do not require auditors to have been college-educated, do not require auditors to have taken an exam

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[2] Although crude, this form of tax evasion is extensive in low-income countries, which comprise a large portion of my sample.

before obtaining professional licensing, and do not require auditor practice reviews. To the extent that hiding sales requires deceptive or misleading documentation, more rigorous financial accounting standards and a more developed audit profession should make creating deceptive or misleading documentation more difficult. There is even some evidence that at least in the U.S. setting, the tax authority uses financial statements as an additional investigative tool to make sure that firms are remitting the full amount of tax required (Bozanic, Hoopes, Thornock, and Williams 2014). More rigorous financial accounting standards and a more developed audit profession should lead to improved accuracy of financial statements, providing the tax authority with a more accurate baseline for comparison.

However, there are several reasons why more rigorous financial accounting standards or increased development of the financial audit profession may not be associated with lower levels of tax evasion. First, due to liability concerns auditors are most often worried about the overstatement of earnings and hiding sales from the tax authority involves the *understatement* of earnings. Second, financial accounting standards and financial auditors are focused on financial income, not tax income. While both financial and tax accounting are linked to some extent via economic income, to the extent that the tax and financial reporting system in a country differ, financial accounting standards and financial auditors may not affect the amount of sales a firm reports to the tax authority. Finally, while in the U.S. setting the tax authority examines financial statements, in many low-income countries the tax authority may not have the resources or expertise required to conduct such examinations or the financial statements themselves may not be as readily available.

I investigate the relation between financial accounting standards, audit profession development and tax evasion using a confidential dataset compiled by the World Bank. This dataset contains information on various firm-level attributes including a robust estimate of the percent of sales that a firm reported to the tax authorities, which I use to measure tax evasion. My final dataset covers approximately 18,000 firm-years from 40 countries during the years 2002-2006. It includes both public and private firms as well as firms of various sizes ranging from a single employee to thousands of employees. Crucially for this study, this dataset includes firms both with and without externally audited financial statements, providing variation in the degree to which firms are affected by their countries' financial accounting standards and audit profession development.[3] This dataset also contains information on local (within-country) corruption and economic development. This information is important as it enables tests to identify the relation between (1) financial accounting standards and audit profession development and (2) firm-level tax evasion while holding corruption and economic development constant.

In my empirical tests I find that firms located in countries with more rigorous financial accounting standards and a more developed audit profession evade less tax. I also find that this relation is strongest when firms have externally audited financial statements and are thus more directly affected by the financial accounting standards and audit profession development of their country. This result lends confidence that my results are indeed related to financial accounting standards and audit profession development and not some other correlated and omitted country level variable. The results are robust to a wide variety of control variables, including firm size, firm age,

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[3] Approximately 54% of the firms in my sample have externally audited financial statements.

family ownership, the firm's tax rate, private ownership, foreign ownership, local corruption, crime, country-level corruption and rule of law, country-level economic development, and other firm, regional, industry, and country-level control variables.

Overall, the results show that the accounting and audit quality related to financial reporting can play an important role in mitigating firm-level tax evasion. This result has important implications for many countries worldwide that are currently struggling with detecting and decreasing firm-level tax evasion, particularly developing or low-income countries where tax evasion is extensive and the financial reporting environment is often not well developed. The dollar amount of tax evasion in developing countries is large, with estimates of approximately $285 Billion annually or over eight times the amount of annual development aid given by the United States and over twice the amount of annual development aid given by all OECD countries combined (Cobham 2005).[4]

This study makes an important contribution to the literature on firm-level tax evasion. The majority of research on corporate tax avoidance examines large, U.S. based firms that have externally audited and verified financial statements and uses the information in these firm's financial statements to examine tax avoidance. In contrast I utilize a unique dataset of firms of varying sizes in various countries both with and without externally audited financial statements. Furthermore I measure tax evasion directly, as the percent of sales a firm reports to the tax authorities and do not rely on a firm's financial statements to measure tax evasion. I add to the nascent literature on tax evasion by providing evidence that high-quality financial accounting and auditing have a

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[4] Using alternate estimation techniques the UNODC and World Bank jointly estimate that developing countries lose between $200-320 Billion annually due to tax evasion. The Development minister of Germany has estimated the figure at $500 Billion annually.

positive secondary effect – they are associated with lower levels of firm-level tax evasion.

This study also contributes to the literature on financial accounting and audit quality. Previous research has documented many benefits of high-quality accounting and auditing including lower borrowing costs, improved credit ratings, improved performance evaluation, more efficient contracting, improved monitoring of managers, more efficient resource allocation, improved valuation accuracy, as well as many other benefits. This study adds to the literature on accounting and audit quality by providing evidence that high quality financial accounting and auditing have an important and economically significant benefit that has been previously overlooked – the mitigation of firm-level tax evasion.

This paper has important implications for policy makers debating whether to dedicate scarce resources to improving a countries' financial reporting environment. While improving the financial reporting environment has well-documented capital market benefits, there are costs involved and many of the countries that may benefit most from increased development of the audit profession or more rigorous financial accounting standards have very limited resources to devote to these goals. However, by considering a potential secondary benefit of an improved financial reporting environment, a decrease in firm-level tax evasion and thus an increase in government revenue, the cost benefit-analysis for these policy makers may shift and devoting resources to improving the financial reporting environment may become more appealing.

The remainder of the paper is organized as follows: Chapter II motivates and presents the hypotheses. Chapter III presents the sample information. Chapter IV presents

the research design and results. Chapter V presents the results of sensitivity analysis.

Chapter VI concludes.

CHAPTER II

PRIOR RESEARCH AND HYPOTHESIS DEVELOPMENT

The Relation between Financial Accounting Standards, Audit Profession Development, and Tax Evasion

Firm-level tax evasion is an important issue, and how financial accounting standards and audit profession development relate to firm-level tax evasion is ex-ante unclear.

On one hand, tax evasion often relies on misleading or false documentation and higher financial accounting quality and a more developed financial audit profession should lead firms to be less likely to present untruthful or manipulative financial statements. For example, Doyle, Ge and McVay (2007) find that firms with worse internal controls have lower quality accruals; while Dechow, Ge, Larson and Sloan (2011) find that firms with lower accruals quality are more likely to have material accounting misstatements. Therefore when accounting quality increases, a firm's financial documents should increase in quality and become less deceptive. To this point, Kim et al (2011) argue that firms that avoid taxes are often aided by obfuscation which leads to lower quality information environments, and provide evidence that firms that engage in higher levels of tax avoidance have increased stock price crash risk.

Directly related to this study, Barth, Landsman, and Lang (2008) investigate firms applying IAS in 21 countries and find that firms that implement IAS experience improvement in accounting quality. As the measure of financial accounting standard rigor in this study is based on the differences between local accounting standards and IAS, I would expect that firms located in countries with more rigorous accounting standards should have higher financial accounting quality and be less likely to present untruthful or

manipulative financial statements. Further evidence that implementing international financial reporting standards leads to higher financial reporting quality is provided by Beneish, Miller, and Yohn (2014). Beneish et al (2014) investigate the relation between mandatory IFRS adoption and subsequent foreign portfolio investment and find that increases in foreign investment originate from non-adopting countries, suggesting that IFRS adoption reflects improved financial reporting quality rather than increased comparability.

During tax audits, the tax authority often requests documentation and records from the firm under investigation. To comply with more rigorous accounting standards, or when the audit profession is more developed, firms and their auditors may keep better and more extensive documentation. If the firm is presenting false or manipulative information to the tax authority, this documentation could be used against them in the investigation. For example one aspect of the measure of financial accounting standard rigor used in this study is whether the standards in a country have listed disclosure requirements for related party transactions. If a firm is using undocumented related party transactions to avoid taxes, a type of evasion common in countries with a value-added tax, then a more thorough documentation of these transactions should make this method of tax evasion more difficult.

Additionally, as the audit profession within a country matures, auditors generally become more independent, more educated, and generally better able to detect fraud. Ege (2014) finds that a high quality audit function is associated with lower levels of accounting-related misconduct while Michas (2011) provides evidence that higher levels of audit profession development leads to higher quality audits in emerging market

countries. As hiding sales from tax authorities may involve creating untruthful or deceptive documentation (including financial statements), it is possible that when financial accounting standards are more rigorous and the audit profession is more highly developed firms become constrained from the type of manipulation that enables tax evasion. Taken together, these arguments suggest that more rigorous accounting standards and a higher levels of audit profession development are associated with lower levels of firm-level tax evasion.

On the other hand, there are several arguments that suggest it is not clear that more rigorous financial accounting standards or increased development of the audit profession will be associated with lower levels of tax evasion. First, auditors are often incentivized to err on the side of assuring that earnings are not overstated and may not focus as much attention on understatement. For example, in an investigation of 2,190 SEC Accounting and Auditing Enforcement Releases (AAERs) issued between 1982 and 2005, Dechow, Ge, Larson, and Sloan (2011) find that out of 7,104 firm-quarters with AAERs, only 175 or approximately 2.5% are related to the understatement of earnings.[5]

Second, auditors are much more likely to be sued for overstatements rather than understatements (St. Pierre and Anderson 1984). Therefore auditors may become even more focused on overstatements (relative to understatements) as their liability increases. Adding to these liability concerns, when financial accounting standards become more rigorous and require more detailed reporting it may be easier to point out an auditor deficiency in court. As one aspect of the measure of audit profession development used in this paper is the level of liability faced by auditors, it may be the case that when the audit

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[5] The percentage is even smaller when investigating firm-years with an AAER as Dechow et al (2011) find that only 38 out of 1,696 or ~2.2% are related to understatement of earnings.

profession becomes more developed auditors devote their resources to preventing the overstatement of revenue, and do not focus on the understatement of revenue.

The prior arguments as to why more rigorous financial accounting standards and a more developed audit profession may not lead to more tax evasion rely on the assumption that the book and tax reporting system within a country are similar. However while book and tax accounting are both linked to economic income, to the extent that the tax reporting system and the financial reporting system in a country differ it may be that the case that more rigorous financial accounting standards and a more developed financial audit profession simply have little or no impact on tax accounting and thus a negligible effect on the amount of sales that a firm reports to the tax authority. Furthermore, even if the tax and financial accounting systems in a country are similar, it may be the case that the tax authority may not have the necessary resources or expertise to conduct examinations of financial statements, or that the financial statements themselves may not be readily available. Both of these arguments suggest that more rigorous financial accounting standards and a more developed audit profession may not lead to more tax evasion.

Due to the competing arguments on the relation between (1) financial accounting standards and audit profession development and (2) tax evasion, I consider this relation to be an empirical question and do not make a directional prediction. This leads to my first hypothesis, stated in null form.

H1: Country-level financial accounting standards and audit profession development are not related to firm-level tax evasion.

Externally Audited Financial Statements

The setting of this study is relatively unique in the sense that it includes both public and private firms as well as firms of all sizes, from a single employee to large organizations. It also includes firms that have externally audited financial statements and those that do not have externally audited statements. While firms without externally audited financial statements may be affected by the accounting and audit environment of their country, they are not necessarily restrained by these standards. Thus these firms have relatively more flexibility in the use of various accounting techniques or methods of financial statement preparation that they may use to assist in tax evasion.

This stands is in contrast to firms that have externally audited financial statements, which are subject to the rules and regulations of their reporting environment as their external auditor should follow these standards and rules when verifying the firm's financial statements. Thus, firms that have externally audited financial statements should be relatively more affected by the financial accounting standards and audit profession development of their country relative to firms that do not have externally audited financial statements. Utilizing this differential affect leads me to the following hypothesis.

> H2: Externally audited financial statements strengthen the relation between (1) country-level financial accounting standards and audit profession development and (2) firm-level tax evasion.

CHAPTER III

SAMPLE SELECTION AND VARIABLE CONSTRUCTION

<u>Sample Selection</u>

My sample begins with a dataset provided by the World Bank that includes confidential firm-level information (including data on tax evasion) for approximately 50,000 firms in 98 countries during the years 2002-2006.[6] This confidential survey covers firms across a multitude of sizes, industries, locations and ownership structures. As noted in Beck et al (2014), firm responses to the survey can be considered to be both reliable and accurate, as several research papers have verified that firm responses to World Bank surveys are closely and directly related to measurable outcomes in corruption, expropriation, protection of property rights, corporate financing, operating obstacles, tax evasion, investment, performance and growth.[7] Participants in the study are promised complete and strict confidentiality both personally and for their firms.

I then merge this data with several publicly available datasets as well as hand-collected data including the country-level corruption and rule of law indices developed by Kaufman et al (2010), the World Bank Development Indicators Database, a measure of audit profession development introduced by Michas (2011) and updated by Lamoreaux et al (2014) as well as a measure of the quality of country-level financial accounting standards developed by Bae et al (2008). In robustness tests, I supplement my dataset

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[6] This data (The World Bank's Enterprise Surveys) was accessed by the author through a confidentiality agreement with the World Bank.

[7] See, for example Johnson et al. (2000), Djankov et al. (2003), Acemoglu and Johnson (2005), Beck, Demirguc-Kunt, and Maksimovic (2005), Beck, Demirguc-Kunt, and Levine (2006), Ayyagari, Demirguc-Kunt, and Maksimovic (2008, 2010), Barth et al. (2009)) and Beck et al (2014).

with hand-collected data on country-level crime rates from the United Nations Office on Drugs and Crime. My final merged sample consists of approximately 18,000 firm-year observations from 40 countries. Table 1 (see Appendix E for all tables) details my sample selection process.

<div align="center">Measurement of Tax Evasion</div>

I follow World Bank analysts as well as prior research such as Beck et al (2014) and measure tax evasion using responses to 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?" In line with well-established survey techniques, the World Bank intentionally words the question indirectly to solicit more truthful responses.

It is possible that the wording of the question on tax evasion could result in measurement error as answers may reflect perceived industry averages rather than the firm's own behavior. However there are several reasons to believe that this potential measurement error will not bias my results (Beck et al 2014). First, there is large within country-industry variation in the tax evasion response suggesting that firms respond to the question based on their own behavior rather than a perceived industry behavior. Second, as noted in Johnson et al (2000) when responding to surveys "managers presumably most often respond based on their own experiences, and with caution we believe the responses can be interpreted as indicating the firms' own payments." Third, there is a high correlation between survey responses and the ratio of informal activity to GDP. Specifically, Beck et al (2014) use data from Schneider and Ernste (2000) and find a correlation coefficient of 65%, which is significant at the 1% level. Beck et al (2014)

also find a high correlation between survey responses and the tax evasion index developed by the World Competitiveness Yearbook. Finally, researchers have found that responses to World Bank surveys are directly related to measurable outcomes many areas including corruption, expropriation, protection of property rights, corporate financing, operating obstacles, tax evasion, investment, performance and growth.

It is important to note that this is a written survey conducted in a room with both a World Bank representative as well as a member of the local private sector such as the head of the chamber of commerce or industry association. The World Bank representative makes sure the survey is administered consistently across countries and the local private sector representative is there to engender the respondent's trust. The survey covers many firm characteristics and the question on tax evasion occurs near the end of the survey, after the surveyors and the respondents have had time to develop mutual trust and understanding. Government officials and financial institutions are not involved in the surveys in any way and neither government officials nor financial institutions are ever provided with raw data or any other information that will allow them to identify the responses of individual firms (Beck et al 2014). Respondents are promised that their responses will remain confidential, and over the ten plus years the survey has been conducted no firm or individual has ever been punished for their responses to the survey.

When conducting the survey a uniform sampling methodology as well as standardized survey instruments are used to minimize measurement error and to yield data that are comparable across different countries. Sample sizes are between approximately 250 and 1,500 companies per country and data are collected using simple random or randomly stratified sampling. The survey's stated objective is to "better

understand conditions in the local investment climate and how they affect firm-level productivity. The survey's stated goal is to "advise government on ways to change policies that hinder private establishments like yours and to develop new policies and programs that support productivity growth."

I use firm's responses to the World Bank surveys to create two variables related to tax evasion. The first is *Tax Evasion Ratio,* which is calculated as one minus the answered numerical response to the survey question on tax evasion. I use this variable to measure the extent of firm level tax evasion. The second variable is *Tax Evasion Indicator,* which I code as equal to one if the firm's *Tax Evasion Ratio* is a non-zero number. I use this variable to measure the incidence of tax evasion. As noted previously, both World Bank analysts and prior research have verified that responses to World Bank surveys track very closely with actual firm activity.

There is large variation in the *Tax Evasion Ratio* across countries. The mean *Tax Evasion Ratio* per country ranges from less than 4% in Spain to 78% in Senegal. There is also large variation in the *Tax Evasion Indicator*, with approximately 18% of firms in Spain reporting some level of tax evasion while over 90% of firms in Guinea report some level of tax evasion. Overall, the cross-country standard deviation of tax evasion is 0.222. While the cross-country variation in tax evasion is large, the *within*-country variation in tax evasion is even greater. I find that standard deviation of within-country tax evasion is approximately 0.443, about twice as large as the standard deviation in cross-country tax evasion, and consistent with prior research. I exploit this variation in firm-level tax evasion in my tests examining the relation between financial accounting standards, and

audit profession development, and firm-level tax evasion. Table 2 reports the mean *Tax Evasion Ratio* and *Tax Evasion Indicator* for each country in my sample.

<u>Measurement of Financial Accounting Standard Rigor</u>

My first measure of country-level financial accounting standard rigor is *GAAP Differences,* which is a measure of the number of differences between a country's domestic accounting standards and International Accounting Standards (IAS). This measure is developed by Bae, Tan, and Welker (2008), and is based on a survey of partners in large accountancy firms in various countries. Bae et al examine 21 important rules and guidelines to determine the differences between the accounting standards of a given country and IAS standards. A greater absolute value indicates a greater difference between a country's standards and IAS standards (lower accounting quality). Among other things, a country is considered to have lower quality accounting standards if its standards do not require that firms prepare a statement of cash flows, if the standards have no or very limited disclosure requirements for related party transactions, or if the standards do not require that firms account for their financial instruments based on substance over form. Appendix B provides the complete list of examined IAS differences. Table 3 presents the measure of *GAAP Differences* for each country.

My second measure of financial accounting standard rigor is *IFRS Adoption,* which is an indicator variable equal to one in the years a country has adopted the mandatory use of International Financial Reporting Standards and zero otherwise. As noted in Lamoreux et al (2014), organizations such as the World Bank believe that "IFRS adoption contributes to an overall improvement in a country's financial reporting environment" and this idea is "consistent with the literature on IFRS adoption that

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generally argues IFRS are higher quality than many countries' domestic accounting standards (Defond, Hu, Hung, and Li 2011; Khurana and Michas 2011; Yip and Young 2012)." I utilize this measure in untabulated robustness tests.

Measurement of Audit Profession Development

I quantify the development of a country's audit profession using a measure developed by Michas (2011) and updated in Lamoreaux, Michas, and Schultz (2014). This measure of audit profession development captures four general aspects of the audit profession using 13 individual components. Specifically, this measure is designed to capture (1) auditor education, (2) auditing standards, (3) auditing independence and (4) auditor oversight. Michas (2011) develops this measure using the Reports on Standards and Codes (ROSC) from the World Bank and surveys from the International Federation of Accountants (IFAC). A country is considered to have a more developed audit profession if, among other things, auditors in that country are prohibited from both preparing and auditing a firms a firm's financial statements, if auditors are required to perform on a professional examination before being licensed to practice as an auditor, if auditor practice reviews are required, and if college education is required to become a licensed auditor. Appendix C provides a detailed description of each of the 13 items that make up the audit profession development measure. Table 3 presents the level of audit profession development for each country in my sample.

Control Variables

In my analysis I include multiple firm, local, and country-level control variables that may explain tax evasion. At the firm level, I control for the size of the firm using the log number of employees at the firm as prior research such as Beck et al (2014) has found

that smaller firms are more likely to evade taxes.[8] I also control for the age of the firm as

tax evasion may differ for older, more established firms. I control for the percent of the

firm owned by foreign entities as prior research has shown that foreign ownership is

related to lower levels of tax evasion. To address differences in incentives and

opportunities for tax evasion I control for the extent to which the firm views its tax rate or

the tax administration as a business obstacle. To control for informality I include an

indicator variable equal to one if the firm was requested to provide informal payments to

government officials during inspections as well as an additional variable equal to the

firm's the total amount of informal payments "to get things done" as a percent of sales.

Finally, I control for whether the firm exports goods out of its home country, as these

firms are often subject to additional oversight that may make tax evasion more difficult.

At the local level, I include controls for the amount of corruption in the firm's

local area. Within a single country, there may be different levels of corruption in different

areas of the country and these differences are likely related to tax evasion. Including this

variable should help to control for these differences. I include an indicator variable if a

firm is in a capital city as well as an indicator variable if the firm is in a small city

because prior research has found that tax evasion differs for firms in these jurisdictions.

In robustness tests I also include a control for the strength and objectivity of the court

system in a firm's local area. However as data on the court system is missing for

approximately half my sample, I do not include it in my main analysis.

At the country level I include the control of corruption, rule of law, voice and

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[8] I control for size using the number of employees instead of dollar amount of sales because the amount of
sales may be endogenous to the percentage of sales reported to the tax authority. Furthermore using the
number of employees allows for easier comparison across countries as the gross sales amount is a function
of the strength of the country's currency and the country's purchasing power parity.

accountability, government effectiveness and quality of business regulation indices developed by Kaufman et al (2010). I also include the total tax rate faced by businesses within a country, the value-added tax rate faced by businesses in the country, the number of taxes firms pay within a country, and the time in hours of the average firm spends complying with tax regulations and paying taxes. To control for economic development I include the log of total GDP, the log of GDP per capita, the percent of the population with access to sanitation facilities and the infant mortality rate per 1,000 live births. I include industry effects to control for any industry differences in tax evasion, and I include year effects to control for any time trends in the data.[9] Appendix D contains detailed description of all of my control variables, as well as their construction and source.

Table 4 presents the summary statistics for the variables used in my analysis. Similar to prior research such as Beck et al (2014) I find that the average firm in my sample avoids reporting approximately 20% of its sales to the tax authority and that overall approximately one-third of firms in my sample commit a non-zero amount of tax evasion in the form of underreporting of sales to the tax authority. I also find the mean *GAAP Differences* is approximately -9.1 indicating that the average firm in my sample is located in a country with financial accounting standards that deviate from IAS best practices on over 9 of the 21 potential attributes.

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[9] Inferences are unchanged when using an alternate specification that includes Country * Year fixed effects to control for "confounding time-variant factors related to either global business cycles or changes within countries." (Beck et al 2014)

CHAPTER IV

RESEARCH DESIGN AND RESULTS

Research Design

To investigate the relation between financial accounting standards, audit profession development and the extent of firm-level tax evasion I run several empirical tests using my combined dataset. I start first with the following base regression.

$$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \gamma Firm\_Controls_j + \delta Local\_Controls_l$$

$$+ \zeta Country\_Controls_i + \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt} \qquad (1)$$

Where *Tax_Evasion* is the *Tax Evasion Ratio* as reported by firm *j* in local area *l* in country *i* and industry *k* in year *t*. A detailed description of the *Tax_Evasion* variable is found in Appendix A. *AA_Quality* is either a measure of the rigor of a country's financial accounting standards or of development of its audit profession. Appendices B and C provide detailed descriptions of the measures of *AA_Quality*.

Firm_Controls is a vector of firm controls including the log number of employees, firm age, the percent of the firm owned by foreign investors, whether the firm is an exporter, the firm's response to a survey question on how severe an obstacle its tax rate is to the growth and operation of its business, the firm's response to a survey question on how severe an obstacle the tax administration is to the growth and operation if its business, an indicator variable equal to one if informal payments are requested of the firm, and total informal payments as a percent of sales.

Local_Controls is a vector of local control variables including the amount of corruption in the local area, an indicator variable equal to one if the firm is located in a small city, and an indicator variable equal to one if the firm is located in a capital city.

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Country_Controls is a vector of country-level controls related to the country's tax system, the effectiveness of the government and quality of regulation and the country's level of economic development. The controls related to the country's tax system are the value-added tax rate, the total tax rate as a percentage of commercial profits, the amount of time required for tax preparation and compliance and the number of taxes in a country. The controls related to government effectiveness and quality of regulation are the Rule of Law, Control of Corruption, Quality of Business Regulation, Voice and Accountability, and Government Effectiveness indices developed by Kaufman et al (2010). The controls related to economic development are the infant mortality rate per 1,000 live births, the percentage of the population with access to sanitation, the country's total gross domestic product in the current year and the country's per capita gross domestic product in the current year.

Additional controls include *Industry,* which is a vector of 26 industry indicators to control for industry differences and *Year*, which is a vector of year indicator variables to control for any differences across time. Appendix D presents detailed information on the source and construction of each variable used in my analysis.

To the extent that the control variables isolate the effect of financial accounting standards and audit profession development from other factors, the coefficients on the vector of β variables should provide an estimate of the effect of these variables on firm-level tax evasion. However, identification is often a difficult task in international accounting research. Despite my best efforts and the myriad of the firm, local, country, industry and year controls in equation (1), there exists the possibility the coefficients on β

do not reflect the rigor of financial accounting standards or audit profession development in a country but rather reflect some other correlated, omitted country-level variable.

I attempt to address this possibility by identifying a subset of firms within a country that are differentially affected by the quality of the accounting standards and audit environment. My sample includes firms of all types – public and private, large and small, foreign and locally owned, firms closely held by families and firms with disperse ownership. Crucially for this study, my sample also includes both firms that have financial statements that are audited by an external auditor as well as firms that do not have such statements.[10] Approximately 54% of the firms in my sample have externally audited financial statements, providing variation in this measure. I hypothesize that relative to firms that do not have externally audited financial statements, firms with externally audited financial statements will be more affected by the country's financial reporting standards and the quality and level of development of the audit profession in the country. I utilize this differential impact as my identification technique in the following regression.

$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * External\_Audit_{jt} +$

$\omega External\_Audit_{jt} + \gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i$

$$+ \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt} \qquad (2)$$

Where $External\_Audit_{jt}$ is an indicator variable equal to one if firm j has externally audited financial statements in year t and zero otherwise. All other variables are defined as in equation (1). The interaction of $AA\_Quality$ and $External\_Audit$ is

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[10] For the firms that do not have externally audited financial statements, I do not have data on whether it is that they do not create financial statements, or whether they have financial statements but these statements are not audited.

represented by the coefficient on vector φ. Firms that have externally audited financial statements should be more affected by the financial accounting standards and audit profession development of their country than firms that do not have their financial statements examined and verified by external auditors. Since within a country there are both firms with and without externally audited financial statements, this differential effect enables me to identify the effect of financial accounting quality and audit profession development on tax evasion while holding constant other important country-level factors. Finally, the indicator variable *External_Audit* should help to control for the direct effect of having externally audited financial statements or any differences between firms that have externally audited statements and those that do not.

Results of Primary Empirical Tests

My first hypothesis predicts that there is not a relation between country-level financial accounting standards and audit profession development and firm-level tax evasion. My second hypothesis predicts that if there is a relation between country-level accounting quality and audit profession development and firm-level tax evasion, this relation will be strongest for firms with externally audited financial statements. I test these hypothesis by estimating equations (1) and (2). Table 5 presents the results of estimating these equations with the *Tax Evasion Ratio (Extent of Tax Evasion)* as the dependent variable. Columns 1 and 3 present the results of estimating equation (1), while columns 2 and 4 present the results of estimating equation (2).

I find that after controlling for firm, local and country level variables, that country-level financial accounting quality and audit profession development are negatively related to the extent of tax evasion. Specifically when estimating equation (1),

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I find a negative and significant coefficient on *Audit Profession Development* (column 1) and a negative and significant coefficient on *GAAP Differences* (column 3).[11] The economic effect is substantial, especially when aggregated over an entire economy as full IAS compliance (a fully developed audit profession) is associated with a 6.3% (4.7%) decrease in tax evasion.[12] Overall, this evidence supports a rejection of the null hypothesis in H1 of no relation between financial accounting standards, audit profession development and tax evasion.

I also find that the negative relation between accounting quality and audit profession development and firm-level tax evasion is concentrated in firms that have externally audited financial statements. Specifically, when estimating equation (2) I find a negative and significant coefficient on *Audit Profession Development * Externally Audited Financial Statements* (column 2) and a negative and significant coefficient on *GAAP Differences* and *GAAP Differences * Externally Audited Financial Statements* (column 4). This evidence provides support for hypothesis H2 and suggests that the effect is related to the accounting and auditing related to financial reporting and not some other correlated and omitted country-level variable.

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[11] It is important to note that my measure of audit profession development (Michas 2011) becomes more positive when the audit profession is more developed, and my measure of financial reporting quality (GAAP Differences) is also more positive when financial accounting standards have fewer differences from IAS. This is because while I measure the differences from best practices, where more differences means a higher number of *GAAP Differences* I then multiply this by -1 so that a more positive number indicates fewer differences and thus higher quality.

[12] The direct revenue effect is only one benefit of decreased tax evasion. Perhaps an even greater benefit is the increase in the competitiveness of the economy through elimination of unfair advantages to well-connected firms that benefit from corruption. This benefit is especially important for countries with policy goals focused on encouraging economic growth.

Differential Effects

Corruption

Firms are affected by their external environments. For example Leuz, Nandi and Hail (2003) find that firms located in countries with lower levels of investor protection are more likely to manage earnings. Additionally, McGuire, Omer and Sharp (2012) and Boone, Khurana and Raman (2014) find that firms located in more religious areas have fewer financial statement irregularities and avoid less tax, respectively.

 Similarly, firms located in areas of high corruption should be more likely to evade tax. Beck et al (2014) provide evidence to support this contention. If evading tax is a well-accepted local practice, then it may take effective outside institutions and monitoring to deter tax evasion. In this way, external influences such as high-quality accounting and auditing may be more effective at mitigating tax evasion when the local area is more corrupt. This leads to the following hypothesis, stated in alternative form.

> *H3: The relation between financial accounting standards, audit profession development and tax evasion will be stronger for firms in areas with higher levels of corruption.*

Closely-Held Firms

Existing empirical evidence suggests that closely held firms evade more tax than firms with a more widely distributed ownership structure. Relative to more widely held firms, closely- held firms typically have additional flexibility in management decisions and both anecdotal and empirical evidence suggests that closely-held firms utilize this additional flexibility to avoid taxes (Beuselink, Deloof, and Vanstraelen 2014). If more rigorous financial accounting standards and a more developed audit profession are at least

a partial substitute for external monitoring and limit the flexibility that closely-held firms have in their financial reporting then they should be associated with lower levels of tax evasion for closely-held firms. Given the additional flexibility inherent in closely-held firms and their higher levels of tax evasion it should be the case that applying additional monitoring through the accounting and auditing channel has a greater effect on tax evasion for closely-held firms. This leads to the following hypothesis, stated in the alternative form:

> *H4: The relation between financial accounting standards, audit profession development and tax evasion will be stronger for closely-held firms.*

Proximity to Regulators

Within a country, there are often differences in regulatory scrutiny and enforcement and these distances are often related to the proximity to regulators. For example Kedia and Rajgopal (2011) provide evidence that the SEC is more likely to investigate firms located closer to its offices and suggest that "regulation is most effective when it is local."

The negative relation between financial accounting standards and audit profession development should be more pronounced when the standards are more tightly enforced, and the audit profession is more closely monitored. The evidence in Kedia and Rajgopal (2011) suggests that this monitoring and enforcement will be greater when the firm is located closer to regulators. This leads to the following hypothesis, stated in the alternative form.

H5: The relation between financial accounting standards, audit profession development and tax evasion will be stronger for firms in closer proximity to regulators.

<u>Results – Differential Effects</u>

Several of my hypotheses involve the interaction of financial accounting standards and audit profession development with other variables of interest such as corruption, ownership structure, and proximity to regulators. To test these hypotheses, I estimate the following equation:

$$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * VOI + \omega VOI_{jt}$$

$$+ \ \gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i$$

$$+ \ \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt} \tag{3}$$

Where *VOI* is the variable of interest for that particular hypothesis. Specifically, *VOI* takes the form of either an indicator variable for firms located in an area with high levels of corruption, an indicator variable for closely-held firms, or an indicator variable for firms located in a capital city (and thus closer to regulators).[13] All other variables are defined as in equation (1). The interaction of *AA_Quality* and *VOI* is represented by the coefficient on vector φ. For each given *VOI*, the coefficient on φ indicates the differential effect of financial accounting standards and audit profession development for that particular *VOI*. I also control for externally audited financial statements in the *Firm Controls* vector in the regression.

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[13] Unfortunately, I do not have data on the location of regulatory offices for the countries in my sample. To measure proximity to regulators I rely on the assumption that firms located in a capital city are geographically closer to regulators than firms located in other areas of the country.

Table 6 presents the results of estimating equation (3) with the *Tax Evasion Ratio a*s the dependent variable and where *VOI* is equal to an indicator variable equal to one if local-level corruption is above the median level, and zero otherwise. Columns 1 and 2 present the results for level of development the audit profession, and columns 3 and 4 present the results using the measure of financial accounting standard rigor. Consistent with my hypothesis, I find that audit profession development and financial accounting standards matter more for firms in areas with high corruption, as I find a negative, significant coefficient on the interaction of *Audit Profession Development * High Corruption* as well as negative, significant coefficient on the interaction of *GAAP Differences * High Corruption*. This evidence suggests that more rigorous financial accounting standards and a more developed audit profession play a greater role in mitigating tax evasion when firms are located in more corrupt areas.

Table 7 presents the results of estimating equation (3) with the *Tax Evasion Ratio (Extent of Tax Evasion)* as the dependent variable and where *VOI* is equal to an indicator variable equal to one if a firm is closely-held.[14] Columns 1 and 2 present the results for *Audit Profession Development*, and columns 3 and 4 present the results using the measure of financial accounting standard rigor, *GAAP Differences*. Consistent with my hypothesis, I find that audit profession development has a significantly more negative relation with tax evasion for firms that are closely-held, as I find a negative, significant coefficient on the interaction of *Audit Profession Development * Closely Held.* However inconsistent with my hypothesis, I do not find that more rigorous financial accounting standards are more negatively related to tax evasion for closely- held firms relative to

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[14] I classify a firm as closely held if the management team is the largest shareholder in the firm.

other firms as I find a negative but insignificant coefficient on the interaction of *GAAP Differences * Closely Held.*

Table 8 presents the results of estimating equation (3) with the *Tax Evasion Ratio (Extent of Tax Evasion)* as the dependent variable and where *VOI* is equal to an indicator variable equal to one if a firm is classified located in a capital city (and thus closer to regulators) and zero otherwise. Columns 1 and 2 present the results for level of development the audit profession, and columns 3 and 4 present the results using *GAAP Differences.* Inconsistent with my hypothesis, I do not find that audit profession development is associated with differentially lower levels of tax evasion for firms in closer proximity to regulators, as I find an insignificant coefficient on the interaction of *Audit Profession Development * Capital City.* However, consistent with my hypothesis, I do find evidence that more rigorous financial accounting standards are associated with decreased levels of tax evasion for firms in closer proximity to regulators, as I find a negative and significant indicator on the interaction of *GAAP Differences * Capital City.*

CHAPTER V

SENSITIVITY ANALYSIS

Within Country IFRS Differences

When calculating *GAAP Differences,* my measure of financial accounting

standards quality, I follow Bae et al (2008) and reset the differences between a country's

accounting system and IAS to 0 when the country adopts IFRS. However, there exist

large differences in the implementation of IFRS and these differences may be based on

the accounting environment within a country. To account for potential across country

differences in accounting quality even after the implementation of IFRS, I re-rerun my

tests using my measure of standards quality without resetting a country's *GAAP*

Differences to 0 when the country implements IFRS. The results from these tests are

consistent with my main analyses.

Crime

Studies such as Grossman (1995) and Alexeev, Janeba and Oxborne (2004)

suggest that organized crime and the mafia may play a part in tax evasion. If countries

with less rigorous financial accounting standards and a less developed audit profession

have more organized crime, and this organized crime is related to tax evasion then it is

possible that this relation is driving my results. My extensive control variables including

controls for corruption and informality as well as the interaction with externally audited

financial statements should at least partially address this concern. However, to provide

further confidence that my results are not driven by organized crime this I hand-collect

data on crime rates (per 100,000 population) from the UN Office on Drugs and Crime for

each sample country and include the log of the crime rate as a control variable in my

untabulated robustness tests. The results from these tests are consistent with my main analyses.

Court Strength

In my main analysis, I control for the rule of law at the country level, as it is likely that the both tax evasion as well as the quality of a country's financial reporting environment and development of its audit profession are correlated with rule of law. However, as the World Bank data used in this study also has information on *local* judicial strength, in untabulated robustness tests I include this measure use this is a finer control for the strength of the local courts. When including this variable in robustness tests for I find that the results are consistent with my main analyses. I do not include this variable in my main analysis as it is missing for approximately half of my sample.

IFRS Adoption

In untabulated robustness tests, I use *IFRS Adoption* as an alternative measure of country level financial reporting quality where *IFRS Adoption* is an indicator variable equal to one in the years a country has adopted the mandatory use of International Financial Reporting Standards and zero otherwise. As noted in Lamoreux et al (2014), organizations such as the World Bank believe that "IFRS adoption contributes to an overall improvement in a country's financial reporting environment" and this idea is "consistent with the literature on IFRS adoption that generally argues IFRS are higher quality than many country's domestic accounting standards (Defond, Hu, Hung and Li 2011; Khurana and Michas 2011; Yip and Young 2012)." The results using this measure of financial reporting quality are consistent with my main analyses.

CHAPTER VI

CONCLUSION

Tax evasion is an important policy issue that is economically significant for many countries. In this study I use a unique dataset to investigate the relation between (1) financial accounting standards and audit profession development and (2) the extent of firm-level tax evasion. I investigate this question using a confidential dataset compiled by the World Bank that provides an estimation of the percent of sales a firm reports to the tax authority as well as information on local corruption. Another unique feature of this database is that it includes firms both with and without externally audited financial statements. After controlling for corruption, court strength, economic development and a myriad of other firm, local and country-level variables I find that firms that in countries with more rigorous accounting standards and a more developed audit profession evade less tax, and that this effect is strongest when firms have externally audited financial statements and thus are more directly influenced by their countries' financial accounting standards and audit profession development.

The IMF and World Bank have recently noted that tax evasion has a large, negative impact on many countries, and that the developing world loses more funds annually due to tax evasion than it receives in total development aid. The evidence in this paper suggests that one way developing countries may mitigate firm-level tax evasion is to implement more rigorous financial accounting standards and to accelerate the development of the audit profession. This result has important implications for policy makers debating how to respond to tax evasion in their country and whether to dedicate scarce resources to improving their countries' financial reporting environment.

APPENDIX A

MEASUREMENT OF TAX EVASION

I measure firm-level tax evasion using the World Bank Private Enterprise Survey. This is a confidential survey. The World Bank conducts this survey in approximately 100 countries, sampling between 250 and 1,500 companies for country. The data are collected using either simple random or randomly stratified sampling.

For the purposes of this study, I follow Beck et al (2014) and measure:

The Tax Evasion Ratio = 1 minus the response to the survey 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?"

The Tax Evasion Indicator = equal to one if the Tax Evasion Ratio is greater than zero, otherwise zero.

The Tax Evasion Ratio and Indicator have been used in studies in economics and finance such as (Beck et al 2014) as the measure of interest of firm-level tax evasion. The World Bank Private Enterprise Survey is a confidential survey. The following is an excerpt from the survey (emphasis added).

"The purpose of this survey is to better understand conditions in the local investment climate and how they affect firm-level productivity. The goal is to advise government on ways to change policies that hinder private establishments like yours and to develop new policies and programs that support productivity growth. Your answers should reflect only your experience of doing business in your country. **Please note that the information obtained here will be treated strictly confidentially. Neither your name nor the name of your firm will be used in any document based on this survey**. "

APPENDIX B

MEASUREMENT OF AUDIT PROFESSION DEVELOPMENT

Reproduced from Appendix B in Michas (2011)

The 13 components are coded by answering the following 13 questions (data source is in parenthesis).

A) Auditor Education:
1. Are universities' accounting education curriculum standards the same for all universities within a country (ROSC)?
2. Are auditors required to perform on a professional examination before being licensed to practice as an auditor (ROSC)?
3. Are accountants required to gain professional experience before being licensed as an auditor (ROSC)?
4. Are auditors required to fulfill continuing education requirements on an annual basis? (ROSC)?

B) Auditing Standards:
5. To what extent are the country's auditing sources consistent with international standards on auditing? This variable is coded 0.00 if there is low consistency, 0.33 if medium, 0.67 if high and 1.00 if they are exactly the same except for very minor differences (ROSC).

C) Auditor Independence:
6. Are auditors in the country *prohibited* from both preparing *and* auditing a client's financial statements (ROSC)?
7. What is the level of liability faced by auditors in the country? This variable is coded 0.00 if liability is non-existent, 0.33 if low, 0.67 if mid-level and 1.00 if high (ROSC).
8. Are companies' audit committees responsible for appointing listed companies external auditors (ROSC and AARSSF)?
9. Is auditor rotation required for external auditors of listed companies (ROSC and AARSSF)?
10. Has the audit profession adopted the ethics code of the International Federation of Accountings (ROSC)?

D) Auditor Oversight:
11. Are auditors required to register with or be licensed by a central governing organization, either public or private (ROSC)?
12. What type of auditor practice reviews are mandatory within the country? This variable is coded 0.000 if none are required, 0.5 if a government body or a peer auditor conducts the review, and 1.00 if an independent, professional audit organization (similar to AICPA for example) conducts the review (ROSC and AARSF).
13. Does an organization within the country consistently issue published audit implementation guidelines (ROSC)?

APPENDIX C

MEASUREMENT OF GAAP DIFFERENCES

Reproduced from Table 1 in Bae et al (2008)

The 21 IAS Items Making up the GAAP Difference Measure:

Item	IAS Rules	Description – Countries Coded 1
1	IAS No. 1.7	Do not require a primary statement of changes in equity
2	IAS No. 12	Do not generally require deferred tax accounting
3	IAS No. 14	Require no or very limited segment reporting
4	IAS No. 17	Require no or very limited capitalization of leases
5	IAS No. 19	Do not have rules for accounting for employee benefit obligations (other than defined contribution plans in some cases)
6	IAS No. 19.52	Do not have rules for accounting for employee benefits other than pensions.
7	IAS No. 2.36	Do not require disclosure of FIFO inventory cost when LIFO is used
8	IAS No. 22.56/38.99	Do not require impairment testing of goodwill or other intangibles with lives in excess of 20 years
9	IAS No. 24	Have no or very limited disclosure requirements for related-party transactions
10	IAS No. 32.18/.23	Do not require that companies account for their financial instruments based on substance over form
11	IAS No. 32.77	Do not require the disclosure of the fair value of financial assets and liabilities
12	IAS No. 35	Do not have rules outlining the treatment of discontinued operations
13	IAS No. 36	Do not have rules calling for impairment testing for long-term assets, or impairments that are only recorded when deemed permanent
14	IAS No. 37	Do not have specific rules dealing with provisions
15	IAS No. 37.14	Permit establishing provision when there is no obligation
16	IAS No. 37.45	Do not have rules calling for the discounting of provisions
17	IAS No. 38.42	Permit capitalization of research and development costs
18	IAS No. 38.51	Permit capitalization of some other internally generated intangibles (e.g. brands)
19	IAS No. 7	Do not require a statement of cash flows
20	IAS No. 8.6	Permit a broader definition of extraordinary items
21	SIC 12	Do not require the consolidation of special purpose entities

GAAP differences is the sum of the number of differences observed in the scores across all-21 items, measured by country and multiplied by -1.

APPENDIX D

VARIABLE DEFINITIONS AND DATA SOURCES

Panel A: Firm Level Data

Variable	Definition	Original Source
Tax Evasion Ratio	"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?" The tax evasion ratio is equal to one minus the answered number.	World Bank Private Enterprise Survey
Financial Statement Audit	Equals one if financial statements of the firm are reviewed by an external auditor.	World Bank Private Enterprise Survey
Firm Tax Rate	Please tell us if Tax Rates are a problem for the operation and growth of your business. If an issue poses a problem, please judge its severity as an obstacle on a four-point scale where: 0 = no obstacle, 1 = minor obstacle, 2 = moderate obstacle, 3 = major obstacle, 4 = very severe obstacle.	World Bank Private Enterprise Survey
Tax Administration Difficulty	Please tell us if the Tax Administration is a problem for the operation and growth of your business. If an issue poses a problem, please judge its severity as an obstacle on a four-point scale where: 0 = no obstacle, 1 = minor obstacle, 2 = moderate obstacle, 3 = major obstacle, 4 = very severe obstacle.	World Bank Private Enterprise Survey
Informal Payment Requested	Was a gift or informal payment ever expected or requested during inspections and mandatory meetings with officials of the following agencies: Tax Inspectorate, Labor and Social Security, Fire and Building Safety, Sanitation/Epidemiology, Municipal Police, Environmental.	World Bank Private Enterprise Survey
Informal Payments Total (% of Sales)	We've heard that establishments are sometimes required to make gifts or informal payments to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services etc. On average, what percent of annual sales value would such expenses cost a typical firm like yours?	World Bank Private Enterprise Survey

Panel A: Firm Level Data (Continued)

Variable	Definition	Original Source
Firm Age	"In what year did your firm begin operations in this country?" Firm age is measured as year of survey minus year answered.	World Bank Private Enterprise Survey
Manager's Education Level	"What is the highest education level of the top manager? 1 = did not complete secondary school; 2 = Secondary School; 3 = Vocational Training; 4 = Some university training; 5 = Graduate Degree (BA, BSc, etc.); 6 = Post graduate degree (PhD, Masters). Manager's education level is equal to the numerical answer to this question.	World Bank Private Enterprise Survey
Foreign Ownership	Percentage of the firm owned by foreign investors.	World Bank Private Enterprise Survey

Panel B: Local-Level Data (From Firm Responses)

Variable	Definition	Original Source
Local Corruption	"Please tell us if any of the following issues are a problem for the operation and growth of your business. If an issue poses a problem, please judge its severity as an obstacle on a four-point scale where: 0 = no obstacle; 1 = minor obstacle; 3 = Major obstacle; 4 = Very severe obstacle" Local Corruption = answered answer to this question when asked about "Corruption"	World Bank Private Enterprise Survey
Firm Location	"Where are this establishment and your headquarters located in this country?" (Enumerator, please code as follows. 1 = capital city; 2 = other city of over 1 million population; 3 = city of 250,000 to 1 million; 4 = city of 50,000 to 250,000; 5 = town or location with less than 50,000 population.	World Bank Private Enterprise Survey
Capital City	Firm Location = 1 (capital city)	World Bank Private Enterprise Survey
Small City	Firm location = 4 or 5 (city of 50,000 to 250,000 and town or location with less than 50,000 population	World Bank Private Enterprise Survey
Strength of Local Judicial System	""I am confident that the judicial system will enforce my contractual and property rights in business disputes." To what extent do you fully agree with this statement? Do you: 1= Fully disagree; 2= Disagree in most cases; 3= Tend to disagree; 4= Tend to agree; 5= Agree in most cases; 6= Fully agree. Strength of Local Judicial System = answered number.	World Bank Private Enterprise Survey

Panel C: Country Level Data

Variable	Definition	Original Source
Audit Profession Development (APD)	The average of four aspects of a country's audit profession development as developed by Michas (2011). Each aspect includes individual components of Auditor Education, Auditing Standards, Auditor Independence and Auditor Oversight in a Country. See Appendix A for details.	Michas, P. 2011. The importance of audit profession development in emerging market countries. *The Accounting Review* 86 (5): 1731-1764.
GAAP Differences	The difference between International Accounting Standards (IAS) and a country's domestic accounting standards as compiled by Bae et al (2008) and multiplied by -1 so that numbers greater in value (and closer to 0) indicate fewer deviations from IAS.. Deviations from IAS measures the difference between IAS and domestic GAAP in 21 key accounting rules. The differences are based on a survey of partners in large accountancy organizations from more than 60 countries benchmarking local GAAP rules to IAS rules in place as of December 31, 2001. A higher score indicates fewer differences between local accounting standards and IAS, which I interpret as an indicator of lower accounting quality, consistent with Bae et al (2008) and Lamoreaux et al (2014)	Bae, K.H., H. Tan, and M. Welker. 2008. International GAAP differences: The Impact on Foreign Analysts. *The Accounting Review* 83 (3): 593-628.
Log(Total Tax Rate)	Log of Total tax rate (proportion of commercial profits)	World Bank Development Indicators (WDI)
Log(Value Added Tax Rate)	Log of the value-added tax rate	World Bank Development Indicators (WDI)
Log of time to prepare and pay taxes (hours)	Log of time to prepare and pay taxes (hours)	World Bank Development Indicators (WDI)
Log(Total number of taxes paid)	Log of the total number of taxes paid by businesses, including electronic filing.	World Bank Development Indicators (WDI)
Log(GDP)	Log of the gross domestic product	World Bank Development Indicators (WDI)
Log(GDP Per Capita)	Log of the gross domestic product per capita	World Bank Development Indicators (WDI)
Crime	Log of per 100,000 population total crime rates	United Nations Office on Drugs and Crime (UNODC)

Panel C: Country Level Data (Continued)

Variable	Definition	Original Source
Rule of Law	Measures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence. Higher values mean stronger law and order.	Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, The worldwide governance indicators: A summary of methodology, data and analytical issues, Working paper No. 5430, World Bank Policy Research.
Control of Corruption	Measures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Higher values indicate better control of corruption.	Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, The worldwide governance indicators.
Voice and Accountability	Captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, The worldwide governance indicators.
Government Effectiveness	Measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, The worldwide governance indicators.
Business Regulation Quality	Captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2010, The worldwide governance indicators.
Access to Sanitation	Percent of the population with access to sanitation facilities.	World Bank Development Indicators (WDI)
Infant Mortality	Infant Mortality Rate per 1,000 live births	World Bank Development Indicators (WDI)

APPENDIX E

TABLES

Table 1: Sample Selection

	Firm-Year Obs.	Number of Countries
Confidential World Bank Survey with non-missing data on Tax Evasion	51,201	98
Missing Data for Control Variables	(19,645)	(2)
Missing Data for both Audit Profession Development and GAAP Differences	(13,330)	(56)
Final Number Observations	18,226	40

Table 2: Extent and Incidence of Tax Evasion

	Country	Tax Evasion Ratio (Mean)	Tax Evasion Indicator (Mean)
1	Albania	0.228	0.650
2	Algeria	0.275	0.239
3	Angola	0.509	0.647
4	Argentina	0.175	0.449
5	Armenia	0.060	0.270
6	Azerbaijan	0.137	0.350
7	Belarus	0.076	0.249
8	Benin	0.143	0.355
9	Boznia and Herzegovina	0.208	0.372
10	Bolivia	0.202	0.427
11	Botswana	0.476	0.635
12	Brazil	0.326	0.763
13	Bulgaria	0.135	0.311
14	Burkina Faso	0.219	0.554
15	Burundi	0.157	0.415
16	Cambodia	0.520	0.765
17	Cameroon	0.121	0.378
18	Cape Verde	0.111	0.184
19	Chile	0.082	0.197
20	China	0.419	0.102
21	Colombia	0.171	0.334
22	Costa Rica	0.284	0.571
23	Croatia	0.096	0.317
24	Czech	0.118	0.440
25	Democratic Republic of Congo	0.376	0.668
26	Dominican Republic	0.493	0.596
27	Ecuador	0.241	0.372
28	Egypt	0.168	0.356
29	El Salvador	0.208	0.374
30	Eritrea	0.158	0.215
31	Estonia	0.050	0.260
32	Gambia	0.674	0.856
33	Georgia	0.235	0.489
34	Germany	0.057	0.446
35	Greece	0.110	0.489
36	Guatemala	0.249	0.526
37	Guinea	0.643	0.910
38	Guyana	0.262	0.712
39	Honduras	0.236	0.411
40	Hungary	0.114	0.384
41	India	0.269	0.378
42	Indonesia	0.269	0.440
43	Ireland	0.038	0.281
44	Jamaica	0.118	0.223
45	Jordan	0.126	0.119
46	Kazakhstan	0.095	0.272
47	Kenya	0.143	0.391
48	Kyrgyzstan	0.202	0.442
49	Laos	0.038	0.146

Table 2 (Continued)

	Country	Tax Evasion Ratio (Mean)	Tax Evasion Indicator (Mean)
50	Latvia	0.096	0.318
51	Lebanon	0.344	0.556
52	Lesotho	0.171	0.227
53	Lithuania	0.125	0.224
54	Macedonia	0.295	0.573
55	Madagascar	0.065	0.205
56	Malawi	0.303	0.456
57	Mali	0.255	0.523
58	Mauritania	0.470	0.797
59	Mauritius	0.124	0.212
60	Mexico	0.237	0.491
61	Moldova	0.164	0.475
62	Mongolia	0.369	0.641
63	Montenegro	0.296	0.380
64	Morocco	0.039	0.153
65	Namibia	0.254	0.362
66	Nicaragua	0.374	0.523
67	Niger	0.127	0.264
68	Oman	0.289	0.359
69	Panama	0.371	0.477
70	Paraguay	0.192	0.325
71	Peru	0.184	0.397
72	Philippines	0.218	0.483
73	Poland	0.098	0.401
74	Portugal	0.082	0.370
75	Romania	0.085	0.299
76	Russia	0.166	0.389
77	Rwanda	0.189	0.321
78	Senegal	0.798	0.737
79	Serbia & Montenegro	0.177	0.369
80	Serbia	0.231	0.534
81	Slovakia	0.080	0.292
82	Slovenia	0.118	0.389
83	South Africa	0.092	0.149
84	South Korea	0.100	0.420
85	Spain	0.037	0.182
86	Sri Lanka	0.076	0.330
87	Swaziland	0.579	0.707
88	Syria	0.489	0.220
89	Tajikistan	0.235	0.542
90	Tanzania	0.410	0.665
91	Turkey	0.363	0.609
92	Uganda	0.405	0.589
93	Ukraine	0.123	0.267
94	Uruguay	0.147	0.274
95	Uzbekistan	0.058	0.192
96	Vietnam	0.094	0.392
97	West Bank & Gaza	0.129	0.237
98	Zambia	0.158	0.406

Table 3: Accounting and Audit Quality Measures by Country

	Country	Audit Profession Development (Michas 2011)	GAAP Differences (Bae et al 2008)
1	Albania	0.690	N/A
2	Argentina	0.280	-14
3	Azerbaijan	0.280	N/A
4	Belarus	0.580	N/A
5	Brazil	0.730	-11
6	Bulgaria	0.610	N/A
7	Chile	0.220	-13
8	China	0.810	-9
9	Colombia	0.060	N/A
10	Czech	0.500	-14
11	Ecuador	0.220	N/A
12	Egypt	0.450	-9
13	El Salvador	0.510	N/A
14	Estonia	N/A	-7
15	Germany	N/A	-11
16	Greece	N/A	-17
17	Hungary	0.740	-13
18	India	0.610	-8
19	Indonesia	0.750	-4
20	Ireland	N/A	-1
21	Jamaica	N/A	N/A
22	Jordan	0.350	N/A
23	Kazakhstan	0.650	N/A
24	Latvia	0.820	N/A
25	Lithuania	0.500	N/A
26	Malaysia	N/A	-8
27	Mauritius	0.270	N/A
28	Mexico	0.460	-1
29	Morocco	0.550	N/A
30	Pakistan	0.750	-4
31	Paraguay	N/A	N/A
32	Peru	0.400	-1
33	Philippines	0.910	-10
34	Poland	0.630	-12
35	Portugal	N/A	-13
36	Romania	0.690	N/A
37	Russia	N/A	-16
38	Slovenia	N/A	-9
39	South Africa	0.710	-0
40	South Korea	0.940	N/A
41	Spain	N/A	-16
42	Thailand	0.790	-4
43	Turkey	0.600	-14
44	Ukraine	0.480	N/A
45	Uruguay	0.200	N/A
46	Venezuela	N/a	-5

Table 4: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Firm Level Variables				
Tax Evasion Ratio	0.207	0.303	0.000	1.000
Tax Evasion Indicator	0.337	0.473	0.000	1.000
Firm Tax Rate	1.439	1.425	0.000	4.000
Tax Administration Difficulty	1.210	1.357	0.000	4.000
Externally Audited FS	0.537	0.499	0.000	1.000
Foreign Ownership	9.503	27.120	0.000	100.000
Exporter	0.191	0.393	0.000	1.000
Log(Firm age)	2.586	0.793	0.000	6.911
Log(Firm employment)	3.350	1.631	0.000	11.121
Gift Requested	0.040	0.197	0.000	1.000
Log(Unofficial Payments)	0.475	0.820	0.000	4.615
Local (Within-Country) Variables				
Small City	0.220	0.414	0.000	1.000
Capital City	0.222	0.416	0.000	1.000
Court Strength	3.711	1.470	1.000	6.000
Corruption	1.175	1.419	0.000	4.000
Country Level Variables				
Audit Profession Development	0.577	0.200	0.060	0.940
GAAP Differences	-9.148	4.304	-17.000	0.000
Log(Value Added Tax Rate)	2.278	0.461	0.318	3.183
Log(Total Tax Rate)	3.835	0.382	2.219	4.929
Log(Time on Taxes)	1.911	0.893	1.600	2.182
Log(# of Taxes)	1.400	0.191	0.959	1.790
Log(GDP)	24.836	1.931	16.203	31.947
Log(GDP per Capita)	7.676	1.185	4.187	12.175
Government Effectiveness	-0.109	0.605	-1.260	1.730
Quality of Business Regulation	-0.056	0.698	-1.590	1.540
Control of Corruption	-0.296	0.636	-2.060	2.590
Rule of Law	-0.259	0.658	-2.670	2.000
Voice and Accountability	-0.147	0.801	-1.950	1.610
Infant Mortality Rate (per 1,000)	27.643	20.416	3.500	105.300
Access to Sanitation	73.195	24.027	9.600	100.000

Table 5: The Association between Country-Level Financial Accounting Standards, Audit Profession Development, and the Extent of Firm-level Tax Evasion

$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * External\_Audit_{jt} + \omega External\_Audit_{jt} + \gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i + \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt}$

Variables	1	2	3	4
Audit Profession Development	-0.047**	-0.016		
	(-2.26)	(-0.60)		
Audit Profession Development * External Audit		-0.050**		
		(-2.12)		
GAAP Differences			-0.003***	-0.001
			(-3.77)	(-1.25)
GAAP Differences * External Audit				-0.003***
				(-3.15)
Firm-Level Controls				
Firm Tax Rate	0.004	0.004	0.002	0.002
	(1.36)	(1.39)	(0.66)	(0.72)
Tax Administration Difficulty	0.006**	0.006**	0.008***	0.008***
	(2.25)	(2.24)	(2.95)	(3.04)
Firm has Externally Audited Financial Statements	-0.008	0.018	-0.026***	-0.059***
	(-1.61)	(1.43)	(-5.22)	(-4.74)
% Foreign Ownership	-0.051***	-0.050***	-0.048***	-0.047***
	(-6.32)	(-6.28)	(-6.15)	(-6.04)
Exporter	0.004	0.004	-0.001	-0.001
	(0.72)	(0.72)	(-0.07)	(-0.06)
Log(Firm Age)	-0.010***	-0.010***	-0.009***	-0.009***
	(-3.03)	(-3.06)	(-2.67)	(-2.70)
Log(# of Firm Employees)	-0.006***	-0.005***	-0.003*	-0.003*
	(-3.18)	(-3.14)	(-1.85)	(-1.96)
Informal Payment Requested?	0.0135	0.013	0.035	0.038
	(0.46)	(0.44)	(1.19)	(1.30)
Informal Payments Total (% of Sales)	0.0543***	0.054***	0.052***	0.052***
	(16.44)	(16.43)	(13.48)	(13.56)
Local (Within-Country) Controls				
Local Corruption	0.011***	0.011***	0.009***	0.009***
	(5.02)	(5.07)	(3.90)	(3.86)
Firm Located in Small City	-0.005	-0.005	0.002	0.002
	(-0.86)	(-0.84)	(0.39)	(0.28)
Firm Located in Capital City	0.037***	0.037***	0.033***	0.032***
	(5.29)	(5.32)	(4.63)	(4.51)
Country-Level Controls				
Log(Value-Added Tax Rate)	0.123***	0.124***	0.164***	0.163***
	(11.73)	(11.74)	(11.32)	(11.26)
Log(Total Tax Rate - % of Commercial Profits)	0.029**	0.031***	0.072***	0.069***
	(2.39)	(2.60)	(5.06)	(4.73)

(Continued)

Table 5 (Continued)

Log(Time on Taxes)	-0.179***	-0.170***	-0.043	-0.061
	(-4.10)	(-3.86)	(-0.94)	(-1.34)
Log(# of Taxes)	-0.145***	-0.147***	-0.074**	-0.073**
	(-8.07)	(-8.17)	(-2.24)	(-2.21)
Government Effectiveness	0.158***	0.156***	0.111***	0.114***
	(7.26)	(7.20)	(4.46)	(4.58)
Quality of Business Regulation	-0.054***	-0.051***	-0.096***	-0.095***
	(-4.14)	(-3.92)	(-5.74)	(-5.81)
Control of Corruption	-0.078***	-0.076***	-0.020	-0.017
	(-5.62)	(-5.48)	(-0.94)	(-0.79)
Rule of Law	0.001	-0.001	0.059***	0.056***
	(0.02)	(-0.03)	(3.14)	(2.96)
Voice and Accountability	-0.046***	-0.046***	-0.061***	-0.062***
	(-5.94)	(-5.98)	(-5.23)	(-5.31)
Infant Mortality Rate	-0.002***	-0.002***	0.001	0.001
	(-5.07)	(-4.89)	(0.67)	(1.11)
Access to Sanitation	-0.003***	-0.003***	-0.002***	-0.002***
	(-8.21)	(-8.17)	(-4.49)	(-4.18)
Log(GDP per Capita)	-0.041***	-0.041***	-0.029***	-0.028**
	(-4.21)	(-4.29)	(-2.61)	(-2.56)
Log(GDP)	0.031***	0.031***	0.023***	0.023***
	(10.75)	(10.69)	(6.62)	(6.51)
Constant	0.153	0.118	-0.482***	-0.424***
	(1.27)	(0.97)	(-4.32)	(-3.73)
Industry Effects?	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes
Observations	15,502	15,502	14,597	14,597
R-squared	0.137	0.138	0.167	0.168

*,**, and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.
All p-values are in parentheses and are calculated based on standard errors that are clustered by country and industry. All variables are as defined in Appendix D.

Table 6: The Association Between Country-Level Financial Accounting Standards, Audit Profession Development and the Extent of Firm-level Tax Evasion: The Role of Local Corruption

$$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * High\_Corruption_{jt} + \omega High\_Corruption_{jt} + \gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i + \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt}$$

Variables	1	2	3	4
Audit Profession Development	-0.045**	-0.027		
	(-2.21)	(-1.16)		
Audit Profession Development * High Corruption		-0.054*		
		(-1.93)		
GAAP Differences			-0.003***	-0.001*
			(-4.20)	(-1.80)
GAAP Differences * High Corruption				-0.007***
				(-6.13)
Firm-Level Controls				
Firm Tax Rate	0.005**	0.005**	0.003	0.003
	(2.06)	(2.09)	(1.30)	(1.32)
Tax Administration Difficulty	0.007***	0.007***	0.008***	0.007***
	(2.90)	(2.96)	(3.26)	(2.95)
Firm has Externally Audited Financial Statements	-0.007	-0.007	-0.023***	-0.023***
	(-1.47)	(-1.45)	(-4.75)	(-4.65)
% Foreign Ownership	-0.053***	-0.053***	-0.050***	-0.050***
	(-6.79)	(-6.80)	(-6.63)	(-6.65)
Exporter	0.003	0.004	-0.001	-0.001
	(0.67)	(0.69)	(-0.08)	(-0.19)
Log(Firm Age)	-0.011***	-0.011***	-0.010***	-0.010***
	(-3.35)	(-3.33)	(-3.02)	(-3.09)
Log(# of Firm Employees)	-0.005***	-0.005***	-0.003**	-0.003**
	(-3.22)	(-3.18)	(-2.11)	(-2.03)
Informal Payment Requested?	0.030	0.032	0.060**	0.060**
	(1.06)	(1.14)	(2.11)	(2.13)
Informal Payments Total (% of Sales)	0.056***	0.056***	0.053***	0.053***
	(17.41)	(17.43)	(14.17)	(14.09)
Local (Within-Country) Controls				
High Corruption	0.015***	0.046***	0.017***	-0.047***
	(2.87)	(2.84)	(3.33)	(-3.78)
Firm Located in Small City	-0.006	-0.006	-0.001	-0.002
	(-1.13)	(-1.08)	(-0.18)	(-0.29)
Firm Located in Capital City	0.031***	0.032***	0.026***	0.025***
	(4.60)	(4.65)	(3.72)	(3.65)
Country-Level Controls				
Log(Value-Added Tax Rate)	0.133***	0.131***	0.175***	0.176***
	(13.13)	(12.93)	(12.06)	(12.18)
Log(Total Tax Rate - % of Commercial Profits)	0.027**	0.029**	0.061***	0.061***
	(2.30)	(2.42)	(4.48)	(4.51)

(Continued)

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Table 6 (Continued)

Log(Time on Taxes)	-0.183***	-0.202***	-0.055	-0.025
	(-4.22)	(-4.53)	(-1.23)	(-0.57)
Log(# of Taxes)	-0.146***	-0.143***	-0.085**	-0.086***
	(-8.15)	(-7.95)	(-2.57)	(-2.62)
Government Effectiveness	0.154***	0.154***	0.129***	0.145***
	(7.15)	(7.15)	(5.22)	(5.90)
Quality of Business Regulation	-0.048***	-0.047***	-0.093***	-0.111***
	(-3.76)	(-3.71)	(-5.80)	(-6.91)
Control of Corruption	-0.084***	-0.079***	-0.028	-0.022
	(-6.16)	(-5.66)	(-1.38)	(-1.05)
Rule of Law	-0.005	-0.010	0.037**	0.036**
	(-0.36)	(-0.63)	(2.27)	(2.19)
Voice and Accountability	-0.042***	-0.041***	-0.057***	-0.049***
	(-5.52)	(-5.47)	(-4.98)	(-4.26)
Infant Mortality Rate	-0.002***	-0.002***	0.0012	0.001
	(-4.67)	(-4.73)	(0.47)	(0.81)
Access to Sanitation	-0.003***	-0.003***	-0.002***	-0.002***
	(-7.93)	(-7.82)	(-3.78)	(-4.02)
Log(GDP per Capita)	-0.039***	-0.041***	-0.029***	-0.035***
	(-4.12)	(-4.26)	(-2.73)	(-3.33)
Log(GDP)	0.030***	0.031***	0.022***	0.021***
	(10.86)	(11.01)	(6.59)	(6.30)
Constant	0.130	0.142	-0.459***	-0.415***
	(1.11)	(1.21)	(-4.18)	(-3.77)
Industry Effects?	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes
Observations	15,502	15,502	14,597	14,597
R-squared	0.137	0.138	0.135	0.164

*,**, and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.
All p-values are in parentheses and are calculated based on standard errors that are clustered by country and industry.
All variables are as defined in Appendix D.

Table 7: The Association Between Country-Level Financial Accounting Standards, Audit Profession Development and the Extent of Firm-level Tax Evasion: Closely Held Firms

$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * Closely\_Held_{jt} + \omega Closely\_Held_{jt} + \gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i + \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt}$

Variables	1	2	3	4
Audit Profession Development	-0.047**	-0.039*		
	(-2.26)	(-1.85)		
Audit Profession Development * Closely Held		-0.271***		
		(-2.92)		
GAAP Differences			-0.003***	-0.003***
			(-3.76)	(-3.70)
GAAP Differences * Closely Held				-0.001
				(-0.50)
Firm-Level Controls				
Firm Tax Rate	0.004	0.004	0.002	0.002
	(1.34)	(1.32)	(0.64)	(0.64)
Tax Administration Difficulty	0.006**	0.006**	0.008***	0.008***
	(2.26)	(2.28)	(2.97)	(2.97)
Firm has Externally Audited Financial Statements	-0.00794	-0.008	-0.026***	-0.026***
	(-1.61)	(-1.61)	(-5.22)	(-5.20)
% Foreign Ownership	-0.051***	-0.050***	-0.048***	-0.048***
	(-6.33)	(-6.31)	(-6.16)	(-6.17)
Exporter	0.004	0.004	-0.0001	-0.001
	(0.72)	(0.72)	(-0.08)	(-0.07)
Log(Firm Age)	-0.010***	-0.010***	-0.009***	-0.009***
	(-3.04)	(-3.07)	(-2.70)	(-2.69)
Log(# of Firm Employees)	-0.005***	-0.005***	-0.003*	-0.003*
	(-3.12)	(-3.11)	(-1.77)	(-1.78)
Informal Payment Requested?	0.014	0.014	0.035	0.035
	(0.49)	(0.47)	(1.19)	(1.19)
Informal Payments Total (% of Sales)	0.054***	0.054***	0.052***	0.052***
	(16.43)	(16.42)	(13.49)	(13.49)
Closely Held	-0.143	0.148***	-0.170*	-0.027
	(-1.41)	(2.60)	(-1.86)	(-1.20)
Local (Within-Country) Controls				
Local Corruption	0.011***	0.011***	0.009***	0.009***
	(5.02)	(4.99)	(3.91)	(3.91)
Firm Located in Small City	-0.005	-0.005	0.002	0.002
	(-0.86)	(-0.82)	(0.41)	(0.41)
Firm Located in Capital City	0.037***	0.037***	0.033***	0.033***
	(5.26)	(5.30)	(4.62)	(4.62)
Country-Level Controls				
Log(Value-Added Tax Rate)	0.124***	0.123***	0.164***	0.164***
	(11.75)	(11.73)	(11.34)	(11.33)

(Continued)

Table 7 (Continued)

Log(Total Tax Rate - % of Commercial Profits)	0.029**	0.031**	0.072***	0.072***
	(2.40)	(2.55)	(5.10)	(5.08)
Log(Time on Taxes)	-0.177***	-0.184***	-0.039	-0.039
	(-4.04)	(-4.19)	(-0.85)	(-0.85)
Log(# of Taxes)	-0.145***	-0.143***	-0.075**	-0.075**
	(-8.05)	(-7.96)	(-2.25)	(-2.25)
Government Effectiveness	0.157***	0.155***	0.111***	0.112***
	(7.24)	(7.12)	(4.46)	(4.48)
Quality of Business Regulation	-0.054***	-0.053***	-0.093***	-0.094***
	(-4.13)	(-4.01)	(-5.72)	(-5.73)
Control of Corruption	-0.078***	-0.075***	-0.020	-0.020
	(-5.63)	(-5.35)	(-0.93)	(-0.93)
Rule of Law	0.001	-0.001	0.059***	0.059***
	(0.04)	(-0.06)	(3.14)	(3.12)
Voice and Accountability	-0.046***	-0.046***	-0.061***	-0.061***
	(-5.95)	(-5.98)	(-5.27)	(-5.22)
Infant Mortality Rate	-0.002***	-0.002***	0.001	0.001
	(-5.05)	(-4.85)	(0.68)	(0.70)
Access to Sanitation	-0.003***	-0.003***	-0.002***	-0.002***
	(-8.20)	(-8.14)	(-4.50)	(-4.50)
Log(GDP per Capita)	-0.040***	-0.040***	-0.029**	-0.029***
	(-4.13)	(-4.09)	(-2.56)	(-2.59)
Log(GDP)	0.031***	0.031***	0.023***	0.023***
	(10.69)	(10.78)	(6.57)	(6.57)
Constant	0.144	0.134	-0.492***	-0.490***
	(1.20)	(1.11)	(-4.41)	(-4.38)
Industry Effects?	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes
Observations	15,502	15,502	14,597	14,597
R-squared	0.137	0.138	0.167	0.167

*,**, and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.
All p-values are in parentheses and are calculated based on standard errors that are clustered by country and industry.
All variables are as defined in Appendix D.

Table 8: The Association Between Country-Level Financial Accounting Standards, Audit Profession Development and the Extent of Firm-level Tax Evasion: Proximity to Regulators

$$Tax\_Evasion_{ijlkt} = \alpha + \beta AA\_Quality_i + \varphi AA\_Quality_i * Capital\_City_{jt} + \omega Capital\_City_{jt} +$$
$$\gamma Firm\_Controls_j + \delta Local\_Controls_l + \zeta Country\_Controls_i + \eta Industry_k + \vartheta Year_t + \varepsilon_{ijlkt}$$

Variables	1	2	3	4
Audit Profession Development	-0.047**	-0.044*		
	(-2.26)	(-1.92)		
Audit Profession Development * Capital City		-0.013		
		(-0.45)		
GAAP Differences			-0.003***	-0.002***
			(-3.77)	(-3.07)
GAAP Differences * Capital City				-0.003***
				(-2.36)
Firm-Level Controls				
Firm Tax Rate	0.004	0.004	0.002	0.00179
	(1.36)	(1.37)	(0.66)	(0.68)
Tax Administration Difficulty	0.006**	0.006**	0.008***	0.008***
	(2.25)	(2.25)	(2.95)	(2.96)
Firm has Externally Audited Financial Statements	-0.008	-0.008	-0.026***	-0.026***
	(-1.61)	(-1.61)	(-5.22)	(-5.18)
% Foreign Ownership	-0.051***	-0.051***	-0.048***	-0.048***
	(-6.32)	(-6.33)	(-6.15)	(-6.16)
Exporter	0.004	0.004	-0.001	-0.001
	(0.72)	(0.73)	(-0.07)	(-0.11)
Log(Firm Age)	-0.010***	-0.010***	-0.009***	-0.009***
	(-3.03)	(-3.04)	(-2.67)	(-2.66)
Log(# of Firm Employees)	-0.006***	-0.006***	-0.003*	-0.003*
	(-3.18)	(-3.18)	(-1.85)	(-1.85)
Informal Payment Requested?	0.0135	0.014	0.035	0.036
	(0.46)	(0.46)	(1.19)	(1.22)
Informal Payments Total (% of Sales)	0.0543***	0.054***	0.052***	0.052***
	(16.44)	(16.44)	(13.48)	(13.52)
Local (Within-Country) Controls				
Local Corruption	0.011***	0.011***	0.009***	0.009***
	(5.02)	(5.02)	(3.90)	(3.91)
Firm Located in Small City	-0.005	-0.005	0.002	0.002
	(-0.86)	(-0.90)	(0.39)	(0.26)
Firm Located in Capital City	0.037***	0.044***	0.033***	0.002
	(5.29)	(2.76)	(4.63)	(0.16)
Country-Level Controls				
Log(Value-Added Tax Rate)	0.123***	0.124***	0.164***	0.161***
	(11.73)	(11.72)	(11.32)	(11.18)
Log(Total Tax Rate - % of Commercial Profits)	0.029**	0.029**	0.072***	0.070***
	(2.39)	(2.43)	(5.06)	(4.89)

(Continued)

Table 8 (Continued)

Log(Time on Taxes)	-0.179***	-0.178***	-0.043	-0.052
	(-4.10)	(-4.09)	(-0.94)	(-1.14)
Log(# of Taxes)	-0.145***	-0.145***	-0.074**	-0.078**
	(-8.07)	(-8.08)	(-2.24)	(-2.35)
Government Effectiveness	0.158***	0.157***	0.111***	0.114***
	(7.26)	(7.20)	(4.46)	(4.56)
Quality of Business Regulation	-0.054***	-0.054***	-0.096***	-0.097***
	(-4.14)	(-4.12)	(-5.74)	(-5.91)
Control of Corruption	-0.078***	-0.079***	-0.020	-0.022
	(-5.62)	(-5.63)	(-0.94)	(-1.03)
Rule of Law	0.001	0.001	0.059***	0.060***
	(0.02)	(0.09)	(3.14)	(3.17)
Voice and Accountability	-0.046***	-0.046***	-0.061***	-0.058***
	(-5.94)	(-5.93)	(-5.23)	(-4.99)
Infant Mortality Rate	-0.002***	-0.002***	0.001	0.001
	(-5.07)	(-5.07)	(0.67)	(0.56)
Access to Sanitation	-0.003***	-0.003***	-0.002***	-0.002***
	(-8.21)	(-8.15)	(-4.49)	(-4.38)
Log(GDP per Capita)	-0.041***	-0.040***	-0.029***	-0.031***
	(-4.21)	(-4.19)	(-2.61)	(-2.79)
Log(GDP)	0.031***	0.031***	0.023***	0.023***
	(10.75)	(10.65)	(6.62)	(6.63)
Constant	0.153	0.146	-0.482***	-0.428***
	(1.27)	(1.21)	(-4.32)	(-3.71)
Industry Effects?	Yes	Yes	Yes	Yes
Year Effects?	Yes	Yes	Yes	Yes
Observations	15,502	15,502	14,597	14,597
R-squared	0.137	0.137	0.167	0.167

*,**, and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.
All p-values are in parentheses and are calculated based on standard errors that are clustered by country and industry.
All variables are as defined in Appendix D.

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