

Theft and Taxes

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First Draft: March 2003

This Draft: September 2004

Abstract

This paper analyzes the interaction between corporate taxes and corporate governance. We show that the characteristics of a taxation system affect the extraction of private benefits by company insiders. A higher tax rate increases the amount of income insiders divert, while stronger tax enforcement reduces it and, in so doing, can raise the stock market value of a company in spite of the increase in the tax burden. We also show that the corporate governance system affects the level of tax revenues and the sensitivity of tax revenues to tax changes. When the corporate governance system is ineffective (i.e., when it is easy to divert income), an increase in the tax rate can reduce tax revenues. We test this prediction in a panel of countries. Consistent with the model, we find that corporate tax rate increases have smaller (in fact, negative) effects on revenues when corporate governance is weaker.

* A previous version of this paper circulated under the title Corporate Governance and Taxation. We thank Mehmet Beceren, Kent McNellie, Bill Simpson, and James Zeitler for their valuable research assistance. We also thank Joel Slemrod, Per Stromberg, René Stulz, and participants at seminars at the University of Chicago, the University of North Carolina at Chapel Hill, the University of Michigan, the Kennedy School of Government, the NBER University Research Conference, the NBER Public Economics Summer Institute, Vanderbilt University, and Moscow's NES for their comments. Desai and Dyck thank the Division of Research at Harvard Business School and Zingales the Center for Research on Security Prices and the George Stigler Center at the University of Chicago for financial support.

1. *Introduction*

The state, thanks to its tax claim on cash flows, is *de facto* the largest minority shareholder in almost all corporations. Yet, the state's actions are not part of the standard analysis of corporate governance, which has typically emphasized legal protections for outside investors (as in La Porta et al (1998) and Shleifer and Wolfenzon (2002)), the role of boards (e.g., Hermalin and Weisbach (1998)), and the presence of large shareholders (Morck, Shleifer and Vishny (1988)).¹ At the same time, the public finance literature on taxation typically ignores any effects of governance on the functioning of the corporate tax system (see Auerbach (2002), Hassett and Hubbard (1999), and Slemrod (2004)).

In this paper, we provide a simple reason for why the analysis of corporate governance and taxation should be integrated. Most transactions aimed at diverting corporate value toward controlling shareholders also reduce the corporate tax liability. Vice versa, many procedures aimed at ascertaining and enforcing a corporate tax liability makes it more difficult for controlling shareholders to divert corporate value to their own advantage.

More generally, the determination of governance and tax outcomes arises from a game that involves three parties – the state, the insiders, and the outside shareholders. Our claim is simply that each bilateral interaction has important spillover effects on the third party: the way the State designs and enforces taxes impacts the relation between insiders and outside shareholders, while the terms of the relation between insiders and outside shareholders (corporate governance) influences the working of the corporate taxation system.

In a model that adopts this simple framework we analyze how the corporate tax system affects the level of managerial diversion. We show that a higher tax rate increases the level of diversion, while stronger tax enforcement reduces it. Not surprisingly, a higher tax rate increases the return to stealing. By contrast, increased levels of tax enforcement reduce the amount of private benefits. Most interestingly, an increase in the extent of tax enforcement increases the amount outside shareholders will receive (even accounting for the higher amount of taxes paid).

¹ This absence is even more remarkable, given that corporate taxes are an integral part of the literature on corporate financing and investment decisions (e.g. Graham (2003)).

Hence, for a given tax rate, an increase in tax enforcement can increase (rather than decrease) the stock market value of a company.

Much as the structure of taxation affects corporate governance, the model introduced in the paper also demonstrates that corporate governance affects the working of the tax system. When it is difficult to divert income, we derive the standard result of a relatively direct relation between tax rates and tax revenues. By contrast, when the corporate governance system is ineffective (i.e., when it is easy to divert income) an increase in the tax rate can reduce tax revenues, generating a hump-shaped relation between corporate tax rates and corporate tax revenues. This arises for the simple reason that when it is easy to divert income, the manager will behave as a residual claimant, accentuating his incentive to shelter income to avoid taxation. As a result, the revenue maximizing tax rate is higher in countries with a better corporate governance system.

We then test the corporate governance and tax policy implications of our model. To test the corporate governance implications of taxes, we focus on Russia, an environment where both managerial diversion and tax evasion are manifest. We study the effect that an increase in tax enforcement (which followed Putin's election) had on stock prices and the value of control (a proxy for the amount of managerial diversion). As predicted by our model, the stock market values of companies targeted by enforcement actions increase and the voting premium for these stocks decrease after the increase in tax enforcement. We also document that increased tax enforcement leads to substantial organizational changes in the targeted companies, changes that make managerial diversion more difficult.

We then test the corporate tax implications of our model by using a panel of countries that vary with respect to their corporate governance rules. In particular, we test the hump-shaped relation between corporate tax rates and corporate tax revenues by investigating the revenue consequences of corporate tax rate changes from 1979-1997. Consistent with the model, we find that corporate tax rate increases have a lower impact on tax revenues in countries characterized by weaker corporate governance. In particular, the empirical estimates suggest that corporate tax rate increases lead to corporate tax revenue increases only in countries with very strong corporate governance. As protection of outside shareholders weakens, these tax revenue increases are

offset and ultimately outweighed by increased evasion. The inclusion of other control variables associated with the institutional environment – such as rule of law and measures of tax compliance – does not alter this result.

These results that follow from what we term a *corporate governance view of taxes* have important implications for the design of tax systems. They suggest that the fiscal effects of any corporate tax reform cannot be assessed without looking at the pre-existing corporate governance situation. They also suggest a clear direction for reforms in emerging markets. An increase in tax enforcement can provide payoffs to both governments and outside shareholders, as it generates greater revenue and higher outside share values.

Our paper explores only one dimension of the interaction between corporate governance and taxation. Arlen and Weiss (1995) emphasize the impact of taxes on the agency problem between managers and shareholders - taxes favor retention exacerbating the problem. Roe (1991) claims that in the United States taxes penalize ownership structures that facilitate monitoring. Finally, Morck (2003) focuses on the effect double taxation of dividends has on ownership concentration (in particular stock pyramiding).

The rest of the paper proceeds as follows. Section 2 presents a model of the relationship between the tax system and corporate governance that generates several predictions on how corporate taxation affects corporate governance and how corporate governance affects corporate taxation. Section 3 extends the model and considers the optimal level of taxation. Section 4 tests the corporate governance implications of tax enforcement changes using recent changes in Russia, while Section 5 tests the effects of corporate governance on the impact of corporate tax changes in a panel of countries. Section 6 concludes.

2. *A Simple Model of Tax Evasion and Managerial Diversion*

2.1. The optimal level of diversion

Let $d \in [0,1]$ be the proportion of income that insiders divert. If insiders own a fraction λ of the company, then in the absence of any corporate income tax their payoff is

$$\lambda(1-d) + d$$

Diverting, however, is potentially costly, because insiders can be caught and pay a penalty. We model this cost with the following quadratic function:

$$C(s) = \frac{\gamma}{2}d^2$$

where γ is a parameter that captures the quality of the corporate governance system. Hence, in the absence of taxes, the optimal amount of diversion is

$$d^* = \min\left(\frac{1-\lambda}{\gamma}, 1\right). \quad (1)$$

2.2. *The effect of a corporate income tax*

We will now analyze how the presence of a third player, the government, affects the level of diversion. We characterize the tax system through two parameters, the tax rate and the level of enforcement of its tax claim. The tax system affects the choice of the optimal level of diversion in two ways: first, the presence of tax rates makes diversion more likely, as it increases the costs of *not* diverting income (if the income is left with the company the owner will not receive his per share benefit, but a lower amount as a result of taxes). Second, both the government and minority shareholders share an interest in detecting diversion. Hence, the corporate tax introduces an additional monitor (the tax authority), which increases the probability diversion will be detected and hence increases the expected cost of diversion.

We model this cost in an analogous way to the cost associated with shareholder oversight with the parameter in this case being α . Thus, in the presence of corporate taxation, insiders' total payoff becomes

$$V^i = \lambda(1-d)(1-t) + d - \frac{\alpha + \gamma}{2}d^2.$$

Hence, the optimal amount of diversion is

$$d^{**} = \min\left(\frac{1-\lambda(1-t)}{\alpha+\gamma}, 1\right). \quad (2)$$

From which we arrive at the following result:

Result 1: The introduction of a corporate tax improves corporate governance (i.e., reduces the amount of diversion) if and only if the level of tax enforcement exceeds a critical level defined as follows

$$\alpha > \frac{\lambda\gamma t}{(1-\lambda)}.$$

Proof: By comparing (2) with (1).

As we said, the effect of the introduction of a corporate tax system on diversion is twofold. The fact that the government takes a cut of the profits, increases the incentives to divert, while the additional monitoring reduces it. The overall effect depends on the relative strength of the two forces.

Corollary 1: For a given monitoring ability of the tax authorities (α), the introduction of a corporate tax is more likely to reduce diversion (and improve corporate governance) when

- i) The corporate governance system is weaker (lower γ);
- ii) Ownership is less concentrated (lower λ);
- iii) The tax rate is lower.

While obvious, this Corollary has important policy implications. Countries with a poor record of tax enforcement cannot introduce very steep corporate tax rates or otherwise they will see a worsening of the amount of diversion, with the well-know effect on the functioning of capital markets (e.g., La Porta et al, (1997) and Dyck and Zingales (2004)).

2.3. *The effect of the tax system on the value of outside shares and on the value of control*

Having computed how the different characteristics of the tax system affect the optimal amount of dilution, we can easily compute how it affects the market value of a company.

Result 2: The market value of a company increases with tax enforcement and decreases with the tax rate.

Proof: The market value is driven by the value minority shareholders can capture, which in turn is given by $V^m = (1-d)(1-t)$. Since $\frac{\partial V^m}{\partial d^{**}} < 0$ and $\frac{\partial d^{**}}{\partial \alpha} = -\frac{1-\lambda(1-t)}{(\alpha+\gamma)^2} < 0$, then $\frac{dV^m}{d\alpha} > 0$.
 Since $\frac{\partial V^m}{\partial t} < 0$ and $\frac{\partial V^m}{\partial d} < 0$ and $\frac{\partial d^{**}}{\partial t} = \frac{\lambda}{(\alpha+\gamma)} > 0$, then $\frac{dV^m}{dt} < 0$.

An increase in the tax rate has two negative effects on minority shareholders. The direct effect is that the state takes a bigger cut, reducing the value left to minority shareholders. The indirect effect is that a higher tax rate induces more diversion, reducing the value of minority shareholders. Since both effects goes in the same direction, the result is unambiguous. The second result could be more ambiguous: higher tax enforcement leads to more taxes paid but also less diversion. Which effect dominates? In the model presented here the effect is unambiguously positive, because the state gets only a fraction of the income, while insiders, when they divert, they get 100%.² More generally, the result holds as long as on the margin the fraction of pretax income appropriated by the state is less than the fraction appropriated by insiders.

For our empirical analysis, it is also useful to introduce the following two corollaries:

Corollary 2: Following an increase in enforcement, companies that were diverting proportionally more before will experience a larger increase in price.

Proof:

² Another way to view this problem, which we used in a previous version, is to consider separately a sheltering decision and diversion decision, with income sheltered from the tax authorities split between controlling and non-controlling shareholders. This modification leads to similar results so long as the fraction of income diverted by insiders exceeds the tax rate. Our results on company value impact of tax reforms differs when the diversion of returns by the tax authorities exceeds that by the controlling shareholder out of sheltered income.

$$\frac{\frac{dV^m}{d\alpha}}{V^m} = \frac{(1-t) \frac{1-\lambda(1-t)}{(\alpha+\gamma)^2}}{(1-t) \left(1 - \frac{1-\lambda(1-t)}{\alpha+\gamma}\right)} > 0.$$

Following Dyck and Zingales (2004), let us define the control premium (CP) as the difference between the per share payoff controlling shareholders receive and that outside shareholders receive, normalized by the total value of the company computed at the price of non-controlling shares:

$$CP = \frac{\lambda \left[\frac{V^i}{\lambda} - \frac{V^m}{1-\lambda} \right]}{\frac{V^m}{1-\lambda}} = (1-\lambda) \frac{V^i}{V^m} - \lambda.$$

Accordingly, we have

Corollary 3: The value of control decreases with tax enforcement.

Proof: $\frac{\partial CP}{\partial \alpha} = \frac{(1-\lambda)}{(V^m)^2} \left[\frac{dV^i}{d\alpha} V^m - V^i \frac{dV^m}{d\alpha} \right]$. By using the envelope theorem $\frac{dV^i}{d\alpha} = \frac{\partial V^i}{\partial d} \frac{\partial d}{\partial \alpha} = 0$.

Since by Result 2 $\frac{dV^m}{d\alpha} = \frac{\partial V^m}{\partial d} \frac{\partial d}{\partial \alpha} > 0$, the result follows.

Since tax enforcement reduces the amount of income diverted, this reduces the value of control and increase the value of minority shareholders. Hence, the control premium should decline.

2.4. The effect of the tax system on tax revenues

Thus far, we have analyzed only one set of implications of the interaction between corporate taxes and corporate governance. But this corporate governance view of taxes also has implications for public finance. In particular, this model provides a framework to analyze how

the response of corporate tax revenues to changes in corporate tax rates is affected by the institutional environment, for example the quality of the corporate governance system.

First of all, our simple model produces a hump-shaped relation between corporate tax revenues and corporate tax rates.

Result 3: If $0 < \frac{\alpha + \gamma + \lambda - 1}{2\lambda} < 1$, then corporate tax revenues as a function of corporate tax rates are hump-shaped.

Proof: Corporate tax revenues (CTR) are given by $t(1-d) = t - t[\frac{1-\lambda(1-t)}{\alpha+\gamma}]$. Differentiating this with respect to t we obtain $\frac{\partial CTR}{\partial t} = 1 - \frac{1-\lambda+2\lambda t}{\alpha+\gamma}$, which reaches an interior optimum for $t \in [0,1]$ if $\frac{\alpha + \gamma + \lambda - 1}{2\lambda} < 1$.

The intuition is very simple. An increase in corporate tax rates increases the amount of diversion, which in turn reduces taxable income and, thus the net effect can even be a decline in tax revenues. What drives the intensity of this behavioral response are: the size of the expected cost of diversion ($\alpha + \gamma$) and the extent of ownership concentration (λ), which makes insiders internalize more the cost of what they divert. If the expected cost of diversion or the level of insiders' ownership are not sufficiently high, then the behavioral response to increases in the tax rates is so strong that taxes will not be able to raise any revenue.

The most interesting aspect of the corporate governance view of taxes, however, is not the existence of a range where corporate tax revenues decline with tax rate increases *per se*, but the link between the shape of this relationship and two keys indicators of the a corporate governance system: the quality of the corporate governance system γ and the level of ownership concentration λ .

Corollary 4: The sensitivity of tax revenues to tax rate changes increases with the quality of the corporate governance system γ .

Proof: $\frac{d^2 CTR}{dtd\gamma} = \frac{1 - \lambda + 2\lambda t}{(\alpha + \gamma)^2} > 0.$

Corollary 4 simply states that better corporate governance increases the sensitivity of tax revenues to tax changes. In fact, better corporate governance reduces not only the equilibrium amount of diversion, but also the sensitivity of diversion to changes in the tax rate. If the behavioral response to tax changes is more limited, then ceteris paribus an increase in tax rates will lead to a higher increase in revenues.

A similar effect holds for ownership concentration.

Corollary 5: The sensitivity of tax revenues to tax rate changes increases with ownership for tax rates below 50%. For tax rates above that, it decreases with ownership.

Proof: $\frac{d^2 CTR}{dtd\lambda} = -\frac{2t-1}{\alpha + \gamma} > 0$ if $t < 0.5$.

3. Extensions and Robustness

3.1 The optimal tax rate

What is the optimal tax rate? Obviously, the answer depends upon the government's objective function. In general, we can assume that the government cares about revenues and also about diversion. While in our model diversion has no efficiency costs because it is mere redistribution from the shareholders to insiders, there are at least two reasons why the government may want to limit it. First, as shown both theoretically (e.g., Zingales 1995a) and empirically (Dyck and Zingales, 2004) higher diversion hampers the ability to raise external funds and, thus, the development of the equity market. A government that cares about that will want to put some negative weight on diversion. Second, in reality many of the tactics used to divert generate large deadweight costs.

Hence, it is reasonable to assume that a the government's objective function should be of the form

$$t(1-d) - \psi d ,$$

where ψ is the relative weight attributed to the goal of reducing dilution versus that of raising revenues.

Result 4: If $0 < \frac{\alpha + \gamma + \lambda - 1}{2\lambda} < 1$, then the optimal tax rate is $t = \max(\frac{\alpha + \gamma + \lambda - 1}{2\lambda} - \frac{\psi}{2}, 0)$

and is increasing in the quality of the corporate governance system (γ), the quality of the additional monitoring provided by the tax authorities (α), and -- if $\alpha + \gamma < 1$ -- in the level of insiders' ownership (λ). By contrast, it is decreasing in the social weight puts on diversion and -- if $\alpha + \gamma > 1$ -- in the level of insiders' ownership (λ).

Proof: Differentiating this with respect to t we obtain the optimal tax rate. From this the comparative statics with respect to the various parameters follows straightforwardly.

The message contained in Result 4 is important. In determining their tax rates countries should pay attention to their corporate governance situation and even to the prevailing level of insiders' ownership.

3.2 The optimal tax rate when insiders dominate the state

These *normative* predictions seem to be inconsistent with the existing evidence. La Porta et al (1999) find that countries with a civil law system (which have poor protection for outside investors and high ownership concentration) also tend to have higher marginal tax rates and poor tax enforcement.

This result is not necessarily a rejection of the model. It could simply be a consequence of the fact that Governments are not run by benevolent dictators that maximize social welfare. Their actions are more heavily driven by political goals or shaped by influential constituencies.

To explore the setting of the optimal tax rate when – as it is likely- corporate insiders have a disproportionate power in setting the political agenda, we assume that they will set t to maximize the value of their stake subject to satisfying a revenue constraint. Formally, they will maximize

$$\lambda(1-d^{**})(1-t) + d^{**} - \frac{\alpha + \gamma}{2} d^{**2}$$

with respect to t , subject to a minimum tax revenue constraint:

$$t(1-d^{**}) = K .$$

Since the corporate insiders objective function is decreasing in t and convex, it will be maximized at the minimum level of t that satisfies the tax revenue constraint. Hence, we can obtain the relation between optimal tax rates and corporate governance by using the implicit function theorem on the budget constraint. Hence, we have

Result 5: If $t < \frac{\alpha + \gamma + \lambda - 1}{2\lambda}$, then the optimal tax rate is decreasing in the level of corporate governance.

Proof: $\frac{dt}{d\gamma} = -\frac{t(1-\lambda(1-t))/(\alpha + \gamma)^2}{1 - \frac{1-\lambda(1-t)}{\alpha + \gamma} - t \frac{\lambda}{\alpha + \gamma}}$, which is negative if the denominator is negative.

This condition is satisfied for $t < \frac{\alpha + \gamma + \lambda - 1}{2\lambda}$.

Thus, if the corporate tax rate is not too high, when corporate insiders drive the fiscal policy we should observe higher tax rates in countries with poorer corporate governance, as we do observe in practice.

3.3 The optimal tax rate when enforcement is endogenous

Thus far we have only considered one dimension of the tax system, i.e. the tax rate, assuming that the other dimension (the monitoring provided by the tax authorities) is exogenous.

While it is reasonable to assume that there is a component of this monitoring that is independent from the rest of the tax system and depends only on the efficiency of the bureaucratic system in that country, it is unreasonable to assume that the level of the tax rate has no impact on the quality of the monitoring.

In fact, in countries where corruption is limited a higher tax rate will generate stronger incentives (both at the political level and inside the government agency enforcing taxes) to enforce taxes more. By contrast, in a country where corruption is widespread, higher tax rates increase the probability that companies will pay off the tax enforcer, reducing the quality of enforcement.

To analyze these two cases, let's assume that tax enforcement is a function of the tax rate, e.g., $\alpha(t) = \alpha_0 + \frac{\delta}{2}t^2$, where δ is positive or negative depending on the regime we are in. To simplify the analysis let's assume that the objective function of the Government is only to minimize diversion. Then, the optimal tax rate is the solution of

$$\min_t d^{**} = \frac{1 - \lambda(1-t)}{\gamma + \alpha_0 + \frac{\delta}{2}t^2}$$

It follows that

Result 6: The optimal tax rate increases in the quality of the corporate governance system.

Proof: Assuming an interior solution the optimal tax rate is

$$t^* = \frac{-\delta(1-\lambda) + \sqrt{\delta^2(1-\lambda)^2 + \lambda^2\delta(\gamma + \alpha_0)}}{\delta\lambda}.$$

Differentiating it with respect to γ we have $\frac{dt^*}{d\gamma} = \frac{\lambda^2\delta[\delta^2(1-\lambda)^2 + \lambda^2\delta(\gamma + \alpha_0)]^{-\frac{1}{2}}}{\delta\lambda} > 0$,

regardless of whether δ is positive or negative.

Thus, the effect of corporate governance found in Result 4 is robust to endogenizing the additional monitoring provided by the tax rate, as long as we maintain the benevolent social planner perspective. Once we drop it, the result is not so clear cut.

3.4. Robustness and Limitations of the Model

The interaction between corporate governance and taxes can be seen as a game among three parties – the state, the insiders, and the outside shareholders. In this game, every bilateral interaction has a spillover on the third party. Our model analyzes two spillovers: the way the State designs and enforces taxes impacts the relation between insiders and outsiders and the terms of the relation between insiders and outsiders (corporate governance) impact the working of the corporate taxation system. But of course, we know from Coase (1960) that in the absence of transaction costs any externality will be perfectly internalized and so whatever action is taken by the government will not have any effect on outside shareholders and vice versa. In reality, however, transaction costs do exist. Most importantly, there is a coordination cost for outside shareholders, which impairs their actions. In the model we have implicitly assumed this cost to be infinite and, thus, outside shareholders are completely at the mercy of insiders. This is clearly an extreme: outsiders may have some ability to restrain insiders. Introducing this possibility, however, does not change substantially the model. In fact, the power of outside shareholders can be subsumed in a company-specific γ . Where outsiders have more power, γ will be higher, and insiders will divert less. All the rest remains unchanged.

The same coordination cost prevents insiders and outside shareholders from coordinating to evade taxes. In fact, this is the main difference between publicly traded companies and privately held ones. In privately held companies shareholders often reach an agreement to minimize their collective tax liability through charging fictitious expenses. They, then, redistribute their tax savings among themselves with side contracts. This is not possible when there outside disperse shareholders.

Where collusion can take place is between the state and the insiders. The State, for instance, can demand higher payments from insiders (under the form of bribes) in exchange for

closing an eye on the money they divert from outside shareholders. While this might seem a remote possibility in the United States, it is not unconceivable in countries like Russia. Such a strategy, however, encounters two problems. First, nothing guarantees that after paying its bribe a company is not subject to additional requests for bribes. The advantage of taxes is that the State can commit not to harass a company twice. Second, the State faces an agency problem in its collection of taxes. If it accepts bribes instead of official tax payments, it finds it difficult to limit the skimming of the proceeds done by its delegated agents. Hence, collusion between the State and insiders at the expenses of outsiders has its own disadvantages.

Finally, taxation is not the only interaction between the State and insiders that affect outside shareholders. The threat of nationalization (or renationalization, as in the Russian case) has similar effects. The higher is the threat of nationalization, the higher is the expected tax rate, and the more insiders are tempted to dilute. This factor contributes to explain the egregious examples of diversion that occurred in Russia during the Yeltsin presidency.

4. *Corporate Governance Implications*

Looking jointly at taxation and corporate governance, an approach we shall call *corporate governance view of taxes*, carries implications both for corporate governance and for corporate taxation.

Testing the corporate governance implications is more difficult. The prediction that is easiest to test (i.e., that an increase in tax rates reduces stock prices) is not unique to this approach: the same implication also follows from a traditional view of taxes. By contrast, the predictions that are unique to this approach (the effect of enforcement on stock prices and control premia) require us to measure variables that are difficult to quantify (tax enforcement) or even to observe in a systematic way (control premia). Dyck and Zingales (2004) exploit cross-country variation in tax enforcement and control premia to show that -- consistent with Corollary 3 -- higher levels of tax enforcement lead to lower control premia, even controlling for national differences in legal protections for investors.

In this context, however, we want to provide more disaggregated, within country, evidence. For this reason, we focus on Russia, a country where both tax avoidance and managerial diversion are extreme. The substantive increase in tax enforcement following Putin's election in 2000, which occurred without an immediate change in tax rates, provides a natural experiment to test these predictions.

4.1 A Case Study

To understand how tax evasion and diversion can interact, we begin with a case study of an oil company in Russia. We choose Sibneft, the 5th largest Russian integrated oil company, because it was one of the first companies to be indicted for tax evasion.

Under President Yeltsin, high tax rates and low levels of tax enforcement encouraged Russian firms to shelter income aggressively. Multiple taxes from different levels of government meant that tax obligations could even exceed profits.³ Company executives were not shy about how this tax burden affected their behavior. As Yukos Oil CEO Khodorkovsky argued, "As long as the tax regime is unjust, I will try to find a way around it."⁴

A popular scheme to evade taxes and dilute minority shareholders was to sell oil at below-market prices to outside trading companies. To get a sense of the magnitude of the manipulation in transfer pricing, analyst reports indicate that Sibneft's production subsidiary was selling oil at just \$2.20/ barrel, considerably below the average export price (net of export costs and excise taxes) of \$13.50, and the average domestic price (net of taxes) of \$7.20/ barrel.⁵ Consistently, company financials reveal an effective corporate tax rate of just 2.6%, far below the statutory rate of 30%. While firms described such activity as 'tax optimization' and emphasized its legality,⁶ First Deputy Finance Minister Ignatiev, in a widely circulated memorandum, used different words: "it appears that several companies actively use special tax-

³ In the oil industry, taxes included not only the traditional value-added and corporate profit taxes, but also excise taxes, export duties and specific geology and royalty taxes on net income at production subsidiaries.

⁴ Quoted in Simon Pirani, "Oligarch? No, I'm just an oil magnate," *Observer*, Sunday June 4, 2000.

⁵ "Oil Production Subsidiaries," *Troika Dialog Research Report*, February 2000.

⁶ Sibneft acknowledges in public filings, for example, that for "tax and cash flow optimization purposes, the Company uses third party intermediaries in its refining and distribution process." *Sibneft Bond Offering Prospectus*, March 1, 2002, pg. F-8 "These arrangements have primarily comprised of using certain trading companies in certain Russian regions and, taken together, have reduced the amount of taxable income Sibneft reports" *Sibneft Bond Offering Prospectus*, December 3, 2002, pp. 16-17.

evasion schemes, by using front companies registered in domestic and foreign offshore zones, and by manipulating prices.”⁷

The use of ‘third party intermediaries’ to shelter income also provided controlling shareholders with sizable opportunities for self-enrichment at the expense of outside shareholders. To shelter income most if not all the profits have to be shifted to an intermediary located in an offshore or onshore tax haven. In the case of Sibneft, the primary intermediary was the export trading company Runicom, which accounted for close to all of Sibneft’s foreign sales through 2000.⁸ Shifting profits to Runicom benefits Runicom shareholders at the expense of the shareholders of Sibneft and its separately listed production and refining subsidiaries. Since the controlling management of Sibneft can choose the intermediary to trade with, there are obvious opportunities for them to take advantage of the situation and channel the profits toward a company they personally own. This opportunity is enhanced by the opacity in the ownership structure of Russian companies, which makes it difficult to establish whether this is indeed the case. In this particular case, for example, Runicom was associated with Roman Abramovich, who was reported to control Sibneft.⁹ Runicom was also a significant Sibneft shareholder¹⁰, but not vice-versa, as would have made sense if the goal was to equitably share the benefits of tax sheltering.

Following Putin’s election in 2000, tax enforcement in Russia increased without any immediate change in tax rates. One of the first actions that signaled Putin’s intention was the release of a memorandum with a list of the worst corporate tax offenders (July 28, 2000). Sibneft was singled out as paying the lowest tax rate in the oil industry. In August, the tax police raided the offices of Sibneft and of its export trading arm, leading to criminal charges against the company. In November, the Tax Police announced proposals aimed at closing channels for tax avoidance by oil companies, including a threat to reduce oil company revenues by auctioning

⁷ Jeanne Whalen and Guy Chazan, “Russia Considers Probe Into Oil Industry’s Taxes – Official Accuses Companies of Evading Payments,” *Asian Wall Street Journal*, July 31, 2000, pg. A24 Recognizing this difference in interpretation, companies identified potential challenges to tax practices as a risk that could have a material impact on operations.

⁸ For example, company financials identify 38 (40) percent of all sales in 1999 (2000) being conducted through Runicom. Prior to 1998, the primary company was Runicom SA registered in the tax haven of Switzerland and in 1999 and 2000, Runicom Ltd, registered in the tax haven of Gibraltar.

⁹ The controlling stake of top management exceeded 80 percent, with a personal stake rumored to exceed 40 percent, “Sibneft’s Owners Nation’s Worst-Kept Secret”. By Valeria Korchagina. 11 April 2000, *The Moscow Times*.

¹⁰ Runicom bought a 12.22% stake in Sibneft in 1996, and held 27 % of Sibneft’s shares at the end of 2000, “EBRD Slams Russian Courts In Loan Dispute With Oil Firm --- Lender Says Case Will Test Putin’s Pledge to Strengthen Legal System --- The Rule of Law vs. the Rule of ‘Oligarchs’ “By Andrew Higgins, 11 February 2000, *Wall Street Journal Europe*, p. 2.

space on government-owned pipelines (rather than allocating them at a price that covered costs). On January 25, 2001, President Vladimir Putin met with oligarchs to discuss ending of tax avoidance schemes and the passage of new tax laws designed to shut off such schemes. Sibneft remained a target of government action, with the filing of additional criminal and civil actions in the spring and summer of 2001.¹¹

Not surprisingly, this increase in enforcement targeted at the oil industry in general, and Sibneft in particular coincided with a dramatic increase in tax payments by Sibneft: production-based taxes increased ten fold and the reported effective corporate tax rate for Sibneft as a whole jumped from 2.6% to 10.4%. More interestingly, following the pressure from government officials, Sibneft announced that it would no longer be trading with Runicom but would do trading with a newly created subsidiary SibOil whose results would be reported in the holdings consolidated income statements.¹² Furthermore, in July of 2001 the company announced that it would acquire two previously undisclosed intermediaries located in Russian domestic tax havens, Vester and Olivesta, that reported profits of \$300 million in 2000, for a mere \$1,800 in Sibneft stock.¹³ Shortly thereafter, Sibneft announced the closing of yet more subsidiaries and a commitment to market oil through fully owned subsidiaries not located in these tax havens.¹⁴

Most importantly – from our point of view — these enforcement actions coincided with an improved return for outside shareholders. Reported company income soared and, for the first time, Sibneft paid a dividend: \$53 million in November 2000 and close to \$1 billion in 2001, an amount equal to 67 percent of the total market capitalization of Sibneft before the increase in enforcement. Consequently, Sibneft’s share price rose well in excess of industry trends. Although such returns cannot be interpreted as causal, since many other factors may be driving returns aside from changes in tax policy, they do suggest that tax changes have not impeded returns for minority investors.

¹¹ We focus on these enforcement actions that appeared to be targeted on increasing government revenue rather than some other events that involved tax police that commentary at the time suggested was more politically than economically motivated.

¹² Lukoil, Tyumen Oil Co and Yukos made similar announcements in December of plans to increase transparency by shifting exports from trading companies controlled by controlling shareholders to major trading companies. See, for example, *NEFTE Compass*, December 21, 2000” Umbrella – Yukos Blends Offshore Trading Arms into One”

¹³ “Corporate Governance Actions,” Troika Dialog, *Weekly Bulletin #113*, July 13, 2001, pg. 6.

¹⁴ For example, Sibneft later purchased Terra in a deal reported to have roughly the same effect of increasing reported income by \$300 million *NEFTE Compass*, October 11, 2001, “Terra Firma – Sibneft Brings its Profits Back Home.”

By narrowing the time period, and focusing specifically on a few notable tax enforcement events, we can control for some of these other factors. Table 1 reports Sibneft excess returns in the days surrounding the most crucial enforcement events. In all cases but one, Sibneft stock outperformed the Russian Index and, in spite of the very high volatility of Russian excess returns, in a few instances these excess returns are more than two standard deviations away from zero.

The more astute local observers were quick to draw a causal link between increased tax enforcement and greater shareholder returns. As the Financial Times reported, companies like Sibneft “have begun closing offshore subsidiaries and consolidating their operations within Russia. To comply with the law, they have to declare higher profits and pay higher taxes. They must also show the true extent of their financial operations to outside shareholders, who are just as keen to have a share of the proceeds as the tax inspector.”¹⁵

4.2 Cross industry test

Sibneft’s experience is not unique. As Figure 1 shows, the increase in enforcement under Putin is followed by an increase in stock prices, especially in the most affected industry (i.e., Oil and Gas). Yet, this evidence alone is unconvincing. So many changes were taking place in Russia at the same time, that it is hard to pinpoint a single cause. For this reason, we will rely on two subtler tests. First, we look at the difference in voting premia across industries. Since tax enforcement affected the oil and gas industry disproportionately, during this period control premia should drop more in the oil and gas industry than in the other industries. We can infer control premia from the difference in voting and nonvoting stock (see Zingales 1994, 1995b). This approach has the advantage to control for any variation in the fundamental value of these companies. Second, we look within the oil and gas industry and we test whether oil and gas companies that avoided taxes the most exhibited higher returns around the major enforcement dates – as predicted by Corollary 2.

The ideal method to measure the value of control relies on control block sales.¹⁶ Unfortunately, in Russia there is not a sufficient number of such transactions surrounding the

¹⁵ Andrew Jack, *Financial Times*, September 17, 2001.

¹⁶ For a discussion of the different methods see Dyck and Zingales (2003).

enforcement change to use this method. Alternatively, one can use the price differential between voting and nonvoting shares (i.e., the value of a vote). The value of a vote is related to the value of control through the probability a vote will be pivotal (see Zingales (1994, 1995b)). If this probability, which is a function of the existing ownership structure, remains relatively constant over time, we can infer changes in the value of control from changes in the voting premia.¹⁷

To conduct this test, we collect a sample of all the companies in Russia having two classes of stocks with differential voting rights from the Datastream sample of Russian securities (124 firms). To obtain meaningful voting premia, we restrict our attention to companies having some trading in both classes in event windows prior to and following what we view to be the most important indicators of increased tax enforcement (59 firms).

Consistent with Corollary 3, Panel A of Table 2 shows a decline in voting premium during the period of increased tax enforcement, from 57 percent to 46 percent. The composition of the sample, however, changes. Thus, a more appropriate comparison, limited to companies that were traded both at the beginning and at the end of the sample period, is provided in Panel B, column 1. It shows a decline in the voting premium of 7.8 percentage points, which is significant at the 5 percent level.

Why did it decline? If, as we think, this decline is associated with increased tax enforcement, then it should be more pronounced in the companies that were targeted the most by this enforcement. Since the main focus of Putin's actions were the oil & gas industry and mineral extraction industry, we examine how much of this decline is concentrated in these industries. As column 2 of panel B shows, the entire decline is concentrated in these extractive industries. There is no significant decline in other industries. The observed decline, thus, cannot be explained by a general improvement in the Russian corporate governance situation, which would have affected all companies similarly. Only something that differentially affected the two set of industries, such as tax enforcement, could have caused it.

¹⁷ Goetzman et al. (2002) claim that in Russia this voting premium is too high to be justifiable solely on the value of control. They attribute it more broadly to the risk that nonvoting stock could be discriminated against in future corporate transactions (a corporate governance discount). Even if we accept this interpretation, changes in the voting premium over short time periods are a pretty reliable indicator of changes in the degree majority shareholders take advantage of their position at the expense of outside ones.

4.3 *Within-oil-industry comparisons*

An increase in tax enforcement does not affect all oil and gas companies in the same way. Specifically, if some companies were diverting more beforehand, then they should be more affected by the increased enforcement. In the oil industry, a common indicator of tax sheltering activity is revenue per barrel of oil.

Table 3 presents evidence on the enormous variation in revenue per barrel of oil, as reported by investment analysts based on filings of firms during 1999. Kominest, a subsidiary of KomiTEK, sold its oil at an average price of \$7.6 a barrel, while Tomskneft (a subsidiary of Yukos) at only \$1.1 a barrel! These reports of aggressive tax avoidance correlate strongly with government evaluations of levels of tax avoidance across the integrated oil companies in Russia.

If Corollary 3 is correct, companies that were selling their oil at very low prices (i.e., were engaged in massive tax sheltering) should experience a greater price appreciation during this period of enhanced tax enforcement than companies that were selling their oil closer to market prices. We focus on a panel of four notable enforcement actions taken between July 2000 and January 2001, which affected the whole industry as discussed above. For announcement returns, we use excess returns (defined as the cumulative excess return) over a ten day window ($t-1$, to $t+9$) surrounding the announced enforcement action. In our excess return calculations, we use the RTS index (the Rouble index when security quoted in Roubles and the dollar index when the share price quoted in dollars). We regress these announcement returns on indicators of tax avoidance. As indicator of tax avoidance we use the average selling price per barrel of oil in 1999, a period prior to the stepped up enforcement actions.

As Table 3 shows we have two such measures: the average 1999 selling price and the average price during the month of August 1999. In the first column of Table 4 we use the first datum as an indicator of tax cheating. Unfortunately, the intersection between the companies for which we have the average 1999 selling price per barrel and the companies for which we have market prices reduces the sample to only 9 observations. Nevertheless, as column 1 of Table 4 shows, we find companies that were avoiding taxes the least (and hence had higher selling prices) had lower market returns around the announcement of higher tax enforcement, and the

difference is significant at the 5 percent level. This evidence is in contradiction with the traditional view of taxes (companies that pay more taxes to begin with should be less affected by tax enforcement and hence should have higher returns), but is consistent with our corporate governance view.

To expand the sample, we pool together estimates of the selling price based on the entire year and estimates based on the month of August (first and second columns of Table 3). As column 2 of Table 4 shows, the previous results are confirmed in this larger sample. Not surprisingly, the magnitude of the coefficient has dropped, since this is a more noisy measure of tax avoidance due to monthly fluctuations of oil prices. Nevertheless, the average selling price has a negative and statistically significant effect on the stock market reaction to the announcements of greater tax enforcements.

These results, although limited by the underlying availability of data, are consistent with the corporate governance view of taxes. Private benefits of control, as measured using dual class voting shares, not only decline when tax enforcement increases, but they decline by a greater amount in extractive industries relative to other Russian industries. Similarly, oil companies that were more aggressive tax shelterers experience greater returns, when tax enforcement increases.

5. *Corporate Tax Implications*

The corporate governance view of taxes has also implications for the responsiveness of tax revenues to changes in the tax rate. To test these implications we search for a setting where changes in tax rates occurred in countries with both strong and weak corporate governance. and where the behavior response to these changes takes places in setting with both strong and weak governance. A natural setting is a cross-country panel dataset.

5.1. *The Data*

We construct a panel data set that combines information on corporate tax revenues, top corporate marginal rates, ownership concentration, and a measure of corporate governance. For corporate tax rate information, we utilize the data recently assembled by the Office of Tax Policy

Research (OTPR) at the University of Michigan.¹⁸ From the IMF, we obtain data on corporate tax revenues, total tax revenues (available from the *Government Finance Statistics* yearbook) and nominal GDP (from the *International Finance Statistics* yearbook).¹⁹ The data on tax rates are available for a large cross section of countries only after 1979. Thus, our sample starts in 1979 and ends in 1997, the last year for which this information was available. From the original set of countries in our sample, we exclude the major oil-producing countries given the distinctive dynamics of corporate tax revenues in these settings.²⁰

As a measure of corporate governance, we use the control premium in negotiated control block sales, as computed by Dyck and Zingales (2003). Consistent with the spirit of our model, the Dyck and Zingales' measure capture the amount of private benefits extracted by insiders.

Unfortunately, we do not have sufficient transactions in each country to use the interaction between changes in tax rate and ownership concentration at the individual company level. Hence, we have to use only aggregate data. The right definition of insiders' ownership to be used with this data is an average one. Unfortunately, we are not aware of any source for an average level of insiders' ownership. The closest figure is the average percentage of common shares owned by the three largest shareholders in the 10 largest nonfinancial, privately owned, domestic firms as computed by La Porta et al. (1998).

To check whether the effects we find merely reflect other institutional weaknesses, we will use two additional measures of the quality of institutions: "rule of law" (an index from 0 to 10 that measures the strength of a country's law and order tradition as developed by International

¹⁸ This data is available at www.otpr.org.

¹⁹ Specifically, data on corporate tax revenues are provided as variable g8h1aa in the GFS database and total tax revenues as variable g8h1y in the GFS database. Several countries that have variables from the Dyck and Zingales (2003) and LLSV (1998) databases do not provide corporate tax revenues collection statistics further narrowing the relevant sample. These countries include Chile, Hong Kong, Mexico, New Zealand, Nigeria, Philippines, Singapore, Taiwan, and Venezuela. For countries with data on tax rates but no data on corporate tax revenues we conducted additional data searches of country sources (including the finance ministry, tax authorities, IMF Article IV statistical appendices and other sources) and these searches produced additional data for Hong Kong and Taiwan. The electronic version of the GFS variables currently available are not yet updated past 1997.

²⁰ The countries excluded are the major oil exporting countries defined as (a) OPEC members, (b) affiliated non-members Oman and Angola and (c) non-OPEC members in the list of the top 10 oil exporting countries. This last requirement, which excludes Norway, Mexico and Russia, actually only eliminates Norway, as corporate tax revenues for Mexico and Russia are not in our ownership or private benefit samples. In these oil-rich countries, corporate tax revenues are typically not income taxes and corporate tax revenues fluctuate with the world price of oil conflating the analysis.

Country Risk, a country risk rating agency) and tax compliance (an index from 0 to 6 developed by the World Competitiveness Report, which assesses the level of tax compliance).²¹

Table 5 summarizes these variables for the countries in the sample. The top panel summarizes the data from the entire panel. The average ratio of corporate tax revenues to total tax revenues is 10.3% and the average top marginal rate over the sample is 38.1%. The governance and ownership variables vary considerably by country: ownership concentration averages 44.8% with a standard deviation of 13.9%. Similarly, the measure of private benefits averages 13.5% with a standard deviation of 16.0%. The bottom panel summarizes the data collapsed by country. In addition to the raw data, we also report country-specific curve slopes. As described below, these slopes have been obtained by regressing the logarithm of corporate tax revenues on the logarithm of the GDP and the level of the corporate tax rate.

The panel structure of the sample is useful because we can use the within-country variability over time to estimate the slope of the relation between corporate tax revenues and corporate tax rates and the cross-country variation to identify how corporate governance influence the slope of this relation. Since the slope of the curve is estimated using within-country variation, it is important to have a sense of the magnitude and the direction of these variations. Figure 2 plots the changes in corporate tax rates in the countries in the OTPR dataset during our sample period. In this period, most of the changes, but not all, are tax rate reductions. Furthermore, most, if not all, of these reductions have been accompanied by a broadening of the tax base. Unfortunately, in the regressions we will be unable to control for base broadening. Thus, our sample is biased toward finding a negative-sloped curve.

Our interest, however, is not on the average slope of this curve, but on how this slope changes with the quality of the corporate governance system. Since the coupling of base broadening and tax rate reductions appears to be widespread and not unique to countries with high ownership concentration or large private benefits, our cross-countries results should not be affected by the inability to measure base broadening in a systematic way.²²

²¹ These measures of the rule of law and tax evasion are taken from La Porta et al. (1998, 1999).

²² For surveys of the nature of tax reform during this period, see Cummins, Hassett and Hubbard (1996) for the OECD and Thirsk (1997) for developing countries. There is no evidence, from such sources, that the likelihood of base broadenings being coupled with tax rate changes is correlated with income or ownerships concentration or corporate governance. In fact, from a political

5.2. Results

Our maintained assumption is that after controlling for the level of GDP, every country faces the same relation between corporate tax revenues and corporate tax rates, except for the differences coming from the ownership concentration and the corporate governance. Since the corporate sector represents a different share of the economy in each country, we allow for country-specific relationships between tax revenues and GDP. Our basic specification, then, is as follows:

$$\text{Log}(\text{Corporate Tax Revenues}_{it}) = \alpha_i + \beta_i (\text{Log GDP}_{it}) + \eta\tau_{it} + \varepsilon_{it}$$

where i indexes countries, t is a time subscript and τ is the top marginal corporate tax rate. η provides the slope of the corporate tax revenues curve. Both tax revenues and GDP are measured in unit of local currency. Since we are estimating in logarithms, however, differences in the dimensionality are fully absorbed by the country fixed effects. The standard errors are adjusted for potential clustering of the residuals at the country level.

Column 1 of Table 6 reports estimates of this basic specification. On average a tax increase raises corporate tax revenues, but by a minimal amount: a 10 percentage point increase in the tax rates (from 15% to 25%, for example) increases corporate revenues by 1%. The average effect, however, is not statistically different from zero. As we warned, this average effect is likely to be downward biased, because in this period most of the changes have been tax reductions associated with base broadening.

Corollary 4, however, has specific predictions on how the shape of the corporate tax revenue curve will differ across countries: worse levels of corporate governance (higher levels of γ) reduce the revenue maximizing tax rate. We can test this prediction directly by using the Dyck and Zingales (2004) estimates of control premia in different countries as a measure of corporate governance. Since it is a measure of how much controlling shareholders appropriate for themselves, it is directly related to γ .

economy point of view, we believe the link is more likely to bias against finding results consistent with the corporate governance view of taxes. In countries with higher ownership concentration, owners should be more effective in lobbying against a base broadening that accompanies a tax rate reduction.

Column 1 of Table 6 presents the estimates of our basic specification, where we have inserted the interaction between corporate tax rates and the level of control premium. The standard errors are adjusted for potential clustering of the residuals at the country level. Since Corollary 4 predicts a positive relation between the sensitivity of tax revenues to changes in the tax rate and quality of corporate governance, we expect the coefficient of the interaction between tax rates and corporate measure of private benefits to be negative (because higher private benefits are an indicator of worse corporate governance). As expected, the interaction term is negative and statistically significant, i.e., countries with worse corporate governance have a lower sensitivity of tax revenues to tax increases. The threshold level of the control premium for a revenue-neutral relationship between corporate tax rates and corporate tax revenues is 20%.

The coefficient of the interaction between corporate governance and tax rates might reflect other attributes of the institutional environment that would dictate the responsiveness of tax revenues to rate changes. In a country where there is no enforcement of taxes, for instance, changes in the tax rates might have very little effect on tax revenues, reducing the slope of the tax revenue curve. If countries with low tax enforcement are also countries with worse corporate governance, we might have a spurious effect. To exclude this possibility we insert in the regression an interaction between the tax rate and other measures of effectiveness of the institutional environment. In column 3 we use the law and order tradition of a country. Countries with a stronger law and order tradition have a more sloped curve, but this effect is not statistically significant. More importantly, the effect of corporate governance, while slightly reduced in magnitude remains statistically significant. Similarly, in column 3 we insert the interaction between the tax rate and our measure of tax compliance. Surprisingly, countries where tax compliance is higher have a less steep tax revenue curve, but once again this effect is not statistically significant. By contrast, our main effect is larger and remains highly statistically significant.²³

We provide another way to illustrate how the relationship between tax rates and revenues differs depending on the governance environment in columns 4-7. In columns 4 and 5 we divide the sample on the basis of the median level of control premium and in columns 6-7 we divide the sample based on a control premia of 10%, which highlights the differences in countries with

more extreme governance difficulties . As predicted by the model, in countries where the control premium is below the median the coefficient of the tax rate is positive, while in countries where the control premium is above the median, the coefficient of the tax rate is less and in fact negative. This effect is more pronounced the more severe are the governance difficulties, as seen in comparing column 5 and 7.

Obviously, changes in the corporate tax rate do not happen in a vacuum and it is conceivable that changes in tax rates are accompanied by changes in tax enforcement or by other changes in the fiscal structure, which might conflate these results. To try and address this problem we scale corporate tax revenues first by GDP and then by total tax revenues. We then repeat all the previous regressions using this dependent variable (columns 8 and 9 of Table 6). The results are consistent with the results presented in column 1, as the interaction of tax rates and corporate governance carries a negative and statistically significant coefficient.

The predictions on the effects of ownership on the tax revenue sensitivity to tax rate changes are more nuanced (Corollary 5). The sign of the coefficient depends upon the level of the tax rate. Furthermore, at an aggregate level, ownership concentration is highly correlated with private benefits, so when we put them both in the regression (not reported) it is impossible to distinguish the effect of one from the effect of the other.

The preceding analysis constrains the tax revenue curve to be identical across all the countries (but for the effect of corporate governance). Now, we redo our analysis estimating country-specific slopes by employing the same specification country-by-country. Such a procedure, of course, comes at considerable cost since we estimate many more parameters with the same number of observations. Table 7 analyzes the relation between country-specific tax revenue slopes and governance levels weighting each observation by the precision of each estimate (the inverse of the variance of the estimated slope).

As predicted by the model the value of control premia is negatively related to the sensitivity of tax revenues to tax rates estimated using the logarithm of corporate tax revenues as a dependent variable (columns 1 and 2).

²³ As another test we used the log gdp per capita and find identical results.

6. Conclusion

This paper provides a new way of looking at the role of corporate taxation. Unlike the traditional approach, we emphasize that the commonality of interest between tax authorities and outside shareholders: both have an interest in reducing managerial diversion. By using this approach, we show how the characteristics of the corporate taxation system affect corporate governance and the valuation of firms. We also show how the characteristics of the corporate governance system affect the responsiveness of tax revenues to changes in tax rates. Consistent with the model's predictions, we provide evidence that tax enforcement positively affects valuation and that the quality of corporate governance plays an important role in determining how tax rate changes translate into revenue changes.

Our analysis suggests that improving the corporate tax system – through simplification and increased enforcement – may well substantially improve overall corporate governance. This new approach to improving corporate governance is particularly appealing in light of the difficulties associated with the current alternative: a major overhaul of the legal system.

Our results also provide a rationale for the introduction of a corporate tax in the United States in 1909. At that time, there were very few mechanisms to restraint managerial diversion. Consistently, President Taft supported its introduction by saying:

Another merit of this tax [the federal corporate excise tax] is the federal supervision which must be exercised in order to make the law effective over the annual accounts and business transactions of all corporations. While the faculty of assuming a corporate form has been of the utmost utility in the business world, it is also true that substantially all of the abuses and all of the evils which have aroused the public to the necessity of reform were made possible by the use of this very faculty. If now, by a perfectly legitimate and effective system of taxation, we are incidentally able to possess the Government and the stockholders and the public of the knowledge of the real business transactions and the gains and profits of every corporation in the country, we have made a long step toward that supervisory control of corporations which may prevent a further abuse of power.²⁴

Unlike 1909, however, today there are many alternative mechanisms to certify corporate income (such as mandatory disclosure and external auditing). Nevertheless, we think that tax

²⁴ William H. Taft, President of the United States, June 16, 1909, "Defense of introduction of the first US federal corporate excise tax".

authorities do retain a role, albeit reduced, in verifying corporate income even today. That managers were willing to pay taxes on false earnings to keep the IRS off their case (Erickson, Hanlon, and Maydew (2003)) suggests that the IRS provides an additional level of monitoring on top of the one provided by the SEC (to which all the companies in the Erickson et al. sample were subject to). Our conjecture is that this additional efficacy comes from a political economy calculus across different Government agencies. Agencies that raise revenues are better funded and carry greater political clout than agencies that do not raise revenues. Hence, an essential difference about the certification role of the corporate income tax is its ability to generate revenues.

While this rationale for corporate taxes may not be as important for the United States today, it is certainly important in developing countries and was important in the United States in 1909 when corporate taxation was first introduced.

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Figure 1- World Oil Index, Russian Oil & Gas Index, and Russian Market Excluding Oil & Gas Industry April 2000 - September

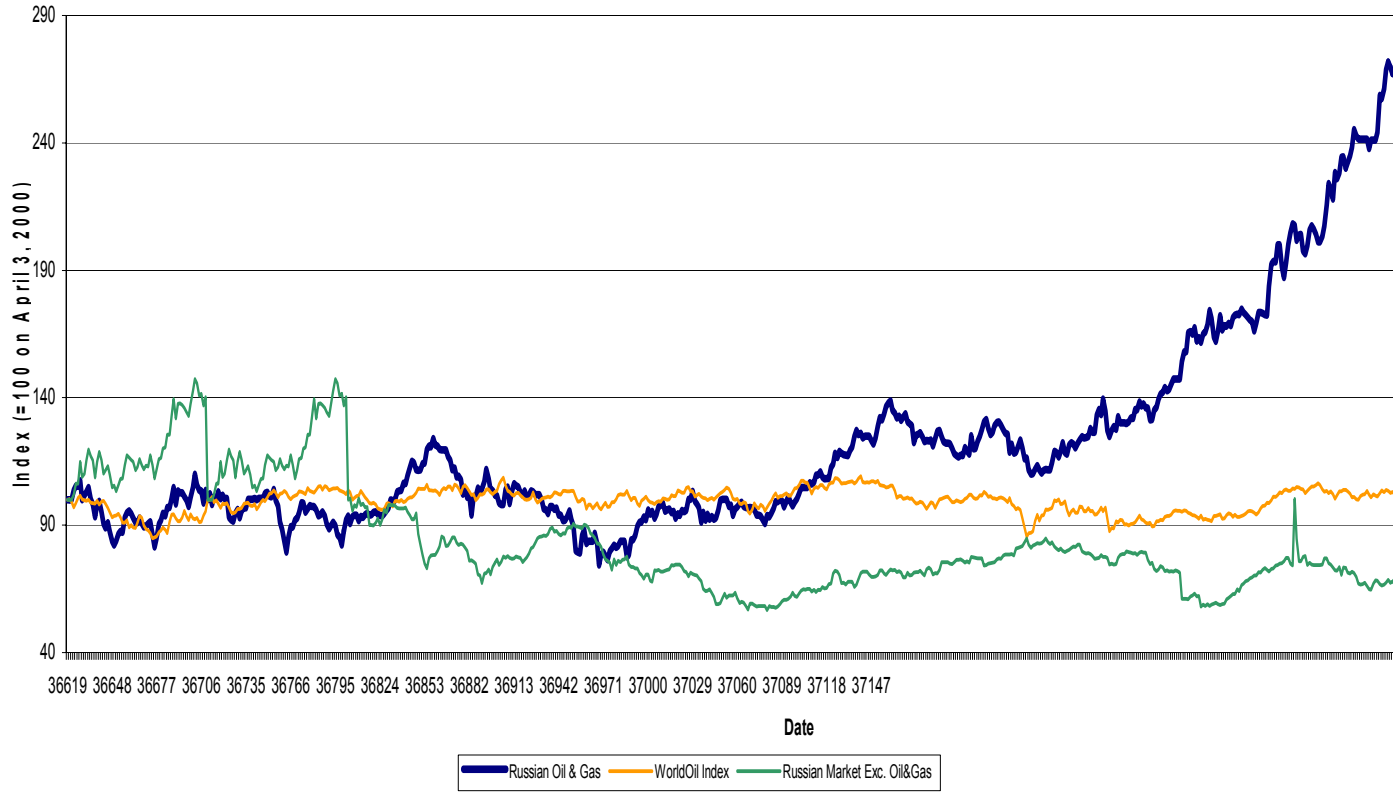


Figure 2: Corporate Tax Rates, 1979-1997

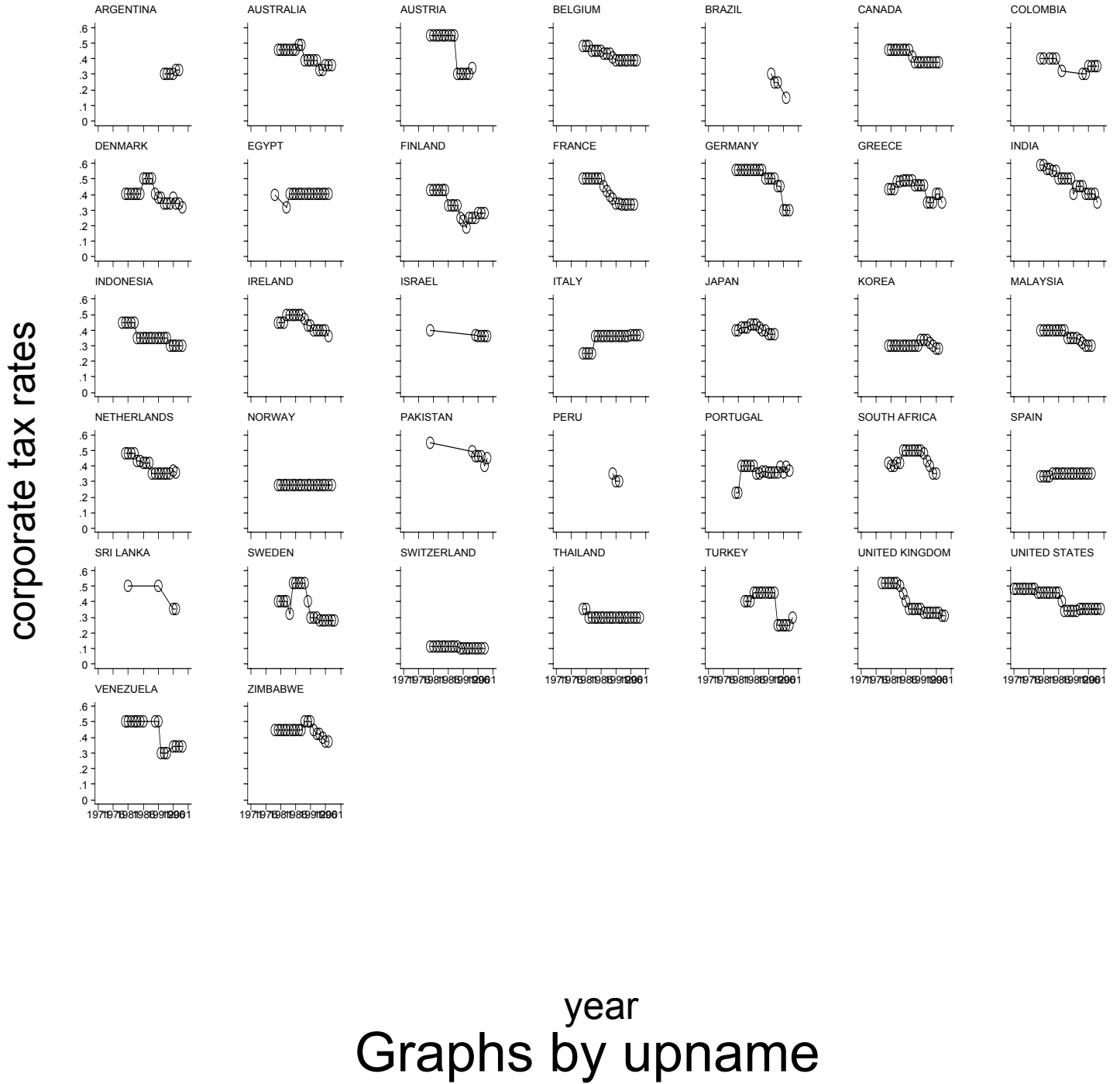


Table 1: Tax Enforcement actions and Returns for Sibneft

<u>Event date</u>	<u>Event description</u>	<u>Cumulative excess return (t-1 to t+9) using last price on RTS</u>
12-Jul-00	Public raid by tax police of four companies controlled by oligarchs and announcement of criminal investigations. Coincides with public statements that challenge oligarchs and demand increased tax payments.	-0.054
28-Jul-00	Putin meeting with oligarchs. Leaked finance ministry memorandum showing low tax payments by energy firms. Memorandum provides first mention of Sibneft as a low tax payer.	0.114
10-Aug-00	Tax Police remove documents from Sibneft. Swiss police raid offices of Runicom, export trading arm of Sibneft.	0.092
25-Nov-00	Government announces further crackdown on tax avoidance in oil sector, including proposal to auction space on Transneft pipeline. In days publishes perceived lost revenue of more than \$9 billion annually.	0.035
25-Jan-01	Putin meets with large oil company executives, revealing deep knowledge of types of oil tax avoidance, and suggesting that this behavior must be curtailed	0.017

Note - standard deviation for overlapping 10 day windows for Sibneft, Jan 1, 2000 - December 2001 is .074 with mean of 0.007.

Table 2: Change in Voting Premia during Increased Enforcement Period (June 2000 - February 2001)

Panel A reports the average level of control premia for the unbalanced sample prior to the period of increased enforcement and after the enforcement period (in both instances reporting the company average over a four month period to capture the largest number of securities). The sample includes all Russian equities in Datastream with two classes of stock (124 companies) where there is movement in the price of both voting and non-voting shares within five days (59 companies). The voting premia, expressed as a percentage of the equity value of the company, is defined as the difference in price between the voting and non-voting shares multiplied by the number of voting shares divided by the total equity value of the company. Panel B reports a regression of the change in the voting premia on a constant and a dummy variable for firms in extractive industries (oil and minerals) that were the focus of enforcement actions. This regression restricts attention to the more liquid securities that had trading volume both prior and after enforcement, using the average of the immediate month preceding and following the enforcement action.

Panel A - Summary Statistics of the Voting Premia Prior and Post Enforcement Actions

	Mean	Median	Standard Deviation	Number of companies
Average level of the voting premia as a percentage of the company equity value <i>prior</i> to enforcement actions (average over four months March - June, 2000)	0.57	0.6	0.19	45
Average level of the voting premia <i>post</i> enforcement actions (average over four months February - May 2001)	0.46	0.47	0.23	44

Panel B - Differences Across Industries in Change in Voting Premia

Dependent variable:	Change in Voting Premia	
Constant	-0.078 (0.029)**	-0.026 (0.035)
Extractive' industry dummy		-0.111 (0.051)**
Number of companies in extractive industries	7	7
Total Number of companies	15	15
Adjusted r-squared		0.207

Note. Standard errors are reported in parentheses. ** indicates significant at 5 percent, * indicates significant at 10 percent

Table 3: Russian Oil Companies and Tax Optimisation

Holding Company	Primary Production subsidiaries (a)	Investment Bank produced indicators of tax optimization 1999		
		Average 1999 crude net selling price (\$/bbl) (b,c)	August 1999 internal net selling price (\$/bbl) (c,d)	1999 production bpd (b,e)
(1)	(2)	(3)	(4)	(5)
Sibneft				326,500
	Noyabrskneftegaz	2.2	2.2	325,562
Slavneft	(f)			238,600
	Megionneftegaz	3.5	2.1	237,350
TNK				513,600
	Tyummeneftegaz	2.5	na	36,981
	Nizhnevartovskneftegaz	2.5	2.2	363,125
Yukos				894,300
	Tomskneft	1.1	~1.0	205,421
	Samaraneftegaz	1.8	~1.0	153,418
	Yuganskneftegaz	1.8	~1.0	522,788
LUKoil	various subsidiaries	na	2.8	1,443,700
	Permneft	na	2.0	na
Rosneft	(f)			251,000
	Krasnodarneftegaz	na	na	21,940
	Purneftegaz	3.9	3.0	163,743
	Sakhalinmorneftegaz	11.0	6.8	28,995
	Stavropolneftegaz	na	4.2	na
Onaco	(f)			159,100
	Orenburgneft	8.6	3.0	148,900
Sidanco				250,300
	Chernogorneft	5.8	3.9	126,136
	Saratovneftegaz	6.7	3.8	27,265
	Udmurtneft	6.7	3.8	106,708
	Varioganneftegaz	4.3	3.8	49,690
Surgutneftegaz	Surgutneftegaz	na	7.0	751,500
Bashneft	Bashneft	na	2.6	245,200
Tatneft	(f) Tatneft	na	na	481,300
KomiTEK	Komineft	7.6	na	72,378
Others				1,916,000

(a) "Oil Production Subsidiaries," *Troika Dialog Research*, February 2000.

(b) "Oil Production Subsidiaries," *Troika Dialog Research*, February 2000.

Average export price, net of export costs and excise in 1999 was \$13.50. Average domestic price net of taxes was

(c) \$7.20

(d) Estimated from graph, "Oil Sector Report," *Troika Dialog Research*, March 2000, p. 29.

(e) "Oil Sector Report," *Troika Dialog Research*, March 2000.

(f) Owned and/or controlled by government.

Table 4: Tax Enforcement Actions and Short-Window Excess Returns in the Oil Industry

This table examines whether the market response to announced enforcement actions depends upon how aggressive firms have been in avoiding tax payments. We focus on the four notable enforcement actions taken July 2000- January 2001 introduced in Table 1 (excluding Sibneft specific enforcement action). The table reports the results of a regression of short window excess returns (defined as the cumulative excess return in the ten day window (t-1, to t+9) surrounding the announced enforcement action) on indicators of tax avoidance. In our excess return calculations we use the RTS index, using the rouble index when security quoted in roubles and the \$ index when the share price quoted in dollars. For indicators of tax avoidance we use the selling price for oil by company in 1999 reported by investment analysts. The first regression uses the average \$1999 selling price. The second regression uses the August 1999 \$ value in case the average \$1999 selling price is missing. Data are from RTS daily archive, using the last price reported. Companies are excluded if there is no trading volume and no reported change in last price over the relevant event window.

Dependent Variable	10 day excess returns around enforcement actions	
Tax avoidance indicator (average \$/barrel selling price 1999)	-0.0795 (.0278)**	
Tax avoidance indicator (average \$/barrel selling price for 1999 if available August 1999 otherwise)		-0.0235 (.0122)*
Event dummies for four events noted in panel A	yes	yes
Number of observations	9	18
Adjusted r-squared	0.62	0.18

Note. Standard errors are reported in parentheses. ** indicates significant at 5 percent, * indicates significant at 10 percent

Table 5: Descriptive Statistics for Corporate Laffer Curve Specifications

	No of Obs.	Mean	Median	Std. Dev.	Min	Max
<i>Panel Variables</i>						
Log Corporate Tax Revenues	545	3.6965	3.0782	2.8979	-5.2983	14.4093
Corporate Tax Revenues/Total Tax Revenues	540	0.1141	0.0879	0.0897	0.0093	0.4357
Corporate Tax Revenues/GDP	545	0.0241	0.0205	0.0150	0.0030	0.0910
Marginal Tax Rates	545	0.3781	0.3800	0.0972	0.0980	0.6000
Ownership Concentration	545	0.4370	0.4700	0.1386	0.1800	0.6700
Measure of Private Benefits	458	0.1137	0.0629	0.1403	-0.0430	0.6495
Rule of Law	545	7.7174	8.5700	2.3818	1.9000	10.0000
Tax Evasion	521	3.3043	3.4100	0.9020	1.7700	4.6700
Maximum Within-Country Difference in Marginal Tax Rates	545	0.1615	0.1670	0.0740	0.0200	0.3100
<i>Cross-Sectional Variables</i>						
Country-Specific Laffer Slopes Using Log Corporate Tax Revenues	32	0.9731	-0.1183	5.6650	-7.2815	23.2709
Country-Specific Laffer Slopes Using Corporate Tax Revenue to Total Revenue Shares	32	0.0510	-0.0025	0.4961	-1.0454	1.7917
Country-Specific Laffer Slopes Using Corporate Tax Revenue to GDP Shares	32	0.0244	0.0003	0.1716	-0.3528	0.7774
Ownership Concentration	32	0.4559	0.5100	0.1390	0.1800	0.6700
Measure of Private Benefits	28	0.1504	0.0731	0.1809	-0.0430	0.6495

Notes: The table provides descriptive statistics for variables employed in Tables 6 to 8. The top panel provides descriptive statistics for variables from the unbalanced panel while the bottom panel provides variables from the cross-section of country when the Laffer equations are run country-by-country. "Log Corporate Tax Revenues" is the natural log of corporate tax revenues as measured in local currency and as provided in the Government Finance Statistics (GFS) electronic database. "Corporate Tax Revenues/Total Tax Revenues" is the ratio of corporate tax revenues to total tax revenues as provided in GFS and as described in text. "Corporate Tax Revenues/GDP" is the ratio of corporate tax revenues to GDP as provided in GFS and IFS and as described in text. "Marginal Tax Rates" are the top corporate statutory rates as provided in the OPR database and as described in the text. "Ownership Concentration" is the average percentage of common shares owned by the three largest shareholders in the 10 largest nonfinancial, privately owned domestic firms in a given country as computed by La Porta et al. (1998). The "Measure of Private Benefits" is the control premium in negotiated control block sales, as computed by Dyck and Zingales (2003). "Rule of Law" is a measure of the law and order tradition as reported in the International Country Risk Guide and reported in La Porta et al. (1998). "Tax Evasion" is a measure of tax compliance reported in the Global Competitiveness Report for 1995 as reported in La Porta et al. (1999). "Maximum Within-Country Difference in Marginal Tax Rates" is the maximum difference between tax rates for a given country during the panel.

Table 6: Sensitivity of tax revenues to tax rates as a function of corporate Governance

Dependent Variable:	g							Corporate Tax Revenues/GDP
	Log of Corporate Tax Revenues							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	All Countries	All Countries	All Countries	Low Private Benefit Countries (<7.5%)	High Private Benefit Countries (>7.5%)	Lower Private Benefit Countries (<10.0%)	Higher Private Benefit Countries (>10.0%)	All Countries
Marginal Tax Rates	1.2627 (0.5756)	-1.0706 (1.1913)	1.3285 (1.9587)	1.2438 (0.5249)	-0.4072 (0.5539)	1.0444 (0.4798)	-0.9598 (0.5281)	0.0137 (0.0098)
Marginal Tax Rates Interacted with Measure of Private Benefits								
Marginal Tax Rates Interacted with Rule of Law		0.2586 (0.1339)						
Marginal Tax Rates Interacted with Tax Evasion			-0.0184 (0.5607)					
Country Fixed Effects?	Y	Y	Y	Y	Y	Y	Y	Y
Log GDP Interactions with Fixed Effects?	Y	Y	Y	Y	Y	Y	Y	Y
Number of Countries	31	31	31	16	15	18	13	31
No Obs.	458	458	458	270	188	309	149	458
R-Squared	0.9588	0.9593	0.9588	0.8810	0.9796	0.8687	0.9861	0.5599

Note: The dependent variable in columns 1-5 is the log of corporate tax revenues. The dependent variable in column 6 is the ratio of corporate tax revenues to GDP. The dependent variable in column 7 is the ratio of corporate tax revenues to total tax revenues. "Marginal Tax Rates" are the top corporate statutory rate as provided in the OPR database and as described in the text. The "Marginal Tax Rate Interacted with Measure of Private Benefits" is the product of the tax rate and the control premium in negotiated control block sales, as computed by Dyck and Zingales (2003). The "Marginal Tax Rate Interacted with Rule of Law" is the product of the tax rate and a measure of the law and order tradition as reported in the International Country Risk Guide and reported in La Porta et al. (1998). The "Marginal Tax Rate Interacted with Tax Evasion" is the product of the tax rate and a measure of tax compliance reported in the Global Competitiveness Report for 1995 as reported in La Porta et al. (1999). All specifications employ country fixed effects and interactions of those country fixed effects with log GDP. Columns 1, 2, 3, 6 and 7 employ the full sample and the remaining columns partition the sample into subsamples based on the measure of corporate governance at the country level.

Table 7: The Importance of Corporate Governance for Country-Specific Sensitivity

	Dependent Variable: Country Specific Sensitivities using Log of Corporate Tax Revenues	
	(1)	(2)
Constant	0.6958 (0.4673)	0.8237 (1.6805)
Measure of Private Benefits	-3.4626 (1.4096)	-2.6458 (1.7441)
Ownership Concentration		-0.7355 (3.6352)
No Obs.	28	26
Weighted by the Inverse of the Variance of the Measured Slope?	Y	Y
R-Squared	0.1332	0.1141

Note: The dependent variable in columns 1-2 is the country-specific sensitivity slope generated by regressing the log of corporate tax revenues on log GDP and the corporate statutory rates. The "Measure of Private Benefits" is control premium in negotiated control block sales, as computed by Dyck and Zingales (2003). "Ownership Concentration" is the average percentage of common shares owned by the three largest shareholders in the 10 largest nonfinancial, privately owned domestic firms in a given country as computed by La Porta et al. (1998). All specifications are weighted least squares regressions where observations are weighted by the inverse of the variance of the measured slopes from country-specific regressions.