

Do More Transparency & Disclosure Necessarily Enhance Firm Performance?*

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Abstract

Prior literature posits that corporate governance reforms usually boost firm's operating performance as well as market's valuation. In this paper we show differential effect of corporate governance (henceforth, CG) reform on firm's operating performance (e.g., EBIT/Asset) and firm's market valuation (e.g., Tobin's Q). In the context of Russian transparency and disclosure reform (henceforth, T&D reform) initiated by the Russian government in 2002, we find convincing evidence that these regulatory changes although had weak effects on firms' market value – had a pronounced negative impact on accounting-based measures of firm performance. We argue that this evidence suggests that pre-reform operating performance measures in Russia – performance measures that are exposed to managerial discretion – were largely “inflated” numbers. More importantly, our finding suggests that the Russian equity market was fully aware of this inflation. Consequently, Russian equity markets did not negatively react to sharp drop in operating performance of these companies. Further, a very weak effect on Tobin's Q suggests that Russian T&D reform did not do enough to alleviate agency conflicts that could have potentially lead to significant increase in firm value.

Keywords: Corporate governance reform, Transparency and Disclosure rules, Domestic and foreign listed firms, Quasi-experimental analysis; Market-to-Book, EBIT-to-Asset ratio, Russia

JEL Classifications: G3, K2, P2

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1 Introduction

In this paper we utilize a natural experiment – changes in transparency and disclosure (henceforth, T&D) law in Russia around the year 2002/2003 – to study the impact of exogenously-mandated changes in governance standard on Russian firm performance.¹ We looked at two well-established measures of firm performance: total earnings before interest and taxes divided by total assets (EBIT-to-Asset) and, total market value of the firm plus book value of debt divided by total assets (Tobin’s Q). Our empirical findings are striking, and at least to us, quite surprising: Although we find significant drop in operating performance (EBIT-to-Asset) after each firm starts disclosing high quality information to the market, such disclosure hardly have any effect on Tobin’s Q.

We argue that this evidence suggests that before the enactment of this new T&D law, measures of operating performance – measures that are often exposed to management discretion were to a large extent “manufactured” numbers in Russia. Since managers did not have to disclose pertinent information about new deals signed and/or sources of additional revenues and/or sources of cost-cutting and given a very inefficient Russian tax enforcement mechanism between the period 1998-2003, these managers were able to inflate reported earnings quite easily.² Once more stringent disclosure laws came into force, managers started finding ways to inflate earnings increasingly difficult and as a result reported earnings dropped significantly in the post T&D law era. But most importantly Russian equity market was fully aware of this earning inflation in the pre-T&D era and priced shares accordingly. Thus, market valuation – as captured by Tobin’s Q – remained unaffected.

Why corporate transparency and disclosure is expected to boost operating performance and firm value? Level of T&D is an important component of governance standard of a firm.³ The

¹We assume, in line with the existing literature, that the levels of corporate transparency and disclosure directly affects the outside investors’ perception about governance standard of the firm. See, for example, papers by Becht et al. (2003), La Porta et al. (1997), Fields et al. (2001), Ali et al. (2007) and Bae et al. (2008)

²Russian Tax Code was adopted and implemented in multiple stages: The first stage, enacted on July 31, 1998, defines and regulates relationships among various agents involved in the tax system. The second stage, enacted on August 5, 2000, defines specific taxes, rates, payment schedules, and detailed procedures for tax calculations. It was amended in 2001-2003 with additions like the new corporate profits tax section and the new simplified tax system for small business. See, for example, Schneider and Enste (2002) have argued that the size of Russias shadow economy was about 44% of its GDP in 1998-99, which primarily includes legal activities like tax evasion.

³Remember, “governance standard” is just a perception. Outside investors’ look at various accounting proxies and organizational details to form an opinion about a firm’s governance. There is reasonable consensus that size/quality of information flow from the firm to the outside investors (what we call T&D) positively and significantly influences this perception.

underlying idea is that higher quality and level of information help investors to take well-informed investment decisions; thus, it increases their willingness to invest in projects that have relatively longer duration and projects that are relatively riskier.⁴ Typically, these type of investments – risky projects with long duration – help firms to secure long term steady growth in cash flow. Also, requirement of disclosure of transparent information to the market has a “self-disciplining” effect on managers – they become extra vigilant and in the process lowers the likelihood of inadvertent wastage.

But high quality T&D has its dark side too. For example, too much disclosure of pertinent information to the outside investors can help to fortify one’s own rivals. These rival firms may at times use such quality information to weaken competitive advantage of the disclosing firm in the product/service market. This results in loss of market share, reduced economic profit and consequently, a decline in the firm value. Thus, too much disclosure can be detrimental for the firm. Obviously, the right level of disclosure will vary with firm’s own characteristics, the nature/competitiveness of the industry, etc. For example, an innovation-driven firm may find it more difficult to divulge information about the use of funds – because such information may be inverted by its rivals to extract valuable information about research and development strategies. Whereas, projects with high innovation-content are characterized by relatively long duration/riskier ventures; thus have higher ex ante likelihood of failure even at the intermediate stages; therefore, funding even at later stages may require high quality disclosure.

One can argue that given the levels of T&D are endogenous – i.e., determined by equality of marginal costs and marginal benefits of T&D – in a frictionless market “observed” levels of T&D is also the optimal level. Hence, any effort to forcefully increase/decrease the adopted level of T&D will reduce firm value. Clearly there are some frictions: First, firms may adopt lower-than-optimal T&D because they are concerned that if they disclose “too much” information relative to their rivals, then these rivals can use this additional information to put the disclosing firm in a disadvantageous position – a prisoners’ dilemma type situation. Here, an exogenous change in T&D law can improve welfare by making all firms disclose similar level of information and thereby removing the “competitive disadvantage” associated with unilateral adoption of high T&D strategy.

But the lack of transparent disclosure may also be due to “agency conflicts” and then ex-

⁴See, for example, Johnson et al. (2000) for a discussion on Asian Financial Crisis and the role of information.

ogenously imposed regulatory changes for greater T&D may prompt adverse reactions from these agents-in-control and consequently, may lead to decrease in firm value. At times, the benefits of such regulations may be outweighed by the costs generated by such adverse reactions.⁵ Taken together, we argue that the net effect of disclosure may be positive, negative or insignificant when positive and negative effects outweigh each other. Thus, it is legitimate to ask the following question in the context of Russian regulatory changes – a natural experiment setup: does exogenously mandated improvement in transparency and disclosure necessarily enhance Russian firm’s performance?

The companies studied are those which are included by Standard and Poor’s T&D data for the period 2003-2007 – who were already listed by 2003 – covering more than 80% of the cumulative market capitalization of the Russian stock market in 2007 and these firms are all subject to the newly introduced T&D law. We use the T&D data compiled by (S&P) for the period 2003-07. T&D data covers various indices on ownership structure, shareholder rights, financial and operational performance, and board and management structure and processes. We merge the T&D data compiled by S&P with firm-level accounting data extracted from the *OSIRIS* database available from Bureau van Dijk. Then we construct a composite T&D scores – obtained by using factor analysis of these available indices, which allows us to test our central hypothesis that better T&D improves a firm’s performance in Russia.

We exploit the inter-firm variation in the adoption of T&D scores for the period 2003-07 to identify the causal effect of T&D scores on selected firm performance measures, after controlling for firm characteristics like size, leverage, age, and market concentration and sector characteristics, which may also influence firm performance. Further, we control for the firm and year fixed effects with a view to minimize the estimation bias arising from the firm/year-specific omitted factors. We also control for interactions between firm and year specific fixed effects in order to account for the time-varying firm-level characteristics.⁶ We consider the effects of T&D scores not only on all firms, but also on energy and non-energy sector firms individually in our sample for the period 2003-2007.

⁵Usually outside investors who supply funds to a firm have very little say in day-to-day decision-making / investment activities of the firm. Decision are taken by hired agents, who potentially may have quite different objective functions than the financiers. See, for example, Hermalin and Weisbach (2012) and Banerjee and Masulis (2013) for detailed discussion.

⁶For example, while we do not observe firms’ responses to various tax reforms, we argue that we account for these unobserved factors by including the firm and year fixed effects and their interaction in our panel analysis.

Further, given that the adoption of T&D practices may be non-random among sample firms, we also check the robustness of our T&D estimates by adopting a two-stage fixed effect instrumental variable (IV) method. We argue that costs of disclosing more information are heterogeneous across firms so that disclosure acts as a device to signal the type of the firm. Accordingly, we first determine T&D scores in terms of various observable and unobservable firm, year and their interaction and other important controls. Next, we determine the predicted value of T&D scores using these estimates, which are then included in the second stage determination of firm performance, ensuring that there are some exclusion restrictions between these two stages.

Next we generalize our analysis to assess the impact of the introduction of the overall CG scores on selected firm performance measures over 2000-07. We still focus on the same firms considered by S&P for the period 2003-07.⁷ Assuming the introduction of T&D rules to be a purely exogenous event triggered by certain outcome of the Russian election, we generate a natural-experimental setup as follows: Although T&D rules were crafted in 2002, it was first introduced to the firms in 2003, as highlighted by the S&P's survey over 2003-07. This allows us to assess the impact of the introduction of T&D rules by comparing the pre- and post- 2003 firm performance measures, using difference-in-difference (DID) models. Accordingly, we replace the continuous T&D scores by a binary indicator variable – we call T&D dummy – which takes a value of one if the T&D scores were positive over 2003-07 and zero otherwise.⁸

A clean evaluation of the impact of CG reform on firm performance would necessitate us to identify a treatment and a control group of firms. Thus, we exploit the variation in performance between only domestic and domestic & foreign listed Russian firms.⁹ Without any loss of generality, we treat these internationally listed Russian firms as our control group since they were subject to various international stringent regulation. Subsequently, we use a difference-in-difference (henceforth, DID) regression model to assess the impact of the CG reform on firm performance, by comparing

⁷We exclude the year 2008-09 as the Russian economy was hard-hit by the 2008 financial crisis – an exogenous shock that could have contaminated our effort to capture the impacts T&D reform on Russian firm performance.

⁸T&D dummy is more general than the T&D scores as it contains effects of share dilution, asset transfer, transfer pricing, merger & restructuring, bankruptcy, ownership restrictions and registrar risk, as stated in Brunswick UBS Warburg CG index constructed for the period 1999-2002 (Black et al. (2006)).

⁹Since 1996 a growing number of Russian firms got listed in various international stock exchanges – particularly in the NYSE and the London Stock Exchange (LSE) in a bid to seek credibility and deeper liquidity which Moscow exchanges could not offer. These firms were partly regulated by the US Rule 144A and rules governing GDR, which were more stringent than the Russian CG laws.

domestic and foreign listed Russian companies before and after 2003.¹⁰

One possible concern about choosing these treatment/control groups is that the decision to be listed on a domestic/foreign exchange is not a random one: it is likely to depend on the expected costs and benefits of joining a tightly regulated stock exchange (e.g., Karolyi (2006)). To allay concerns about this potential endogeneity bias, we only consider those Russian firms, who were already listed on any domestic and/or international stock exchange by 2003, i.e., a year before the effect of corporate governance reform was reflected on firm balance sheet – i.e., the year 2004 onwards. Thus, the timing of being listed precedes the timing of the introduction of the reform in our analysis, which arguably would help us to minimize any potential bias of our estimates. Also, we use one period lagged values of all other explanatory variables used in our analysis.

Secondly, to alleviate concerns relating to the unobservable trends in our analysis, which too may bias the effect of CG reform on firm performance, we not only use time-invariant firm fixed effect and separately year fixed effect, but also include their interaction to control for unobservable firm-level time-varying factors. Further, the error terms are likely to be correlated at the firm level – firms who abide by the CG law in period 1, are also likely to do so in period 2 and so on. Therefore it is important to use the clustered standard errors at the firm level (e.g., Bertrand et al., 2004), which reduces any estimation bias arising from this correlation in our analysis. Finally, we compare the treatment and control groups with similar observable characteristics over 2000-07, which allows us to derive the average treatment effect of CG reform on firm-performance, using difference-in-difference (DID) estimates.

Our results are also robust to replacing our main measure – T&D dummy for the period 2003-07 with a CG reform dummy for the period 2004-07. Further, our results are independent of our choice of sample. We find that our results are not sensitive to the particular sample of large listed firms we use and hold even after we drop the top 10% firms by total assets. We also rule out other competing explanations, e.g., insider holding and tax as an additional control.

Our analysis contributes to a sizable and growing literature on corporate governance. In their well-cited article Shleifer and Vishny (1997) highlighted the beneficial influence of good corporate governance laws on firm performance and value.¹¹ While the earlier literature tends to focus on

¹⁰We also ensured that the values of the outcome variables (performance measures) were comparable for the treatment and control groups of firms during 2000-2003 period.

¹¹There is evidence from around the world that firms with better corporate governance practices enjoy lower cost

the separation of ownership and board composition in line with the agency theory (e.g., Jensen and Meckling (1976), the focus in the 1990s shifted to differences in legal rules that defines creditors' and shareholders' rights. For example, La Porta et al. (2000) and others argued that combining rules relating to ownership and board composition with legal protection for shareholders' rights provides a better understanding of CG practices.

More recently, the attention has been shifted to the importance of T&D laws. Patel and Dallas (2002) has been one of the first studies on T&D, who highlighted that firms with good T&D have lower costs of equity capital. Gompers et al. (2003) included T&D as one of the components of corporate governance rules and found that stronger rights in the US has led to better firm performance. Other studies used CG indices provided by specialized ranking agencies or constructed their own proxies (see, e.g., McKinsey & Company, 2002; and Aggarwal et al. (2010)). Along similar lines, Banerjee et al. (2013) consider the effect of Sarbanes-Oxley Act on excessive CEO risk-taking and firm value.

Turning now to the limited literature on corporate governance in Russia, we find three recent studies, namely, Black (2001), Black et al. (2006) and Goetzmann et al. (2003). While Black (2001) use a single cross-section of 21 Russian firms in 1999, Black et al. (2006) use pooled OLS, fixed and random effects estimates for sample firms over 1999-2004 to estimate a macro effect of corporate governance index on firm value. While the beneficial effect of the CG reform is pronounced in the OLS, it is much limited in the fixed effects estimates in Black et al. (2006); the paper however tends to highlight the beneficial effect of the reform on firm value. The general consensus emerging from this literature is that better T&D rules as well as better CG practices tend to lower the cost of capital, lower excessive risk-taking, improve firm value and provide a better understanding of the firm's business environment.

Rest of the paper is developed as follows. Section 2 describes the data. Section 3 refers to methodology, while Section 4 presents and analyses the results. We state three robustness checks for our main result in Section 5. The final Section 6 concludes.

of capital (La Porta et al. (2000); Ashbaugh et al. (2006); Errunza and Mazumdar (2001); lower credit rate spreads (Yu, 2005) and lower risk (Gompers et al. (2003); Brown and Caylor (2006)).

2 Data

The data used for the analysis have been obtained primarily from OSIRIS firm-level data for Russian energy and non-energy companies which have been included in the S&P’s analysis of transparency and disclosure. OSIRIS is a fully integrated public listed company database and analytical information solution produced by Bureau van Dijk, an electronic data-publishing company and has been widely used in the related academic literature.¹² OSIRIS data was then merged with the firm-level T&D data obtained from S&P. We depict in detail our method of construction of these various transparency and disclosure proxies – T&D score and T&D dummy in Appendix 1 below.

Next, we obtain the Initial Public offering (IPO) data from PriceWaterhouseCoopers (2008) to obtain information on the first date of international listing of sample Russian firms. While our analysis using T&D data covers the period 2003-2007, that using the binary corporate governance reform indicator considers the selected Russian firms between 2000 and 2007, which has been a period of rapid economic recovery (before the financial crisis set in in 2008) under the leadership of President Putin.¹³

We apply GICS 4-digit code to classify industry/sector in our sample. As we focus on energy industry, GICS allowed us to identify 9 main energy sub-sectors within the energy industry. We have selected utilities and oil and gas producers as the two largest ones consisting 64% of overall energy sector. The two largest energy sectors consist of 23 companies. The remaining energy sector companies are labelled as “other energy” sector (which consists of 13 companies). Table 1 provides selected summary statistics for the selected sectors and sub-sectors. Given that S&P’s T&D indices focus on the largest energy sector firms, we considered the 36 largest firms in 2007. While 181 Russian energy firms are available in the OSIRIS, the 36 within S&P’s database are the largest ones. Further, we distinguish energy sector firms from leading non-energy sectors, which include firms operating in telecommunications, metallurgy, banking, food, consumer and retails and IT engineering.¹⁴

¹²See e.g., Black (2001), Black et al. (2006), Goetzmann et al. (2003) and Klapper and Love (2004) for further discussion on these databases.

¹³While there are more than 300 public companies in Russia (who are all subject to the new CG codes), we focus on 80 largest listed companies covered by S&P for the period 2003-07. While some may raise concerns that this sample may not be representative of all Russian companies, the companies included in this survey account for about 80% of the Russian stock market capitalization and major part of the Russian market in terms of assets and operations.

¹⁴When Russia began implementing its CG mechanism in 2003, five energy giants, namely, Yukos, Gazprom, Lukoil, Surgutneftegaz and Sibneft, cumulatively represented 56% of the value of all the stocks listed on the Russian

2.1 Transparency & Disclosure Indices

Unlike much of the existing literature, we have access to S&P's T&D indices consistently constructed for the 80 largest Russian companies with the most liquid stocks (80% of cumulative market capitalization of Russian stock market, in 2007) over the period 2003-2007 that we compile from various S&P's reports for the years 2003-2007. Using (2003-2007) various S&P reports, we considered the following T&D indices:¹⁵

- T&D financial and operational information
- T&D ownership structure and shareholders rights
- T&D board and management structure

As defined by S&P, the *financial and operational index* measures openness and availability of accounting data, employment standards, consistency with regulations, explanation and description of the firm and its market position, etc. The *ownership and shareholders' rights index* demonstrates the availability of data on the ownership and effort to prevent appropriation of minority shareholders. The *board & management structure index* shows the disclosure of the monitoring and management structure. S&P measures T&D score in percentages – ranging from 0 to 100; a higher score means better T&D within the company.

We also used the principal component analysis to generate a composite T&D score. Figure 1 shows the trend in T&D indices over the sample years. Clearly, the energy sector's average composite T&D index increased from 40% in the first two years after the introduction of the CG reform to around 55% in 2007. Although the non-energy companies started at a higher average level of T&D than the energy companies in 2003, by 2007 the energy companies caught up with the non-energy companies, indicating that the composite index of transparency increased faster for

Stock Market. Second, a comparison of total sales by companies in these two sectors between 2003 and 2007 clearly highlights the importance of energy sector firms in Russia. Total sales by energy industry vary between 82%-85% during this period; in other words, only about 15%-18% of total sales pertain to the non-energy sector of the country.

¹⁵S&P applied two criteria to select the companies in the study: size and liquidity. As a rule, the liquidity of stocks positively depends on the size of the company, but there are some exceptions. Each T&D index is based on about 30 survey questions for each of the sections: T&D financial and operational information, T&D ownership structure and shareholders rights, T&D board and management structure. S&P analysis accounts for information included in the three major sources of public information: annual reports, web-based disclosures, and public regulatory reporting. The study includes around 80 largest Russian stock companies with the most liquid assets. The companies included in the survey account for about 90% of the cumulative capitalization.

the energy sector.¹⁶

2.2 Utilization of the Natural Experimental Set-up

In this section, we explain how we can use the exogeneity of the introduction of the 2002 T&D rules in Russia as a natural experimental framework with a view to identify the causal impact of the reform on selected indices of firm performance. Our strategy in this respect attempts to exploit the variation in firm performance between domestic and foreign listed companies in our sample. This is particularly important for the post-2000 period, which was the period of rapid economic recovery in Russia.

During this period a growing number of the largest Russian firms went into listing on foreign stock exchanges. Internationally most foreign listed Russian firms were listed not only on various US stock exchanges, but also on the London Stock Exchange (LSE). While firms from emerging countries like Russia listed on the LSE were guided by the introduction of Gross Depository Receipts (GDRs) since 2001, those in the US needed to follow Rule 144A since 1990.¹⁷ The listing requirements were lax relative to US domestic companies but quite stringent relative to Russian domestic requirements. Thus, for the purpose of analyzing the impact of the CG reform in Russia, we consider the only domestic listed Russian firms as the treatment group while the internationally and domestic listed Russian firms as the control group. Differentiation of the treatment group from the control group would then allow us to identify the causal effect of the reform on selected firm performance measures among the treatment group (in relation to those for the control group) by comparing their performance before/after the introduction of the reforms.

We use the Initial Public Offering (IPO) data available from the Price Waterhouse Coopers (2007) to identify the first year of listing in the international stock exchange and as indicated above focusing on S&P's 2003-07 sample means that all the firms in our sample were already listed by 2003, before the realization of the impact of the reform. As such, one can allay concerns about the

¹⁶For the period as a whole, the average values of T&D indices as well as performance measures tend to be higher among the non-energy sector firms. We however need to bear in mind that the observed T&D scores are not random as the Russian firms have some discretion to adopt the T&D rules, especially given the soft-law approach to implementation of Russian CG codes, which we address in the methodology section. This is further discussed in section below.

¹⁷This was facilitated by the introduction of Global Depository Receipts by the London Stock Exchange in 2001 and the US rule 144A. Rule 144A that permitted firms to raise capital from "qualified institutional buyers" (QIBs) without requiring registration of the securities and elaborate compliance with U.S. GAAP.

possible non-random nature of the international listing of Russian firms. Only about 19% of total 80 sample firms were internationally listed by 2003.

2.2.1 Measures of Firm Performance

We use two alternative indices of firm performance - one market based and a second one accounting-based. Tobin's Q is a widely used market-based measure of firm performance in the literature (e.g., Mueller and Reardon 1993; Denis and McConnell, 2003 and La Porta et al., 2002). Tobin's Q is defined as firm market capital plus book value of debt as a share of total assets. We also consider EBIT as a share of total assets as an alternative measure of firms' operating performance. The underlying idea is that EBIT is amenable to earnings manipulation while Tobin's Q is market determined. As such a comparison of the estimates of Tobin's Q and EBIT-to-Asset before/after the reform may highlight differential corporate behavior, if any.¹⁸

There is however one possible snag in this argument and this is linked to the fact that Tobin's Q involves 'assets', which are subject to manipulation. So it is important to check that assets did not change significantly following the reforms (i.e. no adjustment in disclosure of assets). In order to test this proposition, we created a measure of growth of assets (labelled as *grassets*), which is defined as: $\text{assets-lag(assets)/lag(assets)}$. Simple t-test shows that the average value of *grassets* was 0.90 before introduction of t&D rule and 0.37 after the T&D rule was introduced; the mean difference is significant at about 2% (t-stat=2.1082). In other words, simple mean comparison suggests that the average value of assets growth is lower in the post-reform period. In order to understand this better, we next regress *td_dummy* as well as its predicted value *td_dummy_pr* on growth of assets, after controlling for all other factors including firm, year and also firm*year fixed effects. We find that the coefficient of *td_dummy* or its predicted variable *td_dummy_pr* is not significant (although the estimated coefficient is still negative) when we control for all other factors influencing growth of assets (using both definitions). So we conclude that the average growth rate of assets did not change in the post reform period, other things remaining unchanged. Accordingly, we can now compare changes in EBIT and market capital by comparing EBIT share and Tobin's Q.

¹⁸We use the second definition of Tobin's Q (v2) for most part of our analysis, but use the first definition of Tobin's Q (v1) for robustness purpose.

Table 2 summarizes the descriptive statistics for firm performance measures and also other relevant variables in our sample. Note that the average value of Tobin's Q is generally greater than 1 in our sample, thus suggesting that the market value of a company is generally greater than the recorded assets. The average values of various T&D indices is just around 50% for all industries taken together; in comparison, T&D average scores are slightly higher for the non-energy sector firms. The average ratio of total liabilities to total assets is about 0.45. We measured market concentration using the Herfindahl index.¹⁹ Table 2 shows that the average Herfindahl index is high for all the sectors considered in our analysis, implying a lack of competitive market environment in Russia for most industrial sectors. We also included how long the firm had been in existence. In general, Table 2 demonstrates that the average age of all the firms in our study is 19 years. The most firms in the oil-and-gas production sector has an average age of 6 years; the oldest companies in the utilities sector average 30 years.

2.2.2 Treatment and Control Groups

An important identification assumption for the distinction between treatment and control groups of firms in a natural experimental framework is that means of the outcome variables, i.e., selected firm performance indices in our case, are comparable in the pre-treatment period 2000-2002 in our sample. Table 3 compares the means of selected characteristics of foreign and domestic listed firms in our sample. In general domestic listed Russian firms tend to be older and slightly bigger and also have slightly higher debt to assets ratio; also note that these mean differences are statistically significant in our sample. The same cannot, however, be said for all the outcome variables in our sample. While the mean values of Tobin's Q and EBIT-to-Asset ratio in the pre-2003 period are somewhat different between domestic and foreign listed Russian firms, the difference is never statistically significant for any of these indices in the pre-reform years. Further we compare the means of these two performance measures among domestic and foreign listed firms in the post-reform years 2003-07. While the average performance has gone up for the domestic listed Russian firms in the post-reform years irrespective of the choice of the measure, the difference is only significantly different for Tobin's Q in our sample.

¹⁹As a rule of thumb, a Herfindahl index below 0.10 signals low concentration market, while a Herfindahl index above 0.18 signals high concentration. An index falling between 0.10 and 0.18 indicates that the industry is moderately concentrated.

Figure 2 summarizes the trend in average performance over 2003-07 among domestic and foreign listed firms in our sample. Starting from a comparable position in 2003, the gap in Tobin’s Q measures between domestic and foreign listed firms widened over 2004-07; evidently, the trend in EBIT-to-Asset ratio is not so obvious over 2004-07 as the two lines representing the treatment and control groups of firms cross each other a number of times. Taken together, we argue that both Tobin’s Q and EBIT-to-Asset ratio were comparable between treatment and control groups of firms in the pre-reform period, thus justifying the use of difference-in-difference (DID) models using panel data methods.

3 Methodology

Our first objective has been to identify the causal effect of the introduction of the T&D rules on firm performance in Russia by exploiting the inter-firm variation in the adoption of T&D rules over 2003-2007. In doing so, we first explored the role of individual as well as composite T&D indices on selected measures of firm performance in our sample, using panel data fixed effects models (see section 3.1). Next we broaden our analysis to assess the impact of CG codes in our sample using 2000-2007 firm-level panel data, by exploiting the variation in firm performance between domestic (treatment group) and foreign (control group) listed companies before and after the introduction of the reform (see section 3.2).

3.1 OLS fixed effects estimates of firm value, 2003-2007

We employ a panel-data fixed-effects model to determine selected firm performance measures, using Ordinary Least Squares (OLS). Our sample is a balanced panel data arranged for a group of firms observed over the years 2003-2007. Choice of the sample period is guided by the fact that the T&D indices are available only for 2003-2007. Suppose we denote the measure of firm performance by Q. After controlling for other possible covariates X lagged by one period, the performance Q of i-th firm in year t is given by:

$$Q_{it} = \beta_{T\&D} \times T\&D_{it} + \gamma' X_{it-1} + \alpha_i + \theta_t + \alpha_i \times \theta_t + v_{it} \quad (1)$$

where, $t = 2003, 2004, 2005, 2006, 2007$,

α_i = firm-specific unobserved factor

θ_t = Year specific unobserved factor

$\alpha_i \times \theta_t$ = firm-specific time varying unobserved factor

v_{it} = firm (i) and year (t) specific error term (independently and identically distributed).

The advantage of using fixed-effects model is that it allows us to minimize estimation bias arising from any possible time-invariant unobserved heterogeneity. The parameter α_i accounts for the firm-specific time-invariant unobserved factors, e.g., effects of corporate taxes and also tax enforcement as well as other government policies affecting the sample firms, inclusion of which is likely to minimize the potential estimation bias arising from firm-specific unobserved heterogeneity. We also control for year-specific (θ_t) omitted factor and also an interaction between firm and year-specific ($\alpha_i \times \theta_t$) omitted factors; the latter would control for firm-specific time-varying omitted factors. In order to minimize the bias generated by reverse causality, we have lagged all explanatory variables by one period. We use a fixed effects panel data model to estimate Equation (1). Finally we cluster all standard errors at the firm-level to minimize any estimation bias arising from interdependence of errors over time for each firm.

In order to identify the effect of T&D on firm performance measures by minimizing the omitted variable bias, we also controlled for additional firm-level characteristics X . These control variables include firm age, Herfindahl index of market concentration, company size (as the natural logarithm of total assets) and leverage (the ratio of total liabilities to total assets). Choice of these variables has been guided by the literature, e.g., Franks and Mayer (2002), Rajan and Zingales (1995), and Booth, et al. (2001), de Haas and Peters (2004), Cole (2008) and Driffield and Pal (2010). In order to minimize the potential simultaneity bias of our estimates, if any, we use one period lagged values of these control variables, as indicated by X_{it-1} .

However, given the soft approach to implementation of CG codes in Russia, one may argue that the adoption of T&D rules by a firm is a matter of choice for them and hence the T&D scores are likely to be potentially endogenous. If so, the estimated T&D effects are likely to be biased. In order to address this difficulty, we next adopt a two-stage approach. In particular, we argue that costs/benefits of disclosing more information are heterogeneous across firms so that disclosure acts as a device to signal the type of the firm. We argue that the adoption of T&D rules by a

firm is a matter of choice for them at least in the initial years when they had some flexibility. For example, Verrecchia (1983) develops a model in which a manager of a risky asset exercises discretion in the disclosure of information in the presence of traders who have rational expectations about his motivation. If so, the revelation of T&D scores is likely to be non-random and hence the estimated T&D effects are likely to be biased. In order to address this difficulty, we next adopt a two-stage approach. In particular, we argue that costs/benefits of disclosing more information are heterogeneous across firms so that disclosure acts as a device to signal the type of the firm (Verrecchia, 1983; 1990; Skinner, 1994; Kothari et al. 2008). Accordingly, we include various firm characteristics, namely, firm size, R&D share, Firm age and Herfindahl index; we also include two identifying variables, namely, liability ratio (as a share of total assets) and growth of sales. While growing firms are more likely to be more transparent as it is likely to enhance their market value, firms with higher liability ratios are less likely to be transparent as the market may penalise them. Note that these two variables are not included in the second stage estimates of firm performance as it was never significant there; as such, this variable acts as an identifying variable. In view of the potential omitted factors, we also include firm and year fixed effects and also firm*year fixed effects; the latter controls for the omitted firm-level time varying factors. We use these first-stage estimates to generate the predicted value of T&D overall index as the instrument variable (IV) for T&D and use it (instead of raw T&D scores) in the determination of firm performance Equation (1). The underlying idea is that after controlling for all relevant observable and unobservable factors influencing T&D scores, the predicted T&D scores can be considered random in the determination of firm performance at the second stage. We label these estimates as fixed effects instrumental variable (FE-IV) estimates to compare with the un-instrumented FE estimates of Equation (1) detailed above.

3.2 Difference-in-Difference (DID) estimates of firm performance

Although we do not have access to any T&D indices for the years before 2003, we generate a binary variable T&D.Dummy indicating the introduction of corporate governance codes in the country. The variable takes a value 1 if the composite T&D score is positive for any firm during 2003-07 and 0 otherwise. Later we also check the robustness of our estimates using an alternative CG reform dummy (see section 5 for further discussion).

Given that a growing number of Russian firms, especially the larger ones, started getting internationally listed in the New Millennium and also that they were differentially influenced by domestic and international corporate governance codes, we treat the internationally listed Russian firms as our control group. Use of S&P's sample ensures that all sample firms were listed on some Russian stock exchange by 2003. We then code any of these sample firms to be listed internationally only if they were listed by 2003 (before the introduction of the reform). This is because the likelihood of being listed internationally is unlikely to be random; it is a matter of choice made by these firms (which increases its value). As such, we ensure that the timing of listing (domestic/foreign) precedes 2004, the year when the effect of the CG reform was first highlighted in the firms balance sheet. We argue that this restriction helps us to allay concerns about the potential simultaneity bias, if any, arising from simultaneity between the likelihood of being listed and the effect of the reform. Accordingly, we create a second binary variable *domestic* that takes a value 1 if a sample firm was listed domestically in Russian stock exchange and 0 if listed internationally by 2003. This allows us to exploit the variation in the adoption of CG codes between domestic and foreign listed firms to identify the differential (and causal) effect of the CG reform, if any, on selected firm performance measures in our sample.

Russian authorities adopted a COE approach towards the implementation of CG codes while internationally listed Russian firms were subject to more stringent CG rules (see discussion in section 3) as they were required by the foreign law to strictly comply with the CG codes in international stock markets. In other words, relative to domestic listed Russian firms, internationally listed Russian firms are likely to have better CG practices. We exploit this variation between treatment and control groups to identify the effect of CG reform on firm performance measures.

An important identification assumption for the distinction between treatment and control groups of firms in a quasi-experimental framework is that means of the outcome variables, i.e., selected firm performance indices in our case, are comparable in the pre-treatment period 2000-2003 in our sample. While the mean values of Tobin's Q and EBIT shares in the pre-2004 period are somewhat different between domestic and foreign listed Russian firms, the difference is never statistically significant for any of these indices in the pre-reform years. In contrast, Tobin's Q difference is highly statistically significantly different between these two groups of firms during 2003-07 (see Table 3). It is also noteworthy that the difference in EBIT share between these two groups of

firms is never statistically significant (pre- or post-reform years) in our sample. One can thus argue that both Tobin's Q and EBIT shares were comparable between treatment and control groups of firms in the pre-reform period. Subsequently, significant difference in Tobin's Q measures appeared in the post-reform period while the same did not happen to EBIT shares. These mean comparisons justify our use of difference-in-difference (DID) models using pooled and panel data methods.

Finally, we consider a regression framework to examine if the differential impact of the CG reform observed here holds for domestic (relative to foreign) listed firms in Russia, after we control for all other factors influencing selected performance measures. To this end, we use a difference in difference (DID) model. The DID method has become popular in empirical economics since late 1970s and is probably the most widely used method for impact evaluation at present. Since we have yearly data for 2000-2007, we consider a panel fixed effects DID model determining the selected indicator Q of performance (Tobin's Q or EBIT share) of the i-th firm in year t as follows:

$$Q_{it} = \beta_T \times T\&D_Dummy_{it} + \beta_D \times Domestic_i + \beta_{TD} T\&D_Dummy_{it} \times Domestic_i + \beta_X \times X_i + u_i \quad (2)$$

where $T\&D_dummy$ is a binary variable taking a value 1 if T&D composite score ≥ 0 for year ≥ 2003 and 0 otherwise; Domestic is a time-invariant binary variable taking a value 1 for domestic listed Russian firms. The variable of interest for us is the estimated coefficient of the interaction term β_{TD} , which determines the differential effect of the T&D reform on domestic listed firms in our sample, after controlling for all other factors X . As before, the set of variables X includes firm size, firm age, R&D ratio, Herfindahl index. In general, larger firms are more (less) likely to be listed internationally (domestically) to raise greater funds as their needs are less (more) likely to be fulfilled in domestic exchanges in Russia. Also, the energy sector firms in Russia tend to attract more credibility in the international market. The sector control is contained in firm fixed effects, which would capture the effects of the unobserved sector level factors including taxes, and/or any shocks. Note that all estimates are clustered around firms with a view to minimize any estimation bias arising from inter-dependence of firm specific errors over the years. Firm fixed-effects would control for unobserved firm characteristics while firm*year fixed effects control for firm specific unobserved time trends in our data. Year fixed effects are already controlled for by T&D.dummy. We also use one period lagged values of all control variables X to minimize any

potential simultaneity bias. One possible problem with DID model using panel data is that it may ignore the autocorrelation of errors within firm-year cells. We use block bootstrap (which maintains the autocorrelation structure by keeping all the observations for a given firm together) to redress this estimation bias, which presents a major improvement over the parametric techniques (e.g., see Bertrand et al. 2004)

4 Analysis

This section presents and analyses the estimates of Equation (1) for our sample. Section 4.1 discusses the estimates of Equation (1) for the utilities and oil-and-gas sub-sectors within energy sector and also compares the estimates for the overall energy sector firms with other non-energy sector firms. Section 4.2 presents and analyses the estimates of Equation (2) for the period 2000-2007.

4.1 FE-OLS estimates of firm performance, 2003-2007

Table 4 summarizes the FE-OLS estimates of Tobin's Q as in Equation (1) using the composite T&D index while Table 5 shows the same EBIT-to-Asset ratio over 2003-07 respectively for all firms, energy firms and also non-energy firms . Columns (1)-(3) show the estimates using actual T&D scores while columns (4)-(6) show those using the predicted T&D scores generated by using the first stage estimates of T&D scores – Predicted T&D dummy. This is because T&D scores are potentially endogenous. Accordingly, we first estimate T&D scores (see Table 1) and then generate the predicted value of T&D scores as an IV for T&D scores to be used in the estimation of selected firm performance measures. We argue that costs/benefits of disclosing more information are heterogeneous across firms so that disclosure acts as a device to signal the type of the firm. T&D estimates as summarized in Table1 suggest that larger and more innovative firms (with higher share of R&D as a ratio of fixed assets) tend to have significantly higher T&D scores. The latter arguably highlights the benefits of more disclosure for larger and innovative firms (relative to others) in our sample.

We use these estimates to generate the predicted value of T&D scores used as IV for the determination of firm performance measures at the next stage. In particular, we argue that these

instrumented T&D scores are likely to be random after controlling for various observable and unobservable factors influencing these scores. Identification for the determination of T&D scores and firm performance is ensured through exclusion restriction: note that we use growth of assets in the determination of T&D scores, but not for performance measure; also the predicted value of T&D scores is included in the determination of performance only.

After controlling for all other factors, we do not find any statistically significant effect of T&D scores (actual or predicted) on Tobin's Q though the estimated T&D coefficient turns out to be positive for all firms (see Table 4). Further in Table 5, the estimated T&D coefficient turns out to be negative for determining the EBIT-to-Asset in columns (1)-(3), but remains statistically insignificant in columns (2)-(3). In contrast, the T&D coefficient turns out to be negative and significant in columns (4)-(6) when we replace observed T&D scores by its predicted value using estimates shown in Table 1. In other words, there is evidence from Tables 4 and 5 that greater disclosure is associated with significantly lower operating performance in our sample, while there is no statistically significant effect of greater T&D on Tobin's Q. In particular, the estimated T&D coefficient is -0.0391 for determining EBIT-to-Asset for all firms in Table 5. Thus one standard deviation increase in T&D scores (Std. Dev. of T&D score is 0.16 as seen from Table 2) is associated with approximately 1% decrease in EBIT-to-Asset ratio for all firms in our sample. We obtain very similar results when we replace T&D scores by T&D dummy and re-estimate Tobin's Q and EBIT-to-Asset for the period 2000-07 (see Tables 6 and 7). As before, the T&D dummy remains positive but insignificant in determining Tobin's Q (irrespective of whether we instrument it; see Table 5), but negative and statistically significant in determining EBIT-to-Asset when we instrument T&D dummy.

Thus after controlling for various observable and unobservable time-invariant and time-varying firm level factors, the favorable effects of greater transparency seems to have exactly been wiped out by the emerging agency conflicts, thus yielding an insignificant effect of T&D scores on Tobin's Q. In contrast, the effect of T&D scores on EBIT-to-Asset ratio turns out to be negative and statistically significant for all firms. We argue that the latter highlights the evidence of earnings management in Russia in the pre-reform period, which was made impossible by the introduction of T&D rules, thus causing EBIT-to-Asset ratio to decrease as T&D rules deepened. While most existing studies (e.g., Black, 2001; Goetzmann, et al., 2004; Black et al. 2006) find a positive and significant T&D effect

on performance among Russian corporations, identification of the potential negative/insignificant effect of greater T&D scores on firm performance (especially with respect to EBIT-to-Asset ratio) is a novel feature of our analysis not observed earlier. The latter can be attributed to our methodology that attempts to minimize the bias arising from potential endogeneity inherent in the adoption of T&D scores by heterogeneous firms in our sample.

4.2 Difference-in-difference Estimates of Firm Performance 2000-2007

Theoretically, we have argued in section 3.2 that the total effect of the introduction of the T&D rules in 2003 could be ambiguous as the beneficial effect of the reform may be outweighed by the agency conflict. In this section, we shall exploit the variation in firm performance between domestic and foreign listed firms before and after the introduction of T&D rules in 2003 with a view to assess its causal impact subject to the satisfaction of the identification conditions: (i) firm performance was comparable for domestic and foreign listed firms in the pre-2003 years (see discussion in section 3.2) and (ii) we control for trends for domestic/foreign listed firms (see discussion below). Accordingly, we now consider the full sample of listed firms for the period 2000-2007 rather than those for 2003-07 only. Later we shall also examine the robustness of these results by considering the overall effect of the introduction of CG reforms (rather than just focusing on the impact of the introduction of T&D rules) on firm performance measures.

To this end, we consider panel fixed effects DID estimates shown in Table 8 using 2000-2007 firm-level panel data. Columns (1)-(2) show the estimates for Tobin's Q ratio while columns (3)-(4) show the same for EBIT share, after controlling for firm, year and firm \times year fixed effects; the latter controls for the firm-specific time-trends, which in turn contains the group-specific trends for domestic and foreign listed firms in our sample. We also use block bootstrap method to control for potential autocorrelation of errors for a given firm. First, note that the dummy for the domestic listed firms drops out as there has been no change in status of these listed firms in our sample. However the interaction term between Domestic \times Reform is retained, as it is time-varying. Clearly, the interaction term Domestic \times reform turns out to be negative and statistically significant for EBIT-to-Asset ratio; while the corresponding coefficient remains statistically insignificant for Tobin's Q. We obtain similar results when we consider the sectoral estimates of Tobin's Q and EBIT-to-Asset ratio as summarized in Table 9. There is thus further confirmation that the T&D

reform had a negative and statistically significant impact on EBIT-to-Asset ratio among domestic (relative to foreign) listed firms in our sample, when we allow for firm, year and firm \times year fixed effects. There is thus no evidence from our sample that the domestic listed Russian firms enjoyed a significantly higher EBIT-to-Asset ratio in the post T&D reform period in our sample, after holding other factors constant. We consistently find negative and significant differential effect of the reform for EBIT-to-Asset ratio among domestic firms. In addition, the differential effect of the reform on Tobin's Q although generally positive remains statistically insignificant. As such, ceteris paribus, one can infer that the 2002 T&D reform failed to spur a positive and significant effect on market performance among domestic listed firms, which in turn marks an important departure from the existing literature (see e.g., Black, 2001; Goetzmann et al. 2004; Black et al. 2006). Clearly, we not only use different sample period, but also different methodology (DID models) that try to minimize the potential bias arising from omitted variables, endogeneity/simultaneity as well as autocorrelation of errors. As such, we have carefully devised a natural experimental approach, which identifies a negative and significant causal effect of the reform on EBIT-to-Asset ratio among domestic listed Russian firms, but no significant positive effect on Tobin's Q. There are two important implications of these results: first, the EBIT-to-Asset ratio fell after the introduction of the T&D rules because the managers failed to inflate it anymore.²⁰ More importantly, insignificance of the T&D dummy in determining Tobin's Q highlights that the market was aware of this inflated performance and as such did not value the Russian firms significantly positively.

5 Robustness Check

We perform a few more robustness checks to explore if our central results are robust to significant perturbation. We keep the control variables are as in our main model presented in Table 7. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in firm \times year fixed effects.

First, in Table 10 of the paper we replace the 2003-07 *T&D dummy* by the 2004-07 *CG Reform*

²⁰This is compatible with the existing literature that highlights the aggressive efforts by senior executives to inflate earnings/profitability for various reasons (e.g., see Healy and Wahlen, 1999), as has been highlighted in the recent cases of Enron, WorldCom, McAfee too.

*dummy*²¹ and re-estimate the results for both the firm performance measures. As before we focus on the estimated coefficient of the interaction term *reform* \times *domestic* and find that the differential effect of the reform was significantly negative for EBIT-to-Asset ratio among all domestic firms in our sample while the corresponding effect was insignificant for Tobin's Q.

Second, we wanted to check whether our results are independent of our choice of sample. Hence, we re-estimated our main results (as stated in Tables 4 and 5) after excluding top 10% largest firms in our sample. These results are summarized in Table 11, which still highlight the insignificant T&D's effect on Tobin's Q, but negative and significant effect of T&D on EBIT-to-Asset ratio when we look the coefficient associated with the interaction term between *reform* \times *domestic*.

As an additional robustness check we wanted to make sure that our results are not affected by any particular pattern in insiders' share ownership among these Russian firms. So, we re-examine our sample and delete all firm with any reported insiders' ownership. Next, we re-estimate the results for both the firm performance measures and stated the results in Table 12. Still, we get insignificant relationship between T&D dummy and Tobin's Q, but negative and significant effect of T&D on EBIT-to-Asset.

Further, we examine the sensitivity of our results to inclusion of tax rate faced by the firm (Table 13) as an additional control and find that our central results remain unchanged.

Also we attempt to find evidence of changes in earnings management in our sample after the introduction of T&D rules. To this end we regress T&D composite score as well as T&D dummy instrument on cash flow as a share of total assets and also cash and cash equivalents as a share of current assets, after controlling for firm age, size dummies, r&d, Herfindahl index (including various fixed effects). But we do not find any evidence of earnings management in the post-reform period.²² Taken together, we can assert that the estimated T&D effects constitute the pure T&D effect on firm operating and marketing performance and cannot be attributed to the competing explanations pertaining to earnings management after the reform.

Finally, we consider the possibility that after the introduction of T&D rules, Russian firms

²¹Recalling that Russia introduced CG reform in 2002, the first reporting year under these rules was 2003, for which the financial report did not become available until 2004. Accordingly, we constructed a Reform dummy that takes a value 1 for the years $i=2004-07$ and 0 otherwise. The reform dummy is more general than the T&D_dummy as it contains effects of share dilution, asset transfer, transfer pricing, merger & restructuring, bankruptcy, ownership restrictions and registrar risk, as stated in Brunswick UBS Warburg CG index constructed for the period 1999-2002 (Black et al. (2006)).

²²These results are available on request.

changed their method of expropriation from minority shareholders. Originally perhaps they were doing it through earnings manipulation. After the T&D rules changed, they may have started doing something else, e.g., asset sales etc. As a result, the minority shareholders in these firms did not experience any differences (Tobin's Q remained unchanged), but EBIT changed. In order to test this proposition, we first compared average growth of assets before/after the introduction of T&D rules. As discussed in section 2.2.1, simple mean comparisons using t-test shows that the average value of assets was lower after the T&D rule was introduced; However the significance of the T&D dummy (td.dummy) or its predicted value td.dummy_pr vanishes (although the estimated coefficient is still negative) when we control for all other factors (firm age, size dummies, r&d, Herfindahl index and various fixed effects) influencing growth of assets (using both definitions). So there is no robust evidence to suggest that the average growth rate of assets were lower in the post reform period, other things remaining unchanged, thus ruling out this competing explanation.

6 Conclusion

Using recent firm-level panel data from Russia, this paper investigates whether an introduction of CG reform around 2002-03 could boost Russian firm performance. We test these hypotheses by comparing and contrasting the market and accounting based measures of firm performance, using unique data and novel techniques. First, our analysis has been facilitated by the recent availability of S&P data on T&D for the top 80 listed firms in Russia for the period 2003-2007. We were able not only to consider Russian energy firms, but also to compare the specific cases of Russia's non-energy sector companies.

First we exploit the variation in T&D scores across firms and over time to identify a causal effect of T&D on selected measures of firm performance. Also given the potential non-randomness of firm-level T&D scores, we use FE-IV estimates to check the robustness of our T&D estimates. Next we make use of the IPO data to exploit the variation in performance between domestic and foreign listed firms to identify a causal effect of the reform on performance, using a natural experimental framework; in doing so, we also try to minimize any bias arising from potential simultaneity as well as unobserved trends. Also, firm's choice of being listed domestically/internationally is likely to be non-random and we minimize any potential estimation bias in this respect by focusing on those

firms who were listed before the introduction of the reform in 2004.

There is evidence from our fixed effects panel data estimates that introduction of various T&D rules has been met with only limited success to boost firm value especially for the all-important energy sector and these beneficial CG effects are weaker when we use IV estimates. More interestingly, the effect of T&D rules is generally negative when we consider EBIT-to-Asset ratio as a performance indicator. The latter is further confirmed when we consider the DID estimates using a natural experimental framework. There is a robust negative and significant differential effect of the CG reform on EBIT-to-Asset ratio among domestic listed firms while the effect remains insignificant for Tobin's Q measures in our sample. This holds not only in the two-period DID model, but also in the DID model using 2000-2007 firm-level panel data set-up, which is arguably superior to our earlier methods.

We argue that the differential effect of the CG reform on EBIT-to-Asset ratio and Tobin's Q provides support to our central hypothesis that the beneficial effects of the CG reform may be counteracted by the possible adverse effects arising from conflict of interest between the controlling owners and/or the outside shareholders. Also, the strong negative impact of T&D proxies on EBIT-to-Asset and insignificant effect of the same on Tobin's Q implies that post reform accounting numbers were very unreliable but the Russian stock market was pretty much aware of this unreliability. Although this is a case study of Russia, the results from this study has wider implications beyond the country, especially, in other post-communist economies, where state control on private businesses often remains firm even after launching radical privatization programs.

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7 Appendix I

The survey was conducted by the Standard & Poor's (S&P in short). It uses only publicly available information, thus emphasizing that, a company's transparency score should not be compared with its corporate governance score (CGS), or otherwise interpreted as a measure of governance standards. A CGS is our assessment of a company's corporate governance practices, which is not limited to information disclosure. In addition, these scores are assigned on the basis of an in-depth, interactive analytical process involving both public and non-public data.

7.1 Number of Companies Included

The latest 2007 study covers 80 largest public Russian companies with the most liquid stock. In 2006, S&P analyzed 70 companies. In 2005, 2004 and 2003 years the survey covered 54, 50 and 45 respectively.

7.2 Criteria to Select Companies

S&P used two criteria to select the companies in the study: size and liquidity. As a rule, the liquidity of stocks positively depends on the size of the company, but there are exceptions, especially in cases of minor free-float. There are more than 300 public companies in Russia, and this sample may not be representative of all Russian public companies. As the larger companies tend to be more transparent than smaller ones, our sampling method is likely to cause an upward bias in assessing transparency of the entire population of public Russian companies. On the other hand, as the companies included in the survey account for about 80% of the cumulative capitalization of the Russian stock market, they represent the major part of the Russian economy in terms of assets and operations.

7.3 S&P's Industries Covered

S&P covers such industries as Telecommunications, metallurgy, utilities, oil-and-gas, banking, food, consumer and retails and IT engineering. In our analysis we classify these industries between energy and non-energy sectors and compare those with all-industries together. We apply Classification Standard (GICS) codes to classify firms in our sample. As we focus on energy industry, GICS allowed us to identify 9 main energy sub-sectors within the energy industry. We have selected utilities and oil-and-gas producers as the two largest ones consisting 64% of overall energy sector. We provide the full firms sample in the Appendix 2.

7.4 Components of T&D Indices & Scoring

S&P have introduced six components and grouped these in three T&D scores. Subject to these clarifications, these are:

- T&D ownership structure and shareholders rights
- T&D financial and operational information
- T&D board and management structure

The first T&D consists of "ownership structure" and "shareholder rights" related issues, which represented by 17 questions each. The next T&D is a composition of "financial information" and "operational information" disclosure. These are based on thirty-one and sixteen questions

respectively. The last third T&D scoring consists of “board and management information” and “board and management remuneration,” based on sixteen and eight questions respectively.

S&P then calculated the scores for each answer in every section and provided with the total scores for each T&D for the observed companies. The score has a range of minimum 0% and maximum 100% for the best transparency & disclosure. S&P does not explain the methodology behind the percentage score as it uses specially designed method. We show the T&D scorings for each observed company in Appendix 2.

1. I. Ownership structure

- Disclosure of:
 - (a) The number and par value of issued ordinary shares.
 - (b) The number and par value of issued other types of shares disclosed.
 - (c) The number and par value of authorized but unissued shares of all types.
 - (d) The identity of the largest shareholder.
 - (e) The identity of holders of all large stakes (blocking: > 25%; controlling: > 50%).
 - (f) The identity of shareholders holding at least 25% of voting shares in total.
 - (g) The identity of shareholders holding at least 50% of voting shares in total.
 - (h) The identity of shareholders holding at least 75% of voting shares in total.
 - (i) The number and identity of each shareholder holding more than 10%.
 - (j) The indication that management is not aware of the existence of any stake exceeding 5% in except for those that are reported.
 - (k) Shareholding in the company by individual senior managers.
 - (l) Shareholding in the company by individual directors.
 - (m) The description of share classes.
 - (n) A review of shareholders by type.
 - (o) The percentage of cross-ownership.
 - (p) Information about listings on exchanges.
 - (q) Information about indirect ownership (e.g., convertible instruments).
- II. Shareholder rights
- Disclosure of:
 - (a) Corporate governance charter or corporate governance guidelines.
 - (b) Evidence of existence of a code of business conduct and ethics.
 - (c) The contents of the code of business conduct and ethics.
 - (d) Articles of association (including changes).
 - (e) Voting rights for each voting or nonvoting share.
 - (f) The way that shareholders nominate directors to the board.
 - (g) The way that shareholders convene an extraordinary general meeting (EGM).
 - (h) Procedure for initiating inquiries with the board.
 - (i) Procedure for putting forward proposals at shareholders meetings.
 - (j) Formalized dividend policy.
 - (k) Announcement of recommended dividends before the record date.
 - (l) Review of the last shareholders meeting.

- (m) Full general shareholder meeting (GSM) minutes.
- (n) Calendar of important shareholder future dates.
- (o) GSM materials published on the Web site.
- (p) Detailed press releases covering last corporate events.
- (q) Policy on information disclosure.
- III. Financial information
- Disclosure of:
 - (a) 1. The company's accounting policy.
 - (b) 2. The accounting standards it uses for its accounts.
 - (c) 3. Accounts according to local standards.
 - (d) 4. Annual financial statements according to an internationally recognized accounting standard (IFRS/U.S. GAAP).
 - (e) 5. Notes to annual financial statements according to IFRS/U.S. GAAP.
 - (f) 6. Independent auditor's report on annual financial statements according to IFRS/U.S. GAAP.
 - (g) 7. Unqualified (clean) audit opinion on annual financial statements according to IFRS/U.S. GAAP.
 - (h) 8. Audited IFRS/U.S. GAAP financial statements published before the end of April.
 - (i) 9. Unaudited IFRS/U.S. GAAP financial statements published before the end of April.
 - (j) 10. Audited IFRS/U.S. GAAP financial statements published before annual general meeting.
 - (k) 12. Unaudited IFRS/U.S. GAAP financial statements published before the end of June.
 - (l) 13. Disclosure of related-party transactions (RPTs): sales to/purchases from payables to/receivables from related parties.
 - (m) 14. Indication that RPTs are made on market or non-market terms.
 - (n) 15. Exact terms of RPTs.
 - (o) 16. Interim (quarterly/semi-annual) financial statements according to an international accounting standard (IFRS/U.S. GAAP).
 - (p) 17. Notes to these financial statements.
 - (q) 18. Whether these financial statements are audited or at least reviewed.
 - (r) 19. Consolidated financial statements according to the local standards.
 - (s) 20. Methods of asset valuation.
 - (t) 21. A list of affiliates in which the company holds a minority stake.
 - (u) 22. The ownership structure of affiliates.
 - (v) 23. A basic earnings forecast of any kind.
 - (w) 24. A detailed earnings forecast.
 - (x) 25. Segment analysis (results broken down by business line).
 - (y) 26. Revenue structure (detailed breakdown).
 - (z) 27. Cost structure (high degree of detail).
 - () 28. The name of the auditing firm.
 - () 29. Whether the audit firm is a top-tier auditor.

- () 30. Auditor rotation policy.
- () 31. How much the company pays in audit fees to the auditor.
- () 32. Whether auditor renders non-audit services.
- () 33. Non-audit fees paid to the auditor.
- IV. Operational information
- Disclosure of:
 - (a) Details of the type of business the company is in.
 - (b) Details of the products or services the company produces or provides.
 - (c) Output in physical terms.
 - (d) A description of functional relationships between key operating units within the group.
 - (e) Industry indicators that allow comparison with peers.
 - (f) Other financial indicators.
 - (g) Characteristics of fixed assets employed (including licenses).
 - (h) Efficiency indicators.
 - (i) A discussion of corporate strategy.
 - (j) Any plans for investment in the coming years.
 - (k) Detailed information about investment plans in the coming year.
 - (l) An output forecast of any kind.
 - (m) An overview of trends in its industry; regulatory environment with regards to industry.
 - (n) The market share for any or all of the company's businesses.
 - (o) Social reporting (e.g., Global Reporting Initiative).
 - (p) Overview of compliance with environmental law.
 - (q) Principles of corporate citizenship.
- V. Board and management information
- Disclosure of:
 - (a) The list of board members (names).
 - (b) Details about the current employment and position of directors.
 - (c) Other details: previous employment and positions, education, etc.
 - (d) When each director joined the board.
 - (e) The name of the chairman.
 - (f) Details about role of the board of directors at the company.
 - (g) A list of matters reserved for the board.
 - (h) A list of board committees.
 - (i) Names of all members of each existing committee.
 - (j) The bylaws on other internal audit functions besides the audit committee.
 - (k) Information about the ratio of in absentia and in person board meetings.
 - (l) Attendance record for board meetings.
 - (m) The list of senior managers not on the board of directors.
 - (n) The backgrounds of senior managers.

- (o) The non-financial details of the CEO's contract.
- (p) The number of shares held in other affiliated companies by managers.
- (q) on assessment of board of directors and on training provided to them.
- VI. Board and management remuneration
- Disclosure of:
 - (a) The decision-making process for directors' pay.
 - (b) The specifics of directors' pay, including the salary levels.
 - (c) The form of directors' salaries, such as whether they are in cash or shares.
 - (d) The specifics of performance-related pay for directors.
 - (e) The decision-making process for determining managerial (not board) pay.
 - (f) The specifics of managers' (not board) pay, such as salary levels and bonuses.
 - (g) The form of managers' (not board) pay.
 - (h) The specifics of performance-related pay for managers.

8 Appendix II

This table provides three T&D indices and its scores between 0% for worth transparency & disclosure to the maximum 100% for the best corporate performance. All the information obtained from S&P studies pertain to 2003 and 2007. Companies are classified using GICS industry classification. The energy firms are represented by a sample of 36 firms, where non-energy industry covered by 33 companies.

Appendix 1: First Stage Estimates of T&D Scores & T&D Dummy

The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Model Type	Fixed Effect OLS	Fixed Effect LOGIT
Dependent Variables	T&D Score	T&D Dummy
Firm Age	0.102***	0.00653
	0.018	0.0135
Size Q4	0.13	1.87
	0.0872	1.182
Size Q3	0.122*	2.109**
	0.067	0.852
Size Q2	0.0599	1.362*
	0.0487	0.742
Liability-to-Asset	-0.229*	-4.453**
	0.127	1.807
R&D-to-PPE	0.0802	0.0176
	0.0558	0.0109
Sales Growth	-0.00119**	-0.940*
	0.000529	0.496
Herfindahl Index	1.261	-3.277***
	0.906	0.869
Constant	-2.040***	29.40***
	0.391	8.127
$\text{Ln}[\sigma_u^2]$	-	1.172**
		-0.491
Firm/Sector Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes
Firm×Year Fixed Effect	Yes	Yes
Observations	283	283
Adjusted R^2	0.597	-
Number of Company ID	56	56

Table 2: Descriptive Statistics 2000-07

This table documents characteristics of all key variables. We consider two measures of firm performance, namely, market to book ratio (market capital/(total assets-market capital)) and earnings before interest and taxes (EBIT) as a share of total assets. The four T&D indices refer to financial, ownership, board and management and a composite index obtained by using factor analysis. All firms are domestically listed while only a subset of these listed firms are also internationally listed. We construct Herfindahl index as a measure of firm concentration (competition); a value of the index above 180 indicates high concentration. We also use few additional explanatory variables used extensively in the prior studies (e.g., Rajan and Zingales, 1995; De Haas and Peters, 2004; Cole, 2008; Driffeld and Pal, 2010) such as firm size, .

Dependent Variables	All Industries			Non Energy Sector			Energy Sector		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Performance/Firm Value Proxies									
Tobin's Q	207	1.83	1.39	104	2.11	1.77	103	1.55	0.77
EBIT-to-Asset	480	0.12	0.134	243	0.11	0.15	237	0.13	0.12
T&D Variables									
T&D Score	202	0.52	0.16	94	0.54	0.17	108	0.50	0.15
T&D Financial & Operational	202	0.54	0.18	94	0.56	0.18	108	0.52	0.18
T&D Ownership	202	0.52	0.18	94	0.55	0.20	108	0.49	0.16
T&D Board & Shareholders	202	0.48	0.16	94	0.50	0.18	108	0.46	0.14
Stock Market Listing									
Only Domestically Listed Firms	560	0.81	0.39	272	0.76	0.42	288	0.86	0.35
Foreign & Domestically Listed Firms	560	0.19	0.39	272	0.24	0.42	288	0.14	0.35
Firm Concentration									
Herfindalh Index	560	94	27.06	272	93.12	61.89	288	109.73	24.73
Other Characteristics									
Ln of Total Assets	390	14.32	1.72	200	13.82	1.60	190	14.85	1.68
Size Q4	390	0.48	0.5	200	0.58	0.49	190	0.37	0.48
Size Q3	390	0.17	0.38	200	1.8	0.38	190	0.17	0.37
Size Q2	390	0.18	0.38	200	0.13	0.33	190	0.23	0.42
Firm Age	464	1.91	26.56	248	18.36	24.19	216	19.95	29.08

Table 3: Mean Comparisons of Selected Characteristics Between Foreign and Domestic Listed Firms 2000-2007

This table compares the mean of selected characteristics between foreign & domestic listed and only domestic listed Russian firms between the year 2000-2007. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variables	Foreign & Domestic Listed (<i>control group</i>)	Only Domestic Listed (<i>treatment group</i>)	T-statistic
Ln[Asset]	13.85	14.49	-3.1935***
Age (years)	7.30	20.21	-5.5162***
Debt-to-Asset	0.40	0.46	-2.6800**
EBIT-to-Asset	0.10	0.12	-1.4370
Tobin's Q	2.63	1.17	3.7454***
Tobin's Q – Pre 2003	0.93	0.73	0.9627
Tobin's Q – Post 2003	2.87	1.69	4.3717***
EBIT-to-Asset – Pre 2003	0.07	0.11	-6642
EBIT-to-Asset – Post 2003	0.12	0.14	-0.8842

Table 4: Effects of T&D Scores on Tobin's Q, 2003-07

The dependent variable is Tobin's Q. T&D score is the composite T&D index obtained by using factor analysis on different components of T&D indices. Predicted T&D Score is the predicted value of the composite score T&D score using estimates shown in Table 1. All right hand side variables (except T&D scores) are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also year-level fixed effect and firm-level time-varying unobserved factors as in $firm \times year$ fixed effects. The significance levels at the 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Dependent Variables	(1)		(2)		(3)		(4)		(5)		(6)	
	All Industries	Tobin's Q	Energy	Tobin's Q	Non Energy	Tobin's Q	All Industries	Tobin's Q	Energy	Tobin's Q	Non Energy	
T&D Score	0.412	-0.16		0.625		0.987						
Predicted T&D Score	0.684	0.317					1.24		-2.536		6.663	
Firm Age	0.302*	0.158**		0.535			2.847		2.561		6.44	
Size Q4	0.16	0.0689		0.335			0.135		0.31		-0.0431	
Size Q3	-0.515	-0.555		-1.95			0.211		0.228		0.408	
Size Q2	0.611	0.559		1.496			-0.725		-0.495		-3.273*	
R&D-to-PPE	-0.361	-0.501		-1.075			0.549		0.616		1.843	
Constant	0.606	0.528		1.025			-0.626		-0.395		-2.255**	
Firm/Sector Fixed Effect	0.212	0.302		-0.224			0.48		0.592		1.063	
Year Fixed Effect	0.758	0.39		1.058			-0.0865		0.259		-0.951	
Firm x Year Fixed Effect	-0.0248	-0.0283**		-0.198			0.573		0.365		0.733	
Observations	0.0167	0.0137		0.174			-0.0329		-0.0108		-0.294	
Adjusted R^2	198.1	-132.3		461.1			0.028		0.0179		0.201	
Number of Company ID	286.5	166.6		450.2			90.62		-305.1		446.7	
	Yes	Yes		Yes			244.2		274.7		417.1	
	Yes	Yes		Yes			Yes		Yes		Yes	
	Yes	Yes		Yes			Yes		Yes		Yes	
	177	83		94			168		78		90	
	0.122	0.372		0.118			0.078		0.361		0.09	
	53	26		27			51		26		25	

Table 5: Effects of T&D Scores on Russian Firms' EBIT-to-Asset Ratio between 2003-07

The dependent variable is the log of (10+market to book ratio); Predicted T&D Score is the predicted value of T&D Score using estimates shown in I. All right hand side variables (except T&D Scores) are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also year-level fixed effect and firm-level time-varying unobserved factors as in $firm \times year$ fixed effect.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Industries	Energy	Non Energy	All Industries	Energy	Non Energy
Dependent Variables	EBIT-to-Asset	EBIT-to-Asset	EBIT-to-Asset	EBIT-to-Asset	EBIT-to-Asset	EBIT-to-Asset
T&D Score	-0.0391*	-0.114	-0.0019	-0.0685***	-0.0668*	-0.0654***
Predicted T&D Score	0.0226	0.107	0.0253	0.0196	0.0347	0.0201
Firm Age	0.0210***	0.0227**	0.0205**	0.0179**	0.0147	0.0195***
Size Q4	0.00686	0.0101	0.00784	0.00717	0.0141	0.00692
Size Q3	-0.153***	-0.182***	-0.011	-0.196***	-0.296**	-0.0456
Size Q2	0.0535	0.0698	0.0903	0.0617	0.117	0.0877
R&D to PPE	-0.0702*	-0.0581	-0.0612	-0.114**	-0.156	-0.0955**
Constant	0.0392	0.0612	0.0477	0.0488	0.113	0.0465
Firm Fixed Effect	-0.0345	-0.0342	-0.0314	-0.0672*	-0.107	-0.0598*
Year Fixed Effect	0.0301	0.0605	0.0342	0.0358	0.0758	0.0296
Firm×Year FE	-0.0135	-0.0124	-0.0153***	-0.022	-0.0301	-0.0134***
Observations	0.025	0.0268	0.00469	0.0252	0.0309	0.00357
Adjusted R^2	-0.204	-0.0835	-0.326*	-0.115	0.144	-0.277
Number of Company ID	-0.198	-0.332	0.191	0.209	0.445	0.171
	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes
	257	121	136	229	121	136
	0.132	0.235	0.158	0.149	0.243	0.233
	58	27	31	56	27	31

Table 6: Effects of T&D Dummy on Tobin's Q, 2003-07

Here we obtain the fixed effects estimates of Tobin's Q for the period 2003-07. The dependent variable is the Tobin's Q ratio. Predicted T&D Dummy is the predicted value of T&D Dummy using estimates shown in Table A1. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in $firm \times year$ fixed effect. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Industries	Energy	Non Energy	All Industries	Energy	Non Energy
Dependent Variables	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
T&D Dummy	0.183	-0.249*	0.412	-0.167	-0.337	0.00823
Predicted T&D Dummy	0.508	0.143	0.762	0.253	0.287	0.367
Firm Age	0.316*	0.163**	0.561	0.359**	0.227**	0.573*
Size Q4	0.175	0.0685	0.362	0.145	0.085	0.33
Size Q3	-0.518	-0.453	-2.134	-0.451	-0.622	-1.87
Size Q2	0.599	0.563	1.648	0.656	0.601	1.432
R&D-to-PPE	-0.369	-0.376	-1.196	-0.271	-0.527	-0.906
Constant	0.565	0.531	1.055	0.688	0.574	1.055
Firm/Sector Fixed Effect	0.196	0.343	-0.31	0.242	0.183	-0.155
Year Fixed Effect	0.69	0.376	0.969	0.805	0.399	1.085
Firm×Year Fixed Effect	-0.0232	-0.0308**	-0.164	-0.0256*	-0.0287**	-0.226
Observations	0.016	0.0139	0.176	0.0149	0.0104	0.209
Adjusted R ²	203.6	-143.5	495	192.9	-120.1	469.2
Number of Company ID	300	164.3	485	269.5	152.7	449.7
	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes
	177	83	94	177	83	94
	0.119	0.386	0.12	0.12	0.424	0.109
	53	26	27	53	26	27

Table 7: Fixed Effects Estimates of EBIT-to-Asset between 2000-07 Using T&D Dummy

T&D Dummy=1 if the firm had a positive T&D score in a year during 2003-07 and 0 otherwise; Predicted T&D Dummy is the predicted value of T&D Dummy using estimates shown in Table A2. The dependent variable is EBIT as a share of total assets (EBIT-to-Asset) in all columns. All right hand side variables (except T&D Dummy) are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in $firm \times year$ fixed effect. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variables	(1)		(2)		(3)		(4)		(5)		(6)	
	All Industries	EBIT-to-Asset	Energy	EBIT-to-Asset	Non Energy	EBIT-to-Asset	All Industries	EBIT-to-Asset	Energy	EBIT-to-Asset	Non Energy	EBIT-to-Asset
T&D Dummy	-0.0609***		-0.0113		-0.0135							
Predicted T&D Dummy	0.0127		0.0229		0.011		-0.00649***		-0.00354		-0.00582***	
Size Q4	-0.146***		-0.169*		0.0839*		0.0216**		0.0232		0.0185*	
Size Q3	0.0518		0.0865		0.0473		0.00812		0.0172		0.00958	
Size Q2	-0.0585		-0.0429		-0.0405		-0.204***		-0.284*		-0.0459	
R&D-to-PPE	0.0376		0.0804		0.0384		0.061		0.139		0.0909	
Firm Age	-0.0375		-0.0321		-0.0354		-0.118**		-0.143		-0.0950*	
Constant	0.0323		0.0637		0.0377		0.0483		0.137		0.0469	
Firm/Sector Fixed Effect	-0.0137		0.0614		-0.170***		-0.0697*		-0.0903		-0.0583*	
Firm×Year Fixed Effect	0.291		0.32		0.0518		0.035		0.0767		0.0298	
Observations	-0.124***		-0.118***		0.0147***		-0.0234		-0.0243		-0.0128	
Adjusted R^2	0.0259		0.0297		0.00396		0.026		0.0365		0.343	
Number of Company ID	2.558***		2.565***		-0.161*		-0.897		-24.31		1.337	
	0.51		0.608		0.0834		14.9		32.23		14.17	
	Yes		Yes		Yes		Yes		Yes		Yes	
	Yes		Yes		Yes		Yes		Yes		Yes	
	257		121		136		227		106		121	
	0.153		0.287		0.185		0.156		0.226		0.242	
	58		27		31		56		27		29	

Table 8: Panel Difference-in-Difference Estimates of Performance Using T&D Dummy, 2000-07

Here we obtain the panel fixed effect difference-in-difference (DID) estimates of firm performance measures. The dependent variable is log of Tobin's Q in columns (1)-(2) while it is EBIT as a share of total asset (EBIT-to-Asset) in columns (3)-(4). T&D Dummy=1 if the T&D Score was positive in a year and 0 otherwise while Predicted T&D Dummy is its predicted value. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in $firm \times year$ fixed effect. We cannot include the year fixed effects as this is included in the T&D Dummy. The significance levels at the 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Dependent Variables	(1)		(2)		(3)		(4)	
	Tobin's Q		Tobin's Q		EBIT-to-Asset		EBIT-to-Asset	
	All	Dropped	All	Dropped	All	Dropped	All	Dropped
Domestic								
T&D Dummy		-0.797				0.0551***		
Domestic \times T&D Dummy		0.642				0.016		
Predicted T&D Dummy		1.011				-0.0769***		
		1.107		-0.0997***		0.0179		0.00415**
Domestic \times Predicted T&D Dummy				0.036				0.00206
				0.407				-0.00514**
				0.647				0.00201
Firm Age		0.258**		0.286**		0.0199***		0.0177***
Size Q4		0.124		0.117		0.00598		0.00526
Size Q3		-0.265		-0.484		-0.068		-0.125**
Size Q2		0.639		0.533		0.0473		0.0523
R&D-to-PPE		-0.102		-0.281		-0.0355		-0.0843**
Constant		0.652		0.463		0.0343		0.042
		0.398		0.0879		-0.0239		-0.0470*
		0.805		0.491		0.0207		0.0255
		-0.0244*		-0.00197		-0.00131		-0.0026
Firm/Sector Fixed Effect		0.0146		0.0158		0.00264		0.0026
Firm \times Year Fixed Effect		103.7		17.21		16.35*		6.286
		211.7		173.3		8.166		8.342
		Yes		Yes		Yes		Yes
		Yes		Yes		Yes		Yes
Observations		183		173		337		284
Adjusted R^2		0.13		0.117		0.082		0.12
Number of Company ID		53		51		58		56

Table 9: Sector-Specific Difference in Difference Estimates of Performance Using Predicted T&D Dummy, 2000-07

This table shows the difference in difference estimates of performance (EBIT-to-Asset and Tobin's Q) for energy and non-energy sector firms using the instrumented T&D index, namely, Predicted T&D Dummy, predicted from using Table A2 estimates. The dependent variable is log of market to book ratio in columns (1)-(2) while it is EBIT as a share of total assets in columns (3)-(4). All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in $firm \times year$ fixed effect. The significance levels at the 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Dependent Variables	(1)		(2)		(3)		(4)	
	Energy	Non Energy	Energy	Non Energy	Energy	Non Energy	Energy	Non Energy
	Market to Book				EBIT-to-Asset			
Domestic	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
Predicted T&D Dummy	-0.121**	-0.112	-0.112	-0.112	-0.00186	-0.00186	0.00632***	0.00632***
Domestic×Predicted T&D Dummy	0.0583	0.0872	0.0872	0.0872	0.00375	0.00375	0.00147	0.00147
Firm Age	0.0584	0.0763	0.0763	0.0763	-0.00421	-0.00421	-0.00691***	-0.00691***
Size Q4	0.0473	0.191	0.191	0.191	0.00429	0.00429	0.00142	0.00142
Size Q3	0.159	0.477*	0.477*	0.477*	0.0343**	0.0343**	0.0129*	0.0129*
Size Q2	0.123	0.263	0.263	0.263	0.0132	0.0132	0.00689	0.00689
R&D to PPE	-0.185	-1.731	-1.731	-1.731	-0.189	-0.189	-0.0389	-0.0389
Constant	0.576	1.299	1.299	1.299	0.136	0.136	0.074	0.074
Firm/Sector Fixed Effect	-0.0583	-0.858	-0.858	-0.858	-0.113	-0.113	-0.0595	-0.0595
Firm×Year Fixed Effect	0.561	0.768	0.768	0.768	0.131	0.131	0.0442	0.0442
Observations	0.515	-0.284	-0.284	-0.284	-0.0731	-0.0731	-0.0316	-0.0316
Adjusted R ²	0.365	0.84	0.84	0.84	0.0771	0.0771	0.0236	0.0236
Number of Company ID	-0.0136	-0.19	-0.19	-0.19	-0.00289	-0.00289	-0.0130***	-0.0130***
	0.013	0.182	0.182	0.182	0.00332	0.00332	0.00398	0.00398
	-208.2	303.5	303.5	303.5	1.684	1.684	5.273	5.273
	219.2	344.8	344.8	344.8	25.02	25.02	7.697	7.697
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	79	94	94	94	131	131	153	153
	0.461	0.089	0.089	0.089	0.171	0.171	0.21	0.21
	26	25	25	25	27	27	29	29

Table 10: Fixed Effect Panel DID Estimates of Firm Performance using CG Reform Dummy, 2000-07

Here we replace the T&D Dummy or its predicted value by a second binary variable that we call “Reform” dummy. The Reform dummy takes the value 1 for the period 2004-07 and the value 0 otherwise. This is because we know that the effect of Russian CG reform, although initiated in the year 2002, was actually implemented in the year 2003-04. The dependent variable is Tobin’s Q in columns (1)-(3) and EBIT-to-Asset in columns (4)-(6). Other control variables are same as in Tables 4 and 5. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in $firm \times year$ fixed effects. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables	All Industries	Energy	Non Energy	All Industries	Energy	Non Energy
	Tobin’s Q			EBIT-to-Asset		
a: Domestic Dummy	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
b: Reform Dummy	-0.688	-0.365	-0.97	0.0786***	0.113*	0.0483**
	0.695	0.363	0.991	0.0287	0.0605	0.0231
a × b	0.705*	0.306	0.986	-0.0459**	-0.0255	-0.0603***
	0.375	0.327	0.85	0.0227	0.0551	0.0197
Other Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm/Sector Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm × Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183	85	98	334	152	182
Adjusted R^2	0.118	0.407	0.091	0.071	0.17	0.065
Number of Company ID	53	26	27	58	27	31

Table 11: DID Estimate of T&D's Effect on Firm Performance after Deleting Top 10% of the Sample

This table shows the performance estimates for the bottom 90% firms using alternative specifications. The dependent variable is Tobin's Q in columns (1)-(3), while it is EBIT-to-Asset in columns (4)-(6). Other variables are as in Tables 4 and 5. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in firm \times year fixed effect. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variables	(1)		(2)		(3)		(4)		(5)		(6)	
	Dropped		Tobin's Q		Dropped		Dropped		EBIT-to-Asset		Dropped	
a: Domestic Dummy												
b: T&D Dummy	-0.839						0.0603***					
	-0.734						0.0215					
a \times b	1.361						-0.0989***					
	-1.575						0.0229					
c: Predicted T&D Dummy										0.00357		
				-0.114*						0.00301		
				-0.0636						-0.00485*		
a \times c				0.0888						0.00291		
				-0.165								
d: Reform												0.0397
												0.0269
a \times d												-0.0292*
												-0.0175
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm/Sector Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm \times Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	111	111	105	111	111	111	197	197	163	197	197	197
Adjusted R^2	0.157	0.139	0.118	0.139	0.139	0.139	0.126	0.126	0.176	0.176	0.176	0.068
Number of Company ID	34	34	31	34	34	34	43	43	37	37	37	43

Table 12: Effect of T&D on Performance for Firms without Any Insiders' Shareholding

As a robustness check in this table we present the estimates for firms without any insider holding so as to highlight on the pure agency problems. The dependent variable is Tobin's Q in columns (1) and (3). The dependent variable is EBIT-to-Asset in columns (2) and (4). Other control variables are as in Tables 4 and 5. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in firm \times year fixed effects. The significance levels at the 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Model	(1)	(2)	(3)	(4)
Year Window	2003-07		2000-07	
Dependent Variables	Tobin's Q	EBIT-to-Asset	Tobin's Q	EBIT-to-Asset
a: Predicted T&D Score	0.4160	-0.4680**		
	2.6470	0.2180		
b: Domestic Dummy			Dropped	Dropped
c: Predicted T&D Dummy			-0.1080**	-0.0007**
			0.0410	0.0003
b \times c			0.4020	-0.0439***
			0.6800	0.015
Constant	92.600	-12.520	35.100	2.589
	304.40	16.380	216.700	9.500
Other Controls Variables	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Firm \times Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	142	193	146	242
Adjusted R^2	0.0780	0.1730	0.1240	0.1040
Number of Company ID	43	47	43	47

Table 13: Effect of T&D on Firm Performance After Controlling for Russian Corporate Taxes

This table examines the sensitivity of our estimates to tax payments by sample firms. To this end, we include tax rate faced by each sample firm as an additional argument. The dependent variable is Tobin's Q in columns (1) and (3). The dependent variable is EBIT-to-Asset in columns (2) and (4). Other control variables are as in Tables 4 and 5. All continuous right hand side variables are lagged by one year. All regressions not only control for firm-level time invariant unobserved fixed effects, but also firm-level time-varying unobserved factors as in firm \times year fixed effect. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Model	(1)	(2)	(3)	(4)
	2003-07		2000-07	
Dependent Variables	Tobin's Q	EBIT-to-Asset	Tobin's Q	EBIT-to-Asset
a: Predicted T&D Score	0.823	-0.4110*		
b: Domestic Dummy	2.9050	0.2130	Dropped	Dropped
c: Predicted T&D Dummy			-0.0994*	-0.0007**
b \times c			0.0568	0.0003
			0.0439	-0.0309**
			0.1110	0.0145
Tax Rate Proxy	-1.2420	0.0687	-0.8900	0.0305
Constant	0.9800	0.0762	0.9690	0.0734
	86.910	-4.0180	35.490	2.8170
	241.500	13.5100	184.800	9.5900
Other Control Variables	Yes	Yes	Yes	Yes
Firm/Sector Fixed Effect	Yes	Yes	Yes	Yes
Firm \times Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	168	229	173	284
Adjusted R^2	0.0900	0.1950	0.1120	0.1100
Number of Company ID	51	56	51	56

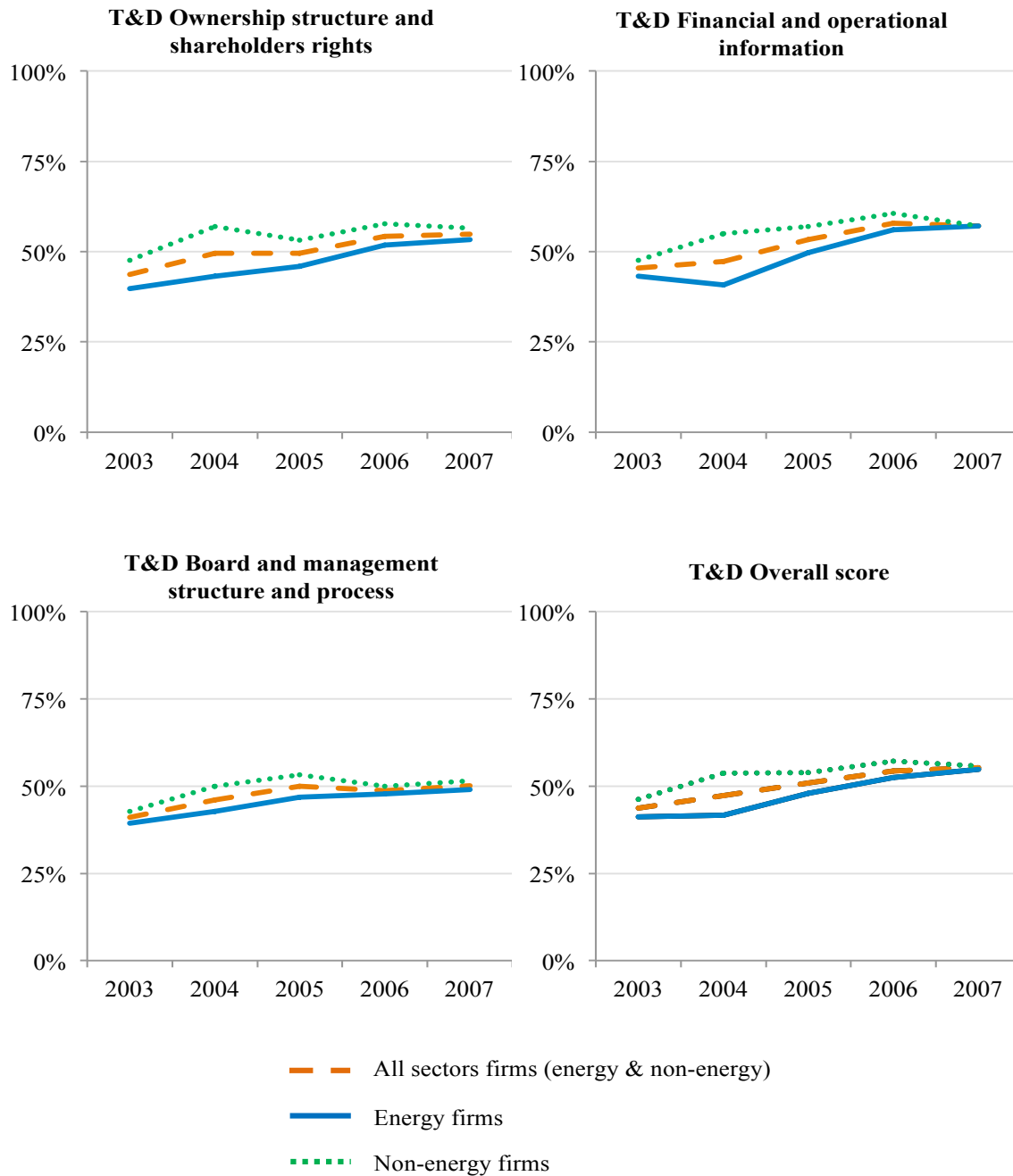
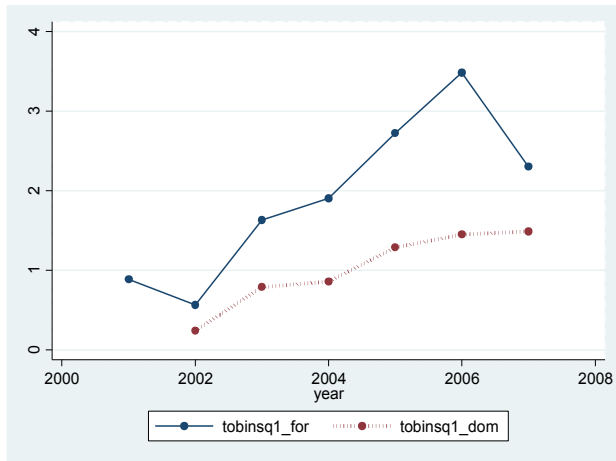
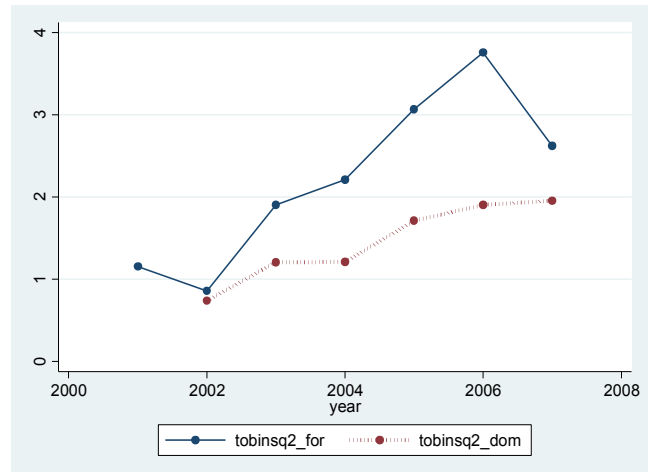


Figure 1: There are four transparency & disclosure indexes (T&D) as proxies of corporate governance (CG) provided by S&P year-to-year studies between 2003-2007. T&D overall measures general implementation of CG code, T&D financial and operational information defines openness and availability of accounting data, employed standards, consistency with regulations, explanation and description of the firm and its market position, etc. T&D ownership demonstrates the data availability on the ownership structure. T&D board and shareholders shows the disclosure of the management structure. T&D measured in percentages with maximum 100% where higher score means better T&D within company. The same T&D indexes, but over shorter period of time were implied by Black et al., 2006.

Average annual variation in Tobin's Q v1 (foreign and domestic listed firms)



Average annual variation in Tobin's Q v2 (foreign and domestic listed firms)



Average annual variation in EBIT share (foreign (ebit_ta_for) and domestic listed firms (ebit_ta_dom))

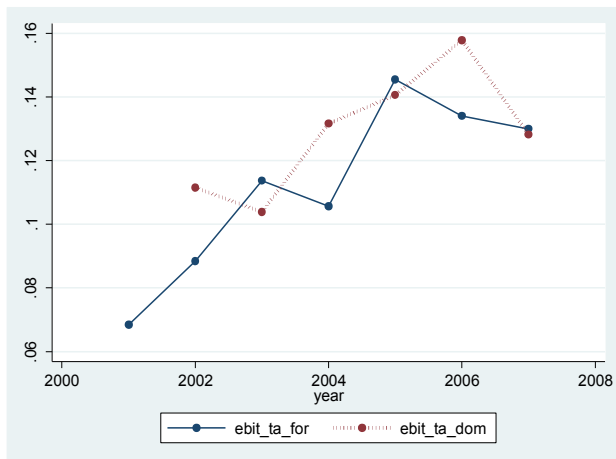


Figure 2: Trends in average annual firm-performance indices 2000-2007