Measuring Private Information Trading In Emerging Markets

Olesya V. Grishchenko, Lubomir P. Litov and Jianping Mei[1]

First Draft: December 2001
This draft: March 2002

Abstract

We examine the dynamic relation between return and volume of individual stocks in Russia and other emerging markets. In a simple model in which investors trade to share risk or speculate on private information, Llorente, Michaely, Saar, and Wang (2001) show that returns generated by risk-sharing trades tend to reverse themselves while returns generated by private information trades tend to continue themselves. We apply this theoretical framework to analyze the relation between daily volume and first-order return autocorrelation for individual stocks traded in Russia and other emerging markets. We find strong evidence of return continuation following high volume days, suggesting the presence of private information trading in emerging markets. Using corporate announcement data from Russia, we discover that the private information trading is especially strong around major corporate event dates. In addition, we find stocks in countries that enforce insider-trading law and provide better investor protection exhibit less private information trading. These results suggest a possible measure of "information asymmetry" for ranking emerging market stocks.

---

[1] Doctoral students and associate professor of finance at New York University. Please send inquiries to Jianping Mei, Department of International Business, Stern School, 44 West 4th Street, New York, NY 10012-1126. Tel: 212-998-0354, FAX: 212-998-4221. Email: jmei@stern.nyu.edu. We like to thank Kent Hargis, Joel Hasbrouck, Gideon Saar, Gil Schorr, Jiang Wang, for helpful discussions. We are grateful to Rebecca Pei for her excellent research support.

1 Introduction

Several recent papers have investigated the impact of information asymmetry on foreign equity holdings. Brennan and Cao (1997) demonstrate that a disadvantage in information may help explain foreign investors' home bias.[2] Bhattacharya, Daouk, Jorgenson, and Kehr (2000) also show that the presence of unrestricted insider trading has caused prices to fully incorporate firm information before its public release in Mexico. Bhattacharya and Daouk (2002) further discover that lack of prosecution of inside trading create a hazardous investment environment for foreign investors in emerging markets. This tends to scare away foreign investment and thus drive up cost of capital. They call for the development of methodology for ranking emerging stock markets in terms of their "market integrity," so that foreign investors could be warned against treacherous markets where insider trading is rampant.

This paper takes a small step towards the development of a measure of "information asymmetry" for emerging market stocks based on a dynamic volume-return model of Llorente, Michaely, Saar, and Wang (2001, LMSW thereafter). The essence of the model is that intensive trading volume together with stock return autocorrelation can help us identify firms with high degree of speculative private information trading. In periods of high volume, stocks with a high degree of speculative trading tend to exhibit positive return autocorrelation and stocks with a low degree of speculative trading tend to exhibit negative return autocorrelation. Using US data, LMSW show that the differences in the dynamics of returns and volume across stocks are closely associated with different degrees of information asymmetry. This paper extends their work to measure the degrees of information asymmetry in Russian as well as other emerging market stocks. Measuring information trading in emerging markets is interesting for several reasons. First of all, there is much less protection of shareholder rights, unequal treatment of foreign and domestic stockholders, lack of insider trading prosecution, and underdeveloped legal environment towards the regulations of financial markets. All these factors may lead to more private information trading compared to developed countries.

[2] Albuquerque, Bauer and Schneider (2001) also develop a framework for characterizing asymmetric information in international equity markets. In addition, Bhattacharya, Daouk, and Walker (2001) point out that the practice of earnings management makes it harder for foreign investors to obtain relevant information about emerging market firms. They show that earnings management in a country is linked to a decrease in trading in the stock market of that country and is weakly linked to an increase in U.S. home bias towards that country.

Secondly, few countries have the kind of strong insider trading disclosure rules and enforcement as in the US. As a result, the investment public is often poorly informed of insider trading activity. While this paper has not developed a direct measure of insider trading in emerging markets, we believe that our measure of private information trading does contain an information on insider trading.

Russian market is of particular interest, because it is often considered one of the most opaque and hazardous markets in the world. Until recently, its legal environment was so murky that Russia was not even rated by many international rating agencies. It is a market where undisclosed insider trading is a real possibility and where superior information of insiders and local investors would be incorporated in stock prices through their trades. By applying the theoretical framework of LMSW to analyze the relation between daily volume and first-order return autocorrelation for individual stocks traded in Russia and other emerging markets, we find strong evidence of private information trading for a majority of Russian stocks and for a large percentage of emerging market stocks. Moreover, we find that speculative trading in Russian stocks is to some extent related to poor corporate governance. Using corporate announcement data from Russia, we further discover that private information trading is especially strong around major corporate event dates. In addition, our results show that stocks in countries that enforce insider trading law and provide better investor protection exhibit less return continuation following high volume days.

We examine the robustness of our results along several dimensions. First, we decompose both the volume and return series into systematic and idiosyncratic components. We find that the relation between information asymmetry and the influence of volume on the autocorrelation of returns remains when we remove the market-wide variations from the analysis. Second, we examine whether stocks exhibit less return continuation following high volume days after the introduction of ADR. This is to be expected, since the introduction of ADR makes it possible for informed traders to hide their trades in the different markets. Third, we try alternative econometric specifications of our tests and find that they do not change our results. Fourth, we show that our findings are not sensitive to alternative definitions of trading volume.

This paper also makes a methodological contribution to the private information literature by combining the traditional event study approach with LMSW regressions.

Traditionally, studies of private information (insider) trading use cumulative abnormal returns around event windows to measure the impact of private information on stock returns (see, for example, Bhattacharya, Daouk, Jorgenson, and Kehr (2000) and Banerjee and Eckard (2001)). The intuition behind our approach is that insiders and others with material information related to corporate event would exploit their information advantage by trading against uninformed outsiders. Thus, conditional on corporate event and high trading volume, we are more likely to observe return continuation when there is information asymmetry.

It is worth noting that our study does not provide a direct measure of insider trading. Rather it measures the degree of speculative trading based on private information. Conceptually, private information may come from two main sources, inside information and information derived from research by security analysts. As Bainbridge (2000) notes, insider trading is hard to measure empirically by the subject's illegality. The only source of data concerning legal trades is the trading reports filed by corporate insiders in the US but such stringent reporting seldom exists in emerging markets. While our study has shown a significant presence of private information trading in emerging markets, it does not necessarily mean the strong presence of insider trading. However, they do indicate a great deal of information asymmetry staked up against uninformed local and foreign investors.

The rest of the paper is organized into the following sections: Section II presents institutional details of the Russian market, its data source, our methodology and empirical results. Section III describes the data, methodology and empirical results using overall Emerging Markets. Section IV concludes.

2 The Study of the Russian Market

Our study concentrates on 28 large Russian stocks, which constitute about 93% of the market capitalization of all companies traded on the Russian Trading System (RTS).[3] RTS is the largest and the most active electronic trading system in Russia. Its purpose is to organize different segmented regional stock markets into one unified, coordinated system. All trading on

[3] Although there are other stock exchanges in Russia such as Moscow Interbank Currency Exchange (MICEX), Moscow Stock Exchange (MSE) and number of regional exchanges, RTS provides most liquidity for the Russian market. For this reason we concentrate on the RTS stocks.

the RTS Stock Exchange is performed electronically. RTS is a universal automated screen based system, constituting both dealer-driven and order-driven markets. RTS traders input quotes in the system and trades are either agreed over the phone or the system matches orders according to a special algorithm to complete transactions. Over 90% of trades executed in the Russian Trading System are processed electronically. The RTS market index is value-weighted average index of 254 companies.

Most companies in our study come from three industries: oil and gas, telecommunications, and utilities. These industries, and oil and gas in particular, are the most important to Russian economy. In general, major companies of three aforementioned industries define the growth of Russian economy. Their stocks are the most liquid ones and represent the most market activity on the Russian Market. We do not include second tier stocks in the study because of illiquidity and missing data problem.[4] There are 23 common stocks, which represent 87% of Russian market capitalization, and 5 preferred stocks, which represent 6% of market cap. In addition, we include in the sample Russian gas giant Gasprom, which is traded on Moscow Stock Exchange. Our sample period starts on September 1, 1995 and ends on November 1, 2001. However, some of the first tier companies such as Aeroflot, Sberbank, Sibneft, and Yukos start their RTS listing later in 1996-1997.

The sample consists of daily observations on closing prices, returns, daily volume defined as daily number of shares traded, and number of shares outstanding. Because RTS database does not adjust for splits, we have made a backward split adjustment. 11 out of 23 stocks have an ADR listing started during the period of study. We have collected data on ADR trading from Bloomberg. Appendix Table 1A provides some characteristics of the common and preferred stocks used in the study. [5]

[4] Indeed, even first tier stocks are subject to this problem. For example, Yukos, one of the largest oil companies in Eastern Russia, had a trading halt for more than a year and a half. Federal Commission for Stock Market of Russia suspended Yukos' trading because of the absence of company's quarterly reports on stocks and accounts. During the same period RTS had to suspend trading of more than 100 stocks for the same reason. Illiquidity is also a serious issue in the financial markets of emerging countries, but we do not plan to address it in this paper.

[5] For each stock we report sample period, RTS weights, mean and standard deviation of daily return, mean and standard deviation of daily raw turnover, and market capitalization as of November 1, 2001. Number of trading days differs dramatically from one company to another even within the first tier sample. Market capitalization of common stocks constitutes $48 billions. Market cap of preferred shares is a little more than $1 billion. One can compare Russian market capitalization to such companies as Sun Microsystems Inc., or Hewlett-Packard Co., whose market caps are $43 and $44 billion respectively.

2.1 Methodology

In this section, we begin by briefly introducing the LMSW model, in which investors trade for both hedging and information reasons. We use the model to demonstrate how the dynamic relation between return and volume depends on the information asymmetry between investors. Since our goal here is just to establish the intuition behind our study, we will simply describe the economy and provide the theoretical results. Interested readers are referred to the original paper of LMSW.

The economy is defined on a discrete time sequence and there are two traded securities, a riskless bond and a stock. The bond is in unlimited supply at a constant non-negative interest rate. The stock's dividend D_{t+1} at the end of the time period is the sum of two components F_t and G_t: $D_{t+1} = F_t + G_t$. There are two classes of investors. Investors are identical within each class, but are different in their endowments and information. Both groups observe F_t, but group 1 has an information advantage of also observing G_t. LMSW measures the degree of information asymmetry using σ_G^2. In addition, investors are also endowed with a non-traded asset with payoff N_t, and the random endowment being $Z_t^i, i = 1,2$. Investors maximize their expected utility over their next period wealth using a common exponential utility function conditional on their respective information set. All shocks to the economy are assumed to be normally distributed with zero mean and constant variances. In addition, they are assumed to be mutually independent, except for the payoff to non-traded asset and dividend on the stock, which are correlated.

LMSW pointed out that the above model provides two important motives for trading: hedging risk and speculation on future returns by informed investors. Each investor holds the stock and the nontraded asset in his portfolio. Since the returns on the two assets are correlated, as his holding of the nontraded asset changes, each investor wants to adjust his stock positions to maintain an optimal risk exposure. This generates hedging trade in the model. On the other hand, some investors might have private information about future stock returns. As new private information arrives, they take speculative positions in the stock, which generates informational trade in the model.

LMSW solve for the equilibrium stock price and trading volume by providing the following dynamic volume-return relationship:

$$E[R_{i,t+1} \mid R_{i,t}, V_{i,t}] = C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} \qquad \textbf{(1)}$$

LMSW point that "…price changes generated by speculative or allocational trading must be accompanied by high volume, but those generated by public news about payoffs do not. In other words, by conditioning on the current volume return pair, we can (imperfectly) identify trade-generated returns…. Based on those returns, we can further examine how they might predict future returns. When all trades are hedging trades, current returns together with high volume predict strong reversals in future returns."[6] This implies $C_2 < 0$. However, if speculative trades are more important, current returns together with high volume predict weaker reversals (or even continuation) in future returns, which implies a small negative C_2 or even a positive C_2.[7] LMSW have shown that, *ceteris paribus*, C_2 increases with the degree of information asymmetry.[8] It is easy to see from equation (1) that, even in the case of $C_1 = 0$, speculative or hedging trading generates time-varying expected returns.[9]

We estimate the above equation of LMSW, which asserts that in the absence of asymmetric information investors trade to hedge risk and, therefore, returns are more likely to reverse themselves. However, when the trades are speculative, returns tend to continue themselves. We identify trade-generated returns when we condition on current return and volume. We realize that there is a discrepancy between theoretical model and empirical analysis. Theoretical model of LMSW uses dollar returns per share and normalized volume, while we use log returns (because stock prices in emerging markets are not stationary) and detrended log turnover as in LMSW. To test the general form of the proposition, we first estimate "plain vanilla" regression:

---

[6] See also Campbell, Grossman and Wang (1993).

[7] Here we will use private information trades and speculative trades interchangeably.

[8] To be more precise, C_2 increases with the degree of information asymmetry σ_G^2.

[9] See Harvey (1991, 1995) and Bekeart and Harvey (1995, 2000) for various factors affecting expected returns in emerging markets.

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + \varepsilon_{i,t+1} \quad \textbf{(2)}$$

Here, C_1 represents the unconditional return autocorrelation provided the correlation between volume and return is small. C_2 shows whether stocks are dominated by hedging trades or trades generated by private information. Thus, statistically positive C_2 coefficients suggest significant informational trades, whereas statistically negative C_2 coefficients indicate dominating hedging trades. If some stocks have insignificantly different from zero C_2 coefficients we say that the stocks may have both components, which balance each other out. In principle, all stocks have both informational and hedging trades. When either of them dominates, C_2 becomes statistically significant.

To estimate the above model, we will use daily continuously compounded return and daily trading volume. Following earlier studies, our study uses daily returns (such as LMSW, and Stickel, Verrecchia (1994)). We define daily returns as $R_{i,t} = \log(P_{i,t} + D_{it}) / P_{i,t-1}$, and daily turnover as $V_{i,t} = \log(VOL_{i,t} / N_{i,t}) - \frac{1}{20}\sum_{j=1}^{20} \log(VOL_{i,t-j} / N_{i,t-j})$, where $P_{i,t}$ is the daily close price, $VOL_{i,t}$ is the daily number of shares traded, and $N_{i,t}$ the total number of outstanding shares in day *t* for company *i*. We use daily turnover as a measure of trading volume for individual stocks. Lo and Wang (2000) provide theoretical justification for the reasoning of using daily turnover as a proxy for the trading volume of individual stocks. We found that daily time series of turnover are nonstationary, so we measure turnover in logs and detrend the series. Following LMSW, we change zero trading volume to a small constant 0.00000255 before taking logs. Moreover, we detrend resulting series by subtracting 20-day moving average. We have also tried 60-day and 120-day moving average, but in this case our series seem to show over-smoothing for RTS sample.

We also test dynamic volume-return relationship by using returns and turnover in excess of the market. In this way, we are able to remove market effect of the trade and concentrate on the idiosyncratic component of individual stock relation between return and volume. Market component in returns and turnover is associated with hedging trades while

company-specific (idiosyncratic) component – with informational trade. In this way it is easier to discover the presence of informational trades. We do it by running the following regression:

$$R_{i,t+1} - R_{m,t+1} = C_0 + C_1\left(R_{i,t} - R_{m,t}\right) + C_2\left(R_{i,t} - R_{m,t}\right)\left(V_{i,t} - V_{m,t}\right) + \varepsilon_{i,t+1} \qquad \textbf{(3)}$$

We define market here as 254 companies traded on the Russian Trading System. Consistent with this definition, we define daily market return as continuously compounded return on RTSI index. As was noted before, RTSI index is value-weighted average of RTS stocks. We have constructed ourselves market volume as a value-weighted average of log turnovers of the stocks included into our study. Stock weights are assigned based on individual daily market capitalization. Our definition of market volume is motivated by the fact that our study includes the most liquid and active stocks of Russian market.

Theoretical part of the LMSW suggests that price changes generated by informational trade tend to continue on high trading volume days. In light of this, we examine relationship between volume and return around major corporate events. In this paper, we focus on the announcement and holding of Russian corporate meetings. They are important corporate events, because corporate ownership structure, board structure, control rights, and asset disposition are determined in those meetings. In addition, we include press conferences, which typically involve news on corporate scandals. We conjecture that private information trading tends to be heavy when some important news is expected to arrive on the market. While news is not revealed yet to uninformed traders, insiders already know it. Hence, they start trading a little before the major news comes to the market. To detect such informational trade, we have to define event window during which we expect the trading volume to be high. We define it as 10 days prior to the announcement of the corporate meeting, period between announcement date and effective date of the meeting, and 10 days after the effective date of the meeting. For each stock we create a corporate dummy variable $D_{i,t}^{c}$, which is one when the date belongs to the event window of stock *i*, and zero otherwise. So, we estimate the following regression to measure information asymmetry during the event trading periods:

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} D_{i,t}^{c} + \varepsilon_{i,t+1} \qquad \textbf{(4)}$$

We have obtained data about corporate announcements and their dates from Bloomberg. We report the dates of events in Table 3A in Appendix. We also estimate the following regression, which accounts for overall market effect conditional on event trading periods:

$$R_{i,t+1} - R_{m,t+1} = C_0 + C_1\left(R_{i,t} - R_{m,t}\right) + C_2\left(R_{i,t} - R_{m,t}\right)\left(V_{i,t} - V_{m,t}\right)D_{i,t}^{c} + \varepsilon_{i,t+1} \qquad \textbf{(5)}$$

Next, we study how the nature of trades changes after the introduction of American Depositary Receipts (ADRs). This is an important part of the study because informational intermarket linkages affect the intensity of speculative trading. Domowitz, Glen, and Madhavan (1998) point out that in fairly efficient markets international cross-listing facilitates the flow of information between the markets and improves market liquidity. Both effects induce market participation of foreign investors otherwise precluded from trading on this stock. This increases the precision of public information, and as a consequence, decreases the amount of trades based on private information. In the case when intermarket links are not well established, cross-listing makes an information diverse from local market thereby diminishing market quality. In such a market, insider trading is not much precluded by international cross-listing. We test this conjecture using Russian ADRs. They have been introduced for the following stocks: Gasprom, Irkutskenergo, Lukoil, Rostelecom, Sibneft, Surgutneftegaz, Unified Energy Systems (UES), Tatneft, and Yukos. Note that for all of the above companies ADRs for common shares only were introduced. In addition, Surgutneftegaz issued ADRs for preferred class of shares. We create a dummy variable $D_{i,t}^{adr}$, which is zero before company's ADR listing event on a foreign market and one afterwards. We estimate the following regression:

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} D_{i,t}^{adr} + \varepsilon_{i,t+1} \qquad \textbf{(6)}$$

In this way we identify if the ADR introduction helps traders to hide their information trades or the market becomes more transparent. We conclude that in more transparent market it is more difficult to trade on private information. As a result, we should see the lower percentage of

positive C_2 coefficients. If international cross-listing does not result in improved market liquidity, we will not see a structural break in the stock's trading.

2.2 Empirical Results

In this section we present empirical results of the implications of LMSW model. We report results of all the regressions described above.

2.3.1 Basic Test of the Dynamic Volume-Return Relation

For each stock in our sample, we estimate parameters C_0, C_1, C_2 of equation (2). Table 1a reports results from regression (2) for these stocks. It reports estimated coefficients along with t-statistics for each stock, adjusted R^2, and the number of observations available for each stock. We mainly concentrate on C_2 coefficient, which captures the dynamic volume-return relationship. We find that 57% of C_2 coefficients are positive and 25% are significantly different from zero at 5% level. On average, C_2 coefficient is 0.020 for this sample. LMSW conjecture that larger stock's size is associated with its lower informational asymmetry and find this relationship for US stocks. They find that C_2 is positive for small stocks and decreases as firm size increases. We find that it is not the case for Russian Market. The largest RTS "blue chips", Aeroflot, Gasprom, Lukoil, Yukos, Sibneft, Norilsk Nickel, and Unified Energy Systems (UES), all have significantly positive C_2 coefficient. Thus, for the RTS sample, the interaction coefficient C_2 is positive for large stocks as opposed to the finding of LMSW.

Our study suggests that most Russian blue chips show the most speculative trading. Still several large stocks have significantly negative C_2 coefficients.[10] In addition to the presence of liquidity trading, there could be two other reasons for that. First is the illiquidity of the particular stock as measured by the large number of non trading days. For less liquid

[10] Unlike LMSW, we do not perform a formal cross-sectional test of C_2 on the proxy of informational asymmetry. The reason is that our sample is too small. This is a feature of Russian market, where the most trading is made on blue chips stocks, and the rest of the market is highly illiquid.

stocks, high trading volume is associated with a higher price impact and a larger subsequent return reversal than for more liquid stocks. Therefore, interactive coefficient should become more negative for relatively less liquid stocks. Another reason for negative coefficient is the ownership structure of the particular stock. Stocks that are mainly state-owned (not held by private investors) will not show a lot of private information trade, but mainly hedging trade. Table 4A in Appendix reports ownership structure of the stocks in RTS sample. For example, Mosenergo, one of the highly liquid utilities companies, has a significant negative C_2 coefficient. In fact, Mosenergo is 51% owned by UES, which is 51% state-owned as well.

2.3.2 Remove market factor from the analysis

Next we run the same regression using excess return and trading volume. By removing hedging trading effects associated with overall market movements, we expect to find a stronger evidence of speculative trading, since our analysis would remove those hedging trades that are due to portfolio rebalancing. As we mentioned in the methodology part, market return is continuously compounded return of the RTS index, and market volume is constructed as a value-weighted average turnover of the individual stock log turnovers. This definition of market turnover is advocated in Lo and Wang (2000). Table 2a reports results for the regression (3): estimated coefficients along with t-statistics for each stock, adjusted R^2, and the number of observations available for each stock. We observe that 64% have positive C_2 coefficients (as compared with 57% of positive C_2 coefficients in regression (2)), and the share of significant positive coefficients increases to 35.7% from 25% (Table 1a). We find that overlap between stocks with significant positive C_2 is large if one compares results of regression (2) and (3) given in Tables 1a and 2a correspondingly. Moreover, we observe that companies subject to informational trade indicate even stronger evidence of informational trade after we remove market factor. For example, C_2 coefficient for Gasprom increases from 0.104 to 0.192 with its t-statistic increasing from 3.661 to 7.918. Same effect we observe for Lukoil common stock, Purneftegaz, Sibneft, and Norilsk Nickel common stocks. Overall, we find that idiosyncratic part of the most liquid Russian stocks suggests heavy trading on private information. Note that average C_2 coefficient increases to 0.049. Thus, the data confirms our expectation.

2.3.3 Conditional on corporate events and international cross-listing

In this subsection we report results for regression (4), which measures information asymmetry during the event trading periods. Here we have included not only corporate meeting events but also all the press conferences on company-related news. In Russia, press conferences are usually quite significant events because they are often related to some scandalous news about the company that has a large impact on insider trading. Intuitively, if insiders have some corporate information before it is made public, then we could expect more speculative trades around corporate event dates. Table 3 reports results for regression (4): estimated coefficients along with t-statistics for each stock, adjusted R^2, and the number of observations available for each stock. On average, the C_2 coefficient is up to 0.076. Also, the percentage of positive coefficients increases to 71% compared to "plain vanilla" regression (2) results, where only 57% of the interactive coefficients were positive. Thus, speculative trading is particularly strong during high volume events. Gasprom coefficient jumps from 0.104 to 0.206 and Aeroflot's coefficient increases from 0.107 to 0.137. In general, results of this regression support our hypothesis that major Russian "blue chips" show strong indication of speculative trading during event periods.

The above results are consistent with several other papers investigating the relation between dynamics of return and trading volume using US data (see Stickel, Verrecchia (1994)). They find that when earnings announcements are accompanied by higher volume, returns tend to be positively correlated. Their results indicate that earnings announcements may generate a large amount of private information that lead to active speculative trading and return continuation.

We also measure information asymmetry during event trading periods by removing the market components. As shown in Table 4, while the C_2 coefficient is smaller on average (0.018) comparing to previous regressions, 75% of stocks have positive C_2 coefficient, and 42.9% of the total are significantly positive. These results suggest that Russian stocks exhibit a strong firm level informational trading during event periods.

Next we study how the ADR introduction impacts the degree of informational trading. Table 5 reports results for the regression (6). We do not see that ADR introduction changes the

nature of trades dramatically. While on average C_2 coefficient is 0.048, the percentage of positive C_2 coefficients is still high (72%). However, there are only two stocks (Gasprom and Lukoil), which have significantly positive coefficient. Given the intuition provided in section 2.3.1 we claim that international cross-listing for Russian stocks only has taken a small step toward improving informational transparency of equity market, but there is little evidence that amount of private information trading decreased after ADR introduction.

2.3.4 Private Information Trading and Corporate Governance

In this section we address the relation between the intensity of speculative trades and the rules regulating the behavior of the Russian firms' corporate insiders along governance-related dimensions. Russian firms are of particular interest because Russian corporate and securities laws are weakly enforced, the cultural norms of corporate behavior of self dealing and outright looting are perceived as prevalent, and insiders do not need to develop a reputation for honesty so that their firms could sell shares to the public (most of the Russian companies went public via a government held privatization auction). We argue that the lower quality of corporate governance should be associated with the higher intensity of private information trading since one of the ways in which corporate insiders may benefit from the insider information is through trading on that information. Thus we expect that a measure of the corporate governance risk will be positively related to the degree of informational trading proxied by C_2 coefficient.

We use corporate governance risk ranking for Russian companies computed by the investment bank Brunswick UBS Warburg.[11] It rates corporate governance of Russian companies on a scale from 0 to 60, with higher numbers indicating higher level of corporate governance risk. We follow Black (2001a) in laying emphasis on that corporate governance risk in emerging markets shall be interpreted as a risk stemming predominantly from the risk associated with information disclosure and the risk of self-dealing rather than the risk that

[11] The following are the risk categories included in the corporate governance risk rating of Brunswick UBS Warburg for Russian companies with the corresponding weights shown in brackets: Disclosure and transparency risk (23%), Dilution through share issuance risk (17%), Asset stripping and transfer pricing (17%), Dilution through Mergers or restructuring (17%), Bankruptcy risk (8%), Limits on foreign ownership (8%), Management

managerial incentives may not be aligned with the interest of equity holders.[12] Black (2001b) sample consists of 20 companies of which 15 are included in our sample[13]. Thus we limit our cross-sectional analysis to only these companies, which account for 89.6% of the Russian market capitalization. We start with the correlation between the corporate governance risk ranking and C_2 coefficient. The correlation with the plain vanilla C_2 is 46.33%. The correlation of C_2 coefficient (removed market component) and the corporate governance ranking is 33.06 %. We further consider the following regression specification:

$$C_{2,i} = a_0 + a_1 GovernanceRisk_i + error_i, \quad \textbf{(7)}$$

The results are reported in Figure 1 and 2. The governance risk ranking is positively related to the intensity of private information trading. The relationship is statistically significant. For the second specification we use C_2 coefficients obtained after removing the market component. We obtain similar results. While we are aware of the possibility of a small sample bias in our regression results, our results at least suggest a possible relationship between corporate governance and private information trading.

3 Other Emerging Markets

We collect trading data for other emerging markets from Datastream. Information on the exchange rates has been retrieved from the S&P DRI Pro database. We have considered a large sample of emerging markets' stocks in our study. Countries included into our study are: Argentina, Brazil, Chile, Columbia, Greece, India, Indonesia, South Korea, Malaysia, Mexico,

---

attitude towards shareholders (8%), Registrar risk (Registrar affiliated with the company) (2%). Notice that none of these components involves a firm's market value.

[12] The risk of self-dealing may include the risk of dilution through share issuance, the risk of asset stripping and transfer pricing, the risk of dilution through mergers or restructuring, and the risk of bankruptcy

[13] The companies included in our study are: Aeroflot, GAZ, Gazprom, Irkutskenergo, Lukoil, Mosenergo, Norilsk Nickel, Rostelecom, Sberbank, Severstal, Sibneft, Surgutneftegaz, Tatneft, Unified Energy Systems, and Yukos. The companies included in Black (2001b) sample are: Vimpelcom, Rostelecom, GAZ, Sun Interbrew, Mosenergo, Surgutneftegaz, Norilsk Nickel, Severstal, Aeroflot, Irkutskenergo, LukOil, United Energy Systems, Tatneft, Magnitogorsk, Sibneft, Sberbank, Gazprom, Yukos, Tomskneft, Samaraneftegaz, Yuganskneftegaz. The raw data is provided in the appendix.

Pakistan, Peru, Philippines, Portugal, Sri Lanka, Thailand, Turkey, and Venezuela. For each country we take their respective market index constituents whenever they are available in Datastream and include them in our sample. For Argentina we have used the Merval Index Constituents, for Brazil – the Bovespa index, for Chile -- IPSA selective index, etc. We then cross check the obtained sample with the constituent list of the IFC/ S&P index of investment grade companies for the above emerging markets. Overall we have a total of 977 stocks. Market capitalization for each country and some basic statistics are reported in Appendix Table 2A. The sample period is from January 1, 1995 to November 1, 2001. This results in a total of 1785 daily observations on three variables: close price, number of shares traded, and the total number of shares outstanding for the selected stocks. [14]

3.1 Measuring Private Information Trading

We start with the LMSW regression (2) for return and volume. We define them the same way as in previous section for the RTS sample (see pg. 8). The results are presented in Table 1b. In column three we report percentage of coefficients that are positive. In the framework of the model, positive C_2 coefficients indicate the presence of speculative trades. Its percentage varies from 15.5% for South Korea to 72% for Brazil. Out of the 972 stocks in our sample 397 stocks, or 40.84%, have positive coefficient C_2. For 9 out of 18 countries in our sample average C_2 coefficient is positive. For Argentina, Brazil, Indonesia, Pakistan, Peru, Portugal, Sri Lanka, Turkey, and Venezuela more than 50% of the stocks in each country have shown a positive C_2 coefficient. However, for Chile, Colombia, Greece, India, South Korea, Malaysia, Mexico, Philippines, and Thailand less than 50% of the stocks have shown a positive C_2 coefficient. We find the heaviest evidence of insider trading in Brazil: more than 70% of Brazilian stocks prove to have positive C_2 coefficient. On the other end of the scale is South Korea, which has 15.5% of positive C_2 coefficients. This is warranted given that South Korea

[14] Because some stocks are subject to missing observations, the number of observations actually used in the study is less for these countries. Appendix Table 1b reports the average number of trading days for each country.

has the most developed financial market among emerging markets in our study. As a consequence, it shows the least private information trading in the tests.

It is worth noting that the total number of positive coefficients is misleading because some of the positive coefficients might be statistically insignificant. Thus in column 4 of Table 1b we report percentage of positive C_2 coefficients that are statistically significant at the 5% level. C_2 coefficient is statistically significant and positive for 127 stocks or 13% of the whole sample. Considering the percentage of positive statistically significant coefficients C_2 out of total number of stocks within the country, Indonesia has the highest percentage, 42%, while Colombia has the lowest, 0%.

We have found that the sign of C_2 coefficient from plain vanilla LMSW regression is very robust to different specifications of the turnover measure. We consider logturnover detrended with a 20-, 60- and a 120-day moving average. Column 6 of Table 1b reports the number of stocks whose C_2 coefficient does not change the sign under three different specifications of trading volume. Percentage of robust stocks varies between 71% (for Peru) and 93% (for India). Thus, the signs of C_2 coefficients are very robust to the specification of trading volume. Overall, results of Table 1b indicate the presence of private information trades, the intensity of which varies across countries.

Next, we consider specifications for return and volume that are free of the market component. We assume that market component in turnover reflects overall market information while the idiosyncratic part corresponds to trades based on private information related to the company. Thus, in a LMSW regression where we have removed the market component from return and turnover we expect the coefficient on volume-return pair to be positive and statistically significant. We find that the total number of positive C_2 coefficients has increased from 397(Table 1b) to 478(Table 2b), which represents 49% of all C_2 coefficients. The increase in the number of positive C_2 coefficients is also noticed at the country level for 11 out of 18 countries. The robustness check of C_2 coefficients with respect to the three measures of the turnover indicates that results are very robust to the alternative specifications of the trading volume. Percentage of robust stocks varies between 66% (for Greece) and 90% (for

Venezuela). Overall, the presence of speculative trades in emerging markets is supported when we decompose returns into market and idiosyncratic components .[15]

3.2 The Determinants of Private Information Trading

We further analyze the cross-company and cross-country determinants of the sign and size of C_2 coefficients. In particular, we address the linkage between the intensity of private information trades and several macro-indicators, such as the enforcement of insider trading laws, an index for the efficiency of the judicial system, an index for the risk of expropriation, and an index for the quality of accounting standards.

The dummy variable for the enforcement of insider trading laws takes value of one for the corresponding country if the first prosecution under these laws has been conducted prior to or during the sample period of our study.[16] The efficiency index of the judicial system is the assessment of the legal system efficiency as it affects business, in particular, foreign companies. The index is produced by the country risk rating agency Business International Corp. The value is an average index from 1980 to 1983. The scale is from 0 to 10, where higher score indicates higher efficiency levels. The risk of expropriation is the assessment by the International Country Risk guide of the "outright confiscation" risk. The value is an average value of April and October monthly index averaged then from 1982 to 1995. The scale is from 0 to 10, with higher scores representing lower risks[17]. The index of the accounting standards is created by examining and rating the 1990 annual reports on their inclusion and omission of 90 items in seven categories (general information, income statements, funds flow statement, balance sheets, accounting standards, stock data, and special items). A minimum of three companies in each country is considered.

[15] Equality of means test between C_2 coefficients from regressions (2) and (3) has t-stat 3.34: significant at 5% level.

[16] See Bhattacharya and Daouk (2001) for the construction of the dummy variable. Notice that all countries in our sample had established insider trading law prior to the beginning of the sample period of our study. The other indicators are obtained from the study of "Law and finance" by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).

[17] In fact, we use the negative of the risk expropriation index, so that higher score represents higher risk of expropriation.

We estimate cross-sectional regression of C_2 using the above regressors:

$$C_{2,i} = a_0 + a_1 ITLE_i + a_2 EFJS_i + a_3 RExp_i + a_4 QAS_i + error_i, \quad \textbf{(8)}$$

where $ITLE_i$ is Insider Trading Law Enforcement Index, $EFJS_i$ is Efficiency of Judicial System, RE_i is the Risk of Expropriation, QAS_i - Quality of Accounting Standards for country i. The results are reported in Table 6, panel A. Coefficient C_2 is inversely related to the insider trading laws enforcement, the efficiency of the judicial system, the quality of the accounting standards and positively related to the risk of expropriation. Thus, countries with no or little enforcement of their insider trading laws in place, inefficient judicial system, high risk of expropriation and low quality of the accounting standards are expected to have a higher C_2 coefficient, indicating the tendency towards more private information trading. When we regress C_2 coefficients on the individual indices we obtain the same results.

We also have conducted similar cross-section regression analysis for C_2 coefficients that are obtained from the LMSW regressions, which account for overall market effect in return and volume. Panel B of Table 6 shows that C_2 is inversely related to insider trading laws enforcement, efficiency of the judicial system, quality of the accounting standards, and positively related to the risk of expropriation, as indicated by the individual regressions. When one performs the cross-sectional regression of C_2 on all of the above indices, the efficiency index of the judicial system and the index of the quality of the accounting standards lose their explanatory power. However, coefficients that explain dependence of C_2 on the dummy variable for the insider trading laws enforcement and the index for risk of expropriation remain highly significant. An interesting result from Table 6 is that the risk of expropriation is strongly positively related to C_2. The higher the risk of expropriation the more likely there will be higher level of speculative trading. Notice that the risk of expropriation index has the highest adjusted R-square value and t-statistics in the individual regressions as well as the highest t-statistics in the joint regression.

We further explore the relationship across countries between private information trading and the protection of the shareholder rights. We perform regression of the C_2

coefficients for the 977 stocks in our sample on a series of variables designed to capture the degree of investor rights protection across countries. In particular, we include the variables from Table 2 of LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998):[18]

$$C_{2,i} = a_0 + a_1 OSOV_i + a_2 SNB_i + a_3 CumVot_i + a_4 OMN_i + a_5 PRI_i + a_6 ESM_i + a_7 CO_i + error_i, \quad \textbf{(9)}$$

where $OSOV_i$ stands for One share-One vote dummy variable, SNB_i - shares not blocked before meeting dummy variable, $CumVot_i$ is proportional representation of cumulative voting dummy variable, OMN_i - oppressed minority mechanism dummy variable, PRI_i - preemptive rights issue dummy variable, ESM_i - percentage of share capital needed to call an extraordinary shareholder meeting regressor, and CO_i - concentrated ownership regressor for company *i*.

Table 7 reports results for cross-sectional regression analysis of the relationship between speculative trading and the investor rights protection. Panel A shows results of the cross-sectional regression of "plain vanilla" C_2 for the 977 stocks on the number of the proxies for investor rights protection, while Panel B reports results of the same cross-sectional

[18] Here we describe the variables briefly. The dummy variable labeled "One Share-One Vote" equals one if the company law or the commercial code of the country requires that the ordinary shares carry one vote per share. The "Shares Not Blocked Before Meeting" dummy variable equals one if the company law or the commercial code does not allow firms to require that shareholders deposit their shares prior to a general shareholders' meeting and zero otherwise. The "Cumulative Voting/ Proportional Representation" dummy variable equals one if the company law or commercial code allows shareholders to cast all their votes for one candidate standing for election to the board of directors (cumulative voting) or if there is a mechanism of proportional representation in the board by which the minority shareholders may appoint a proportional number of directors to the board. The "Oppressed Minority Mechanism" variable equals one if the company code or commercial code grants minority shareholders either a judicial venue to challenge the decisions of management or the assembly or the right to step out of the company by requiring that the company purchases their shares when they object to certain fundamental changes in capital or in the articles of incorporation. Minority shareholders are defined as those who own 10 percent of share capital or less. The variable "Preemptive Rights to Issue" equals one if the company law or commercial code grants shareholders the first opportunity to buy new shares of stock, and this right can be waived only by a shareholders' vote. The variable "Percentage of Share Capital to Call an Extraordinary Shareholders' Meeting" records the percentage of ownership of share capital that entitles a shareholder to call extraordinary shareholders' meeting; it ranges from 1 to 33%. The "Concentrated Ownership" variable equals the mean ownership of the three largest investors in each of the 10 larges non-financial domestic firms. The data for the latter is obtained from Table 7 in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

regression of C_2 obtained from LMSW regression when overall market effect is removed. Notice that all of the coefficients in the individual regressions are significant at the 5% level in Panel A of Table 7.

The "one share-one vote" variable is inversely related to C_2. This implies that the presence of the one share-one vote rule is associated with a lower degree of private information trading. The "shares not blocked before meeting" variable is positively related to C_2. Intuitively, when shares are not blocked before the shareholders' meeting they can be sold for a number of days before the meeting takes place, thus speculative trading will be high. The "cumulative voting/ proportional representation" dummy variable is positively related to C_2. Thus, where an arrangement allowing shareholders to cast all their votes for one candidate standing for election to the board of directors or a mechanism allowing for proportional representation in the board is in place, one may expect higher level of private information trading. Intuitively, if the minority interest may name a proportional number of directors to the board or cumulatively vote for a single candidate, there will be more interest in acquiring shares to vote for a particular candidate. The "oppressed minority mechanism" variable is inversely related to C_2. The intuition is that the mechanism for protection of oppressed minority interest allows the latter to dispute the decisions of the management or the assembly. Therefore, there will be less incentive for insiders to acquire more voting power. The variable "preemptive rights to issue" is positively related to C_2. This is intuitive because stocks, which grant preemptive issues, give shareholders the first opportunity to buy new shares of stock, by amplifying the extent of insider trading. Percentage of share capital to call extraordinary shareholders' meeting is positively related to C_2. The higher probability that meeting will be called, the higher chance that insiders start trading on information they possess before the meeting. Finally, "concentrated ownership" variable is positively related to C_2. This is very natural that higher degree of ownership concentration gives rise to more informational trading.

The estimates a_i from the cross-sectional regression (9) do not change their sign irrespective of whether we run the regression on individual proxies or on the whole set of proxies. All indicators, except for the "preemptive rights to issue", are statistically significant and preserve their signs in the individual regressions in Panel B. However, the "preemptive

rights to issue" variable is problematic – it is statistically significant in panel A, but it becomes insignificant in Panel B.

Last, we analyze the relationship between the average market capitalization of the companies in our sample and the intensity of private information trading with their stock. We estimate the following regression:

$$C_{2,i} = \sum_{j=1}^{18} \alpha_j D_j + \alpha_{19} \log(MktCap_i) + error_i, \qquad \textbf{(10)}$$

where D_j is the country dummy, $\log(MktCap_i)$ is the log of company's market capitalization in US dollars. Table 8 reports results of regression (9). In regression I, dependent variable is C_2 coefficient from the plain vanilla LMSW regression. In regression II, dependent variable is C_2 coefficient obtained from the LMSW regression, in which we correct for systematic market component. We obtain statistically significant inverse relationship between average log market cap and the coefficients C_2 in both cases. Thus, the intensity of speculative trading is higher for public companies with smaller average log market cap. Note that this finding is in line with the original results of Llorente, Michaely, Saar and Wang (2001) who find that smaller capitalization stocks exhibit more informational trading than the higher capitalization stocks.

4. Conclusion

This paper measures the intensity of private information trading by examining the dynamic relation between return and volume of individual stocks in Russia and other emerging markets. In a simple model in which investors trade to share risk or speculate on private information, Llorente, Michaely, Saar, and Wang (2001) show that returns generated by risk-sharing trades tend to reverse themselves while returns generated by speculative trades tend to continue themselves. We apply this theoretical framework to measure the intensity of private information trading for individual stocks traded in Russia and other emerging markets. We have made several contributions to the literature. First, our study has integrated the event study methodology (see for example, Bailey and Mao (2001), Bhattacharya, Daouk, Jorgenson, and

Kehr (2000)) with that of LMSW. As a result, we can focus on those event dates with high trading volume and examine their return autocorrelation patterns. Second, we have related measures of speculative trading to country legal environment and find the degree of private information trading reflect a country's overall legal and risk environment.

Our empirical study has found some strong evidence of speculative trading in emerging markets. Using corporate announcement data from Russia, we discover that the speculative trading is especially strong around major corporate event dates. We also find speculative trading in Russian stocks are to some extent related to poor corporate governance. In addition, we find stocks in countries that enforce insider trading law and provide better investor protection exhibit less return continuation following high volume days. Moreover, intense private information trading also reflects high degree of expropriation risk and poor minority shareholder protection. Thus, the intensity of speculative trading could be used as a possible measure of "information asymmetry" for ranking emerging market stocks.

However, there are several possible caveats for it to be used as a general measure for ranking emerging market stocks. First, since this measure is based on historical data, it is by nature an *ex post* measure of "information asymmetry" against uninformed investors. There is no guarantee that this "information asymmetry" will persist in the future. This is especially the case if investors may use it to avoid stocks that have a high degree of "information asymmetry". This may cause corporate insiders to change their behavior in order to attract liquidity traders or uninformed investors. Second, private information trading may happen infrequently and it may have different levels of adverse effect on uninformed investors. As a result, it might be difficult for an econometrician to detect this infrequent private information trading. Moreover, while we provide some measure for the intensity of "information asymmetry", it is not a direct measure of financial loss likely to be incurred by uninformed investors.

There are many issues that remain to be examined. First, as a measure of "information asymmetry" for emerging market stocks, we like to know whether this measure is persistent. Given the fact that insiders face little risk of prosecution in many emerging markets, we conjecture that they may continue to exploit their information advantage by trading against uninformed investors. Thus, return continuation upon high trading volume will persist and will be reflected in our measure. As a result, we conjecture that C_2 could provide an *ex post* as well

as *ex ante* measure of information asymmetry against uninformed investors. However, we need to confirm this intuition with more empirical work. Second, it is interesting to know how our measure of "information asymmetry" is related to the cost of capital. Presumably, uninformed investors may stay away from stocks in which others have a distinct information advantage. This may increase cost of capital as discovered in the case of insider trading by Bhattacharya and Daouk (2002). Third, if there exists information asymmetry and it is persistent in emerging markets, how this would affect investment strategies of uninformed (or poorly informed) global investors is certainly an important issue. We leave these issues for further study in the future.

Table 1a. Regression I (LMSW), RTS sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + \varepsilon_{i,t+1},$$

where *i* stands for the index of the corresponding stock in the sample

Company	C_0	C_1	C_2	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	Adj. R^2	Number of obs.
Irkutskenergo	0.001	-0.052	**-0.010**	0.275	-1.734	**-0.306**	0.001	1119
MGTS	0.000	0.132	**-0.001**	0.065	2.323	**-0.020**	0.012	352
Sberbank of Russia	-0.002	-0.085	**0.022**	-0.707	-2.497	**0.869**	0.007	885
Lukoil pfd	0.000	-0.013	**0.015**	0.079	-0.421	**0.527**	-0.002	1041
Surgutneftegaz pfd	0.002	-0.280	**-0.072**	0.888	-7.144	**-1.577**	0.105	1211
Tatneft	0.000	-0.057	**0.019**	0.092	-1.899	**0.608**	0.001	1147
Sibneft	-0.003	-0.258	**0.185**	-0.758	-5.523	**3.884****	0.062	496
Mosenergo	0.000	0.063	**-0.055**	0.235	2.392	**-2.259****	0.005	1489
Norilsk Nickel com	0.000	-0.147	**0.088**	-0.030	-5.206	**3.245****	0.025	1253
Rostelecom com	0.000	0.052	**-0.066**	0.077	1.816	**-2.248****	0.003	1449
Yukos	-0.001	-0.260	**0.054**	-0.171	-6.329	**2.390****	0.071	555
UES com	0.001	0.043	**-0.070**	0.835	1.641	**-1.813***	0.002	1503
Surgutneftegaz com	0.002	0.091	**-0.038**	1.121	3.159	**-1.175***	0.006	1435
Lukoil com	0.000	-0.015	**0.067**	0.320	-0.556	**1.930***	0.001	1494
UES pfd	0.001	0.029	**-0.030**	0.248	0.909	**-1.197**	0.001	1037
NN pfd	0.002	-0.354	**0.020**	0.473	-6.626	**0.401**	0.111	669
GAZ	-0.001	-0.038	**-0.071**	-0.225	-0.926	**-2.120****	0.008	642
Uralsviazinform	-0.007	-0.256	**0.002**	-1.020	-4.539	**0.031**	0.060	346
Purneftegaz	0.000	-0.212	**0.162**	-0.067	-4.966	**2.966****	0.073	557
Sahalinmorneftegaz	0.002	-0.251	**0.086**	0.181	-4.129	**1.598**	0.085	285
Aeroflot	-0.002	-0.032	**0.107**	-0.682	-0.803	**3.353****	0.015	624
Lenenergo	0.003	-0.167	**0.060**	0.591	-3.699	**1.575**	0.023	513
Slavneft	0.002	-0.312	**-0.011**	0.560	-7.804	**-0.312**	0.098	701
Kamaz	-0.005	-0.133	**0.065**	-0.729	-2.651	**1.416**	0.011	477
Rostelecom pfd	-0.004	-0.029	**0.127**	-1.604	-0.856	**6.302****	0.046	856
PTS	0.005	-0.287	**-0.137**	0.661	-6.166	**-4.897****	0.171	419
Cerepovetz Severstal	-0.001	-0.038	**-0.071**	-0.225	-0.926	**-2.120****	0.008	642
Gazprom	-0.001	0.114	**0.104**	-0.736	3.711	**3.661****	0.025	1038
Average	**0.000**	**-0.098**	**0.020**				**0.037**	
% C_2 > 0	**57.10 %**							
% t-stat (C_2) > 1.95	**25.00 %**							
% t-stat (C_2) > 1.68	**28.60 %**							

Note. ** - significant at 5 %, * - significant at 10 %

We define daily return as a continuously compounded return. We define daily trading volume as daily logturnover minus 20-day moving average. Daily turnover is defined as number of shares traded daily divided over number of shares outstanding. Data comes from Russian Trading System Website, except Gasprom. Gasprom data is taken from AKM agency, Russia.

Table 1b. Company Regressions I (LMSW) by country, Emerging Markets sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_{2,i} R_{i,t} V_{i,t} + \varepsilon_{i,t+1},$$

where *i* stands for the indices of the companies in the corresponding country in the sample

Country	Total number of stocks	Mean C_2	% $C_2 > 0$ out of total	% $t(C_2) > 1.95$ out of total	Mean adj. R^2	Number of stocks robust to MA
	(1)	(2)	(3)	(4)	(5)	(6)
Argentina	20	0.021	60.00	25.00	0.009	17
Brazil	50	0.029	72.00	20.00	0.007	37
Chile	40	-0.014	42.50	7.50	0.022	32
Columbia	16	-0.056	37.50	0.00	0.046	12
Greece	50	-0.043	28.00	2.00	0.032	38
India	30	-0.038	23.33	3.33	0.009	28
Indonesia	50	0.023	60.00	42.00	0.029	38
South Korea	200	-0.048	15.50	3.00	0.009	177
Malaysia	102	-0.030	30.39	7.84	0.011	91
Mexico	82	0.002	50.00	19.51	0.019	68
Pakistan	83	0.023	55.42	18.07	0.032	67
Peru	35	0.007	54.29	17.14	0.042	25
Philippines	33	-0.007	42.42	18.18	0.007	27
Portugal	29	0.005	62.07	20.69	0.014	26
Sri Lanka	25	0.008	56.00	24.00	0.015	21
Thailand	50	-0.006	46.00	12.00	0.007	38
Turkey	50	0.002	50.00	12.00	0.002	37
Venezuela	20	0.013	65.00	25.00	0.024	17

Note. Fraction of positive C_2 coefficients (column 3) and fraction of significant at 5% level C_2 coefficients (column 4) is reported in percentage points. Number of stocks robust to MA specification indicates the number of stocks that do not change sign of C_2 coefficient under alternative specifications of turnover

Table 2a. LMSW Regression correcting for overall market effect, RTS sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} - R_{m,t+1} = C_0 + C_1\left(R_{i,t} - R_{m,t}\right) + C_2\left(R_{i,t} - R_{m,t}\right)\left(V_{i,t} - V_{m,t}\right) + \varepsilon_{i,t+1},$$

where *i* stands for the index of the corresponding stock in the sample

Company	C_0	C_1	C_2	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	Adj. R^2	Number of obs.
Irkutskenergo	0.000	-0.277	**0.010**	-0.315	-1.314	**0.399**	0.036	1119
MGTS	-0.004	-2.011	**0.222**	-0.703	-5.344	**4.851****	0.097	351
Sberbank of Russia	-0.002	-0.558	**0.038**	-0.741	-3.110	**1.732***	0.065	882
Lukoil pfd	0.000	-0.369	**0.016**	0.161	-1.537	**0.543**	0.057	1041
Surgutneftegaz pfd	0.001	-2.123	**0.188**	0.752	-6.964	**5.529****	0.215	1211
Tatneft	0.000	-0.439	**0.026**	0.116	-1.863	**0.900**	0.051	1147
Sibneft	-0.001	-3.177	**0.364**	-0.361	-9.437	**8.851****	0.175	496
Mosenergo	-0.001	-0.143	**0.005**	-0.694	-0.714	**0.193**	0.010	1489
Norilsk Nickel com	-0.001	-1.395	**0.150**	-0.630	-7.444	**6.525****	0.065	1253
Rostelecom com	-0.001	-0.323	**0.016**	-1.103	-1.547	**0.636**	0.036	1449
Yukos	0.002	-0.557	**0.039**	0.331	-3.383	**1.726***	0.081	555
UES com	0.000	0.496	**-0.084**	0.588	1.533	**2.088****	0.033	1503
Surgutneftegaz com	0.001	-0.091	**-0.004**	1.103	-0.358	**-0.131**	0.014	1435
Lukoil com	0.000	-1.096	**0.103**	-0.224	-3.486	**2.661****	0.072	1494
UES pfd	0.000	0.100	**-0.016**	0.172	0.522	**-0.660**	-0.001	1037
NN pfd	0.003	0.853	**-0.124**	0.925	2.441	**-3.018****	0.048	669
GAZ	-0.001	0.242	**-0.046**	-0.217	0.933	**-1.482**	0.019	642
Uralsviazinform	-0.007	-1.468	**0.145**	-1.382	-4.383	**3.531****	0.116	346
Purneftegaz	-0.001	-0.970	**0.084**	-0.389	-2.865	**1.902***	0.112	557
Sahalinmorneftegaz	0.006	-0.076	**-0.024**	0.759	-0.257	**-0.636**	0.065	285
Aeroflot	0.001	-0.010	**-0.022**	0.272	-0.041	**-0.678**	0.031	624
Lenenergo	0.000	-2.769	**0.297**	-0.025	-13.955	**12.633****	0.307	513
Slavneft	0.002	0.871	**-0.151**	0.499	3.684	**-5.452****	0.195	701
Kamaz	-0.006	-0.697	**0.069**	-1.154	-2.427	**2.057****	0.018	477
Rostelecom pfd	-0.003	-0.555	**0.047**	-1.588	-3.910	**2.521****	0.048	856
PTS	0.002	0.525	**-0.115**	0.310	2.539	**-4.646****	0.209	419
Cerepovetz Severstal	-0.001	0.242	**-0.046**	-0.217	0.933	**-1.482**	0.019	642
Gazprom	-0.001	-1.418	**0.192**	-0.699	-7.273	**7.918****	0.066	1038
Average	**0.000**	**-0.614**	**0.049**				**0.081**	
% $C_2 > 0$	**64.30 %**							
% t-stat (C_2) > 1.95	**35.71%**							
% t-stat (C_2) > 1.64	**46.40 %**							

Note. ** - significant at 5 %, * - significant at 10 %

We define market return as a daily continuously compounded daily return of Russian Trading System Interfax Index (RTSI). RTSI index is computed on a value-weighted index. We compute market volume as value-weighted average of individual stocks' market volumes. We assign weights based on a market cap share of the particular company.

Table 2b. Regression II (LMSW) correcting for market effects, Emerging Markets sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} - R_{m,t+1} = C_0 + C_1\left(R_{i,t} - R_{m,t}\right) + C_2\left(R_{i,t} - R_{m,t}\right)\left(V_{i,t} - V_{m,t}\right) + \varepsilon_{i,t+1},$$

where *i* stands for the indices of the companies in the corresponding country in the sample

Country	Total number of stocks	Mean C_2	% $C_2 > 0$ out of total	% $t(C_2) > 1.95$ out of total	Mean adj. R^2	Number of stocks robust to MA
	(1)	(2)	(3)	(4)	(5)	(6)
Argentina	20	0.040	75.00	20.00	0.009	17
Brazil	50	0.023	66.00	6.00	0.008	34
Chile	40	-0.004	45.00	7.50	0.009	34
Colombia	16	-0.043	50.00	6.25	0.041	14
Greece	50	-0.005	48.00	8.00	0.033	33
India	30	-0.018	26.67	0.00	0.005	26
Indonesia	50	0.009	62.00	14.00	0.042	42
South Korea	200	-0.024	28.50	1.50	0.006	151
Malaysia	102	-0.005	50.98	0.98	0.009	83
Mexico	86	0.001	53.49	6.98	0.016	67
Pakistan	84	0.005	58.33	7.14	0.032	58
Peru	35	-0.004	40.00	5.71	0.042	29
Philippines	33	0.012	69.70	9.09	0.005	25
Portugal	29	0.016	68.97	6.90	0.009	23
Sri Lanka	25	0.007	48.00	4.00	0.022	19
Thailand	50	-0.002	52.00	6.00	0.007	38
Turkey	50	-0.002	54.00	4.00	0.003	35
Venezuela	20	0.030	75.00	20.00	0.019	18

Note. Fraction of positive C_2 coefficients (column 3) and fraction of significant at 5% level C_2 coefficients (column 4) is reported in percentage points. Number of stocks robust to MA specification (column 6) indicates the number of stocks that do not change sign of C_2 coefficient under alternative specifications of turnover.

Table 3: Regression III (LMSW) conditions on corporate events, RTS sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} D^c_{i,t} + \varepsilon_{i,t+1},$$

where *i* stands for the index of the corresponding stock in the sample

Company	C_0	C_1	C_2	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	Adj. R^2	Number of obs.
Irkutskenergo	0.000	-0.053	**0.045**	0.227	-1.761	**0.451**	0.001	1119
MGTS	-0.001	0.109	**0.109**	-0.083	1.984	**1.580**	0.019	351
Sberbank of Russia	-0.002	-0.107	**0.329**	-0.859	-3.153	**2.983****	0.016	882
Lukoil pfd	0.000	-0.015	**0.043**	0.111	-0.471	**0.622**	-0.001	1041
Surgutneftegaz pfd	0.001	-0.326	**0.181**	0.572	-11.983	**1.588**	0.105	1211
Tatneft	0.000	-0.066	**0.168**	0.019	-2.188	**1.804***	0.004	1147
Sibneft	-0.002	-0.207	**0.140**	-0.465	-4.588	**1.487**	0.038	496
Mosenergo	0.000	0.052	**-0.047**	0.064	1.985	**-0.480**	0.001	1489
Norilsk Nickel com	0.001	-0.134	**0.010**	0.393	-4.774	**0.073**	0.016	1253
Rostelecom com	0.000	0.022	**0.056**	-0.160	0.810	**0.870**	0.000	1449
Yukos	-0.002	-0.271	**0.124**	-0.344	-6.720	**5.345****	0.107	555
UES com	0.001	0.034	**-0.025**	0.649	1.283	**-0.174**	0.000	1503
Surgutneftegaz com	0.001	0.078	**-0.031**	0.997	2.947	**-0.323**	0.005	1435
Lukoil com	0.001	0.002	**0.060**	0.512	0.071	**0.530**	-0.001	1494
UES pfd	0.001	0.048	**-0.107**	0.269	1.522	**-1.619**	0.002	1037
NN pfd	0.002	-0.338	**0.299**	0.374	-9.261	**1.340**	0.113	669
GAZ	-0.001	-0.061	**0.011**	-0.305	-1.502	**0.106**	0.001	642
Uralsviazinform	-0.007	-0.255	**-0.006**	-1.016	-4.783	**-0.079**	0.060	346
Purneftegaz	0.000	-0.250	**-0.488**	0.083	-6.083	**-1.493**	0.062	557
Sahalinmorneftegaz	0.003	-0.277	**0.353**	0.340	-4.838	**1.079**	0.081	285
Aeroflot	-0.001	-0.014	**0.137**	-0.427	-0.350	**2.019****	0.003	624
Lenenergo	0.005	-0.204	**0.145**	0.879	-4.027	**2.141****	0.027	513
Slavneft	0.000	-0.350	**0.405**	0.032	-9.821	**5.707****	0.138	701
Kamaz	-0.005	-0.130	**0.103**	-0.748	-2.630	**1.392**	0.011	477
Rostelecom pfd	-0.003	0.011	**0.171**	-1.262	0.322	**7.014****	0.056	856
PTS	0.002	-0.349	**-0.113**	0.292	-7.607	**-1.050**	0.125	419
Cerepovetz Severstal	-0.001	-0.057	**-0.153**	-0.271	-1.434	**-0.975**	0.002	642
Gazprom	-0.002	0.131	**0.206**	-0.885	4.321	**6.409****	0.050	1038
Average	**0.000**	**-0.106**	**0.076**				**0.037**	
% $C_2 > 0$	**71.40 %**							
% t-stat (C_2) > 1.95	**25.00%**							
% t-stat (C_2) > 1.64	**28.57 %**							

Note.** - significant at 5 %, * - significant at 10 %

$D^c_{i,t}$ is a dummy variable with value 1 for period around the corporate events described in Table 2, and 0 otherwise. The dummy variable takes value 1 in the event window, which we define to be 10 days prior the announcement date, time between the announcement and effective date of the corporate event, and 10 days after the corporate event took place.

Table 4. Conditioning on corporate events and removing the market component, RTS sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} - R_{m,t+1} = C_0 + C_1\left(R_{i,t} - R_{m,t}\right) + C_2\left(R_{i,t} - R_{m,t}\right)\left(V_{i,t} - V_{m,t}\right)D^c_{i,t} + \varepsilon_{i,t+1},$$

where *i* stands for the index of the corresponding stock in the sample

Company	C_0	C_1	C_2	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	Adj. R^2	Number of obs.
Irkutskenergo	0.000	-0.199	**0.007**	-0.298	-6.457	**0.609**	0.036	1119
MGTS	-0.002	-0.304	**0.069**	-0.367	-5.427	**4.436****	0.087	351
Sberbank of Russia	-0.002	-0.285	**0.072**	-0.998	-8.591	**4.297****	0.081	882
Lukoil pfd	0.000	-0.268	**0.026**	0.082	-8.414	**2.457****	0.062	1041
Surgutneftegaz pfd	0.001	-0.462	**0.066**	0.666	-17.702	**3.820****	0.205	1211
Tatneft	0.000	-0.265	**0.037**	0.141	-8.678	**3.471****	0.060	1147
Sibneft	0.001	-0.227	**0.008**	0.255	-4.880	**0.510**	0.045	496
Mosenergo	-0.001	-0.111	**0.012**	-0.686	-4.163	**0.939**	0.010	1489
Norilsk Nickel com	0.000	-0.195	**0.035**	-0.035	-6.900	**1.834***	0.035	1253
Rostelecom com	-0.001	-0.230	**0.032**	-1.134	-8.259	**3.617****	0.044	1449
Yukos	0.002	-0.174	**-0.020**	0.533	-2.215	**-1.611**	0.080	555
UES com	0.000	-0.192	**0.021**	0.525	-7.223	**1.870***	0.032	1503
Surgutneftegaz com	0.001	-0.136	**0.021**	1.126	-4.998	**1.625**	0.016	1435
Lukoil com	0.000	-0.276	**0.024**	-0.098	-10.642	**1.955****	0.070	1494
UES pfd	0.000	-0.008	**-0.017**	0.144	-0.241	**-1.478**	0.001	1037
NN pfd	0.002	-0.198	**0.010**	0.550	-5.074	**0.355**	0.035	669
GAZ	-0.001	-0.174	**0.036**	-0.171	-4.147	**2.332****	0.024	642
Uralsviazinform	-0.005	-0.356	**0.025**	-1.017	-5.985	**1.897***	0.094	346
Purneftegaz	0.000	-0.262	**-0.089**	-0.090	-6.362	**-5.318****	0.149	557
Sahalinmorneftegaz	0.005	-0.263	**0.003**	0.689	-4.442	**0.111**	0.063	285
Aeroflot	0.000	-0.255	**0.035**	0.137	-5.596	**3.095****	0.045	624
Lenenergo	0.004	-0.591	**0.084**	0.927	-12.379	**10.100****	0.242	513
Slavneft	0.000	-0.428	**0.028**	0.032	-11.729	**1.981****	0.166	701
Kamaz	-0.006	-0.228	**0.040**	-1.195	-4.207	**3.773****	0.038	477
Rostelecom pfd	-0.003	-0.194	**-0.005**	-1.370	-4.637	**-0.518**	0.041	856
PTS	-0.001	-0.394	**-0.019**	-0.132	-8.264	**-1.174**	0.170	419
Cerepovetz Severstal	-0.001	-0.133	**-0.012**	-0.326	-3.321	**-0.529**	0.016	642
Gazprom	0.000	0.169	**-0.028**	0.161	4.631	**-3.143****	0.019	1038
Average	**0.000**	**-0.237**	**0.018**				**0.070**	
% C_2>0	**75.00 %**							
% t-stat (C_2) > 1.95	**42.86%**							
% t-stat (C_2) > 1.64	**53.60 %**							

Note. ** - significant at 5 %, * - significant at 10 %

$D^c_{i,t}$ is defined as in Table 3. Market return and volume market are defined as in Table 2.

Table 5: The impact of the introduction of the ADR on the volume-return relationship, RTS sample

The table records the results of the regression analysis for the following model

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} D_{i,t}^{adr} + \varepsilon_{i,t+1}$$

where *i* stands for the index of the corresponding stock in the sample

Company	C_0	C_1	C_2	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	Adj. R^2	Number of obs.
Gasprom	-0.001	0.137	**0.208**	-0.774	4.496	**6.463****	0.050	1038
Irkutskenergo	0.001	-0.052	**-0.029**	0.297	-1.739	**-0.826**	0.002	1119
Lukoil com	0.000	-0.015	**0.066**	0.334	-0.535	**1.902***	0.001	1494
Lukoil pfd	0.000	-0.013	**0.015**	0.079	-0.421	**0.527**	-0.002	1041
Rostelecom com	0.000	0.036	**-0.043**	-0.044	1.329	**-1.318**	0.001	1449
Sibneft	-0.002	-0.209	**0.108**	-0.510	-4.608	**1.520**	0.038	496
Surgutneftegaz com	0.001	0.076	**0.005**	0.974	2.699	**0.133**	0.005	1435
Surgutneftegaz pfd	0.001	-0.331	**0.084**	0.456	-11.990	**1.470**	0.105	1211
Tatneft	0.000	-0.057	**0.018**	0.095	-1.895	**0.581**	0.001	1147
UES com	0.001	0.036	**-0.059**	0.745	1.403	**-1.357**	0.001	1503
Yukos	0.000	-0.254	**0.149**	0.034	-6.166	**0.298**	0.061	555
Average	**0.000**	**-0.059**	**0.048**				**0.024**	
% $C_2 > 0$	**72.70 %**							
% t-stat (C_2) > 1.95	**9.09%**							
% t-stat (C_2) > 1.64	**18.20 %**							

Note. D_{it}^{adr} is a dummy variable with value 1 for the period following the introduction of ADR for the corresponding company and 0 otherwise. Note that if we have both common and preferred class of shares for some stock, but ADRs introduced only for either of them, we still perform LMSW regression analysis for both classes of shares following the introduction of either common or preferred ADRs. We estimate regression for a subsample after ADRs for corresponding companies were introduced.

Table 6. Rule of Law and Private Information Trading, Emerging Markets Sample

Panel A: Private information trading (based on the LMSW model coefficients)

$$C_{2,i} = a_0 + a_1 ITLE_i + a_2 EFJS_i + a_3 RExp_i + a_4 QAS_i + error_i,$$

where *i* stands for the index of corresponding stock in the sample

	Independent Variables					
Dependent Variables	Intercept	Insider Trading Law Enforcement	Efficiency of Judicial System	Risk of Expropriation	Quality of Accounting Standards	Adj. R^2
C_2	0.116**	-0.010*	-0.003**	0.009**	-0.001**	0.060
	(5.345)	(-1.762)	(-2.026)	(3.431)	(-2.869)	
C_2	0.005	-0.024**				0.022
	(0.989)	(-4.247)				
C_2	0.035**		-0.008**			0.034
	(4.603)		(-6.524)			
C_2	0.110**			0.017**		0.055
	(5.611)			(6.459)		
C_2	0.049**				-0.001**	0.035
	(3.589)				(-5.091)	

Panel B: Private information trading (based on the LMSW model coefficients where a correction for the market component is made)

	Independent Variables					
Dependent Variables	Intercept	Insider Trading Law Enforcement	Efficiency of Judicial System	Risk of Expropriation	Quality of Accounting Standards	Adj. R^2
C_2	0.100**	-0.012**	0.000	0.015**	0.000	0.058
	(5.481)	(-2.567)	(0.012)	(6.637)	(0.974)	
C_2	0.011**	-0.026**				0.034
	(2.559)	(-5.516)				
C_2	0.004**		-0.002**			0.002
	(0.748)		(-2.215)			
C_2	0.116**			0.017**		0.070
	(7.012)			(7.695)		
C_2	0.007**				0.000*	0.002
	(0.642)				(-1.704)	

Note 1. ** - significant at 5 %, * - significant at 10 %

Note 2. Panel A records the cross-sectional regressions of the C_2 coefficients from the LMSW model on four indices: the existence and enforcement of insider trading laws (value 1 if at least one prosecution based on these laws has been carried out), the efficiency of the judicial system, the risk of expropriation, and the quality of the accounting standards. The reported t-statistics are based on the White heteroscedasticity consistent standard errors. The coefficients C_2 used in Panel A are those obtained from the LMSW regression specification as in Table 1b. Panel B records the cross-sectional regressions of the C_2 coefficients from the LMSW model on the same four indices. The coefficients C_2 used in Panel B are those obtained from the LMSW regression specification in Table 2b (i.e. with a correction for market component). T-statistics for regression coefficients is reported in parenthesis below the coefficients. The regressions are performed using the entire sample of company data from 09/01/1995 to 11/01/2001. The values of the above indices are obtained from Table V from LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998), except for the insider trading laws enforcement index, which is obtained from Bhattacharya and Daouk (2002). We have not included Corruption, Rule of Law, and Risk of Contract Repudiation variables in the regression specification due to their high correlation with the Insider Trading Law Enforcement and the Risk of Expropriation variables.

Table 7. Investor Rights and Private Information Trading, Emerging Markets Sample

Panel A: The dependent variable is the C_2 coefficient in Table 1b

$$C_{2,i} = a_0 + a_1 OSOV_i + a_2 SNB_i + a_3 CumVot_i + a_4 OMN_i + a_5 PRI_i + a_6 ESM_i + a_7 CO_i + error_i,$$

where *i* stands for the index of the corresponding stock in the sample

	Independent Variables								
	Intercept	One Share-One Vote	Shares Not Blocked Before Meeting	Cumulative Voting/ Proportional Representation	Oppressed Minority	Preemptive Rights to Issue	Percentage of Shares to Call an Extraordinary Shareholder Meeting	Concentrated Ownership	Adj. R^2
C_2	-0.064**	-0.003	0.021**	0.008	0.006	-0.011**	0.069**	0.068**	0.062
	(-4.958)	(-0.495)	(3.571)	(1.416)	(0.958)	(-1.982)	(2.070)	(2.956)	
C_2	-0.001	-0.012**							0.009
	(-0.446)	(-3.284)							
C_2	-0.027**		0.029**						0.052
	(-8.557)		(7.419)						
C_2	-0.014**			0.019**					0.019
	(-6.207)			(4.158)					
C_2	-0.003				-0.008**				0.003
	(-1.210)				(-2.143)				
C_2	-0.017**					0.017**			0.018
	(-6.326)					(4.372)			
C_2	-0.019**						0.096**		0.016
	(-5.889)						(4.618)		
C_2	-0.054**							0.088**	0.034
	(-7.273)							(5.894)	

Note. ** - significant at 5 %, * - significant at 10 %

The values for the independent variables are obtained from Tables 2 and 7 in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998). Reported t-statistics (in parentheses) are based on White heteroscedasticity consistent standard errors.

Panel B: The Dependent variable is the C_2 coefficient in Table 2b (correction for market component)

	Independent Variables								
	Intercept	One Share-One Vote	Shares Not Blocked Before Meeting	Cumulative Voting/ Proportional Representation	Oppressed Minority	Preemptive Rights to Issue	Percentage of Shares to Call an Extraordinary Shareholder Meeting	Concentrated Ownership	Adj. R^2
C_2	-0.097**	0.006	0.015**	0.012**	0.017**	-0.005	0.096**	0.113**	0.097
	(-7.720)	(1.037)	(3.317)	(2.642)	(3.186)	(-0.939)	(3.428)	(5.047)	
C_2	0.000	-0.021**							0.021
	(-0.056)	(-4.798)							
C_2	-0.032**		0.031**						0.044
	(-9.762)		(7.057)						
C_2	-0.017**			0.015**					0.009
	(-6.897)			(2.897)					
C_2	-0.004				-0.014**				0.009
	(-1.084)				(-3.199)				
C_2	-0.014**					0.004			0.000
	(-5.127)					(0.905)			
C_2	-0.021**						0.082**		0.010
	(-6.254)						(3.594)		
C_2	-0.056**							0.102**	0.058
	(-8.679)							(7.780)	

Note. ** - significant at 5 %, * - significant at 10 %

The values for the independent variables are obtained from Table 2 in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998). Reported t-statistics (in parentheses) are based on White heteroscedasticity consistent standard errors.

Table 8. The relationship between coefficients C_2 and stock market capitalization, Emerging Markets Sample

$$C_{2,i} = \sum_{j=1}^{18} \alpha_j D_j + \alpha_{19} \log(MktCap_i) + error_i,$$

i stands for the index of corresponding stock in the sample

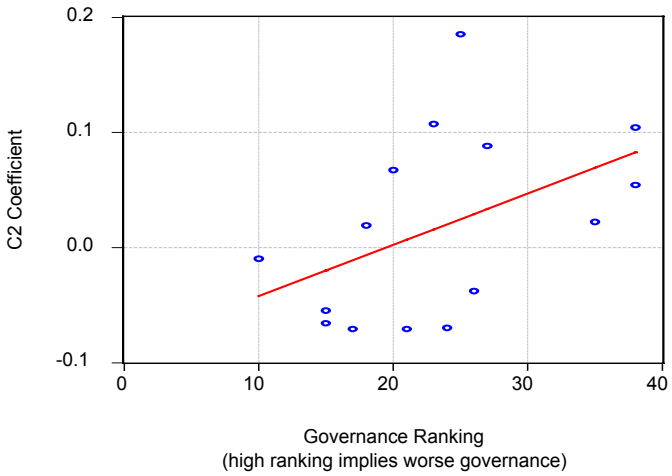
	Regression I		Regression II	
	Coefficient	T-Stat	Coefficient	T-Stat
Stock Market Capitalization	-0.01**	(-2.53)	-0.01**	(-2.63)
D_1	0.15**	(2.86)	0.17**	(3.12)
D_2	0.16**	(3.05)	0.17**	(3.26)
D_3	0.11**	(2.24)	0.12**	(2.45)
D_4	0.05	(0.74)	0.11*	(1.88)
D_5	0.08	(1.50)	0.12**	(2.17)
D_6	0.09*	(1.76)	0.10*	(1.82)
D_7	0.15**	(2.97)	0.12**	(2.34)
D_8	0.07	(1.51)	0.08	(1.67)
D_9	0.10*	(1.92)	0.14**	(2.66)
D_{10}	0.13**	(2.55)	0.15**	(2.75)
D_{11}	0.11**	(2.49)	0.11**	(2.47)
D_{12}	0.12**	(2.37)	0.15**	(2.81)
D_{13}	0.13**	(2.58)	0.13**	(2.41)
D_{14}	0.11**	(2.76)	0.12**	(2.65)
D_{15}	0.12**	(2.39)	0.14**	(2.72)
D_{16}	0.13**	(2.59)	0.14**	(2.72)
D_{17}	0.13**	(2.68)	0.14**	(2.88)
D_{18}	0.13**	(2.94)	0.15**	(3.10)
Adj. R^2	0.167		0.175	

Note. ** - significant at 5 %, * - significant at 10 %

The table records the regression of the coefficient C_2 on country dummies and the average company capitalization in logs of US$ values. Reported t-statistics are based on the White heteroscedasticity consistent standard errors. Regression I reports the regression results where the dependent variable is the coefficient C_2 obtained from the regression specification in Table 1b. Regression II reports the regression results for the dependent variable the coefficient C_2 obtained from the regression specification in Table 2b (i.e. a correction for market has been made).

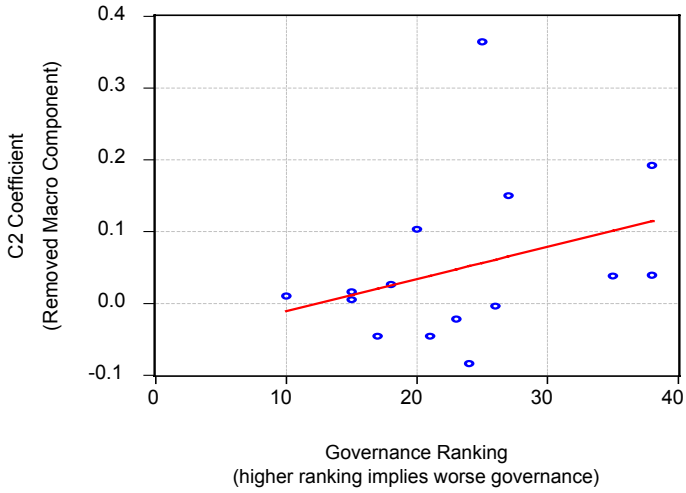
The value of the variable $\mathbf{D}_i$ is 1 when the corresponding company is included in the country ***i*** stock market index. Thus $\mathbf{D}_1$ stands for Argentina, $\mathbf{D}_2$ for Brazil, $\mathbf{D}_3$ for Chile, $\mathbf{D}_4$ for Columbia, $\mathbf{D}_5$ for Greece, $\mathbf{D}_6$ for India, $\mathbf{D}_7$ for Indonesia, $\mathbf{D}_8$ for South Korea, $\mathbf{D}_9$ for Malaysia, $\mathbf{D}_{10}$ for Mexico, $\mathbf{D}_{11}$ for Peru, $\mathbf{D}_{12}$ for Philippines, $\mathbf{D}_{13}$ for Portugal, $\mathbf{D}_{14}$ for Sri Lanka, $\mathbf{D}_{15}$ for Thailand, $\mathbf{D}_{16}$ for Turkey, $\mathbf{D}_{17}$ for Venezuela, and $\mathbf{D}_{18}$ for Pakistan.

Figure 1: Plain Vanilla C2 Coefficient Versus the Corporate Governance Ranking



$$C_{2,i} = \underset{(-2.474)}{-0.087} + \underset{(3.502)}{0.004} \times Governance\ \ Risk_i + \varepsilon_i, R^2 = 21.5\%$$

Figure 2: C2 Coefficient Versus the Corporate Governance Ranking (Removed Market Component)



$$C_{2,i} = \underset{(-1.241)}{-0.056} + \underset{(2.144)}{0.004} \times Governance\ \ Risk_i + \varepsilon_i, R^2 = 10.9\%$$

Note. T-statistics are reported in brackets and are based on the White heteroscedasticity robust covariance matrix.

References

Antoniewicz, R.L., 1993, Relative Volume and Subsequent Stock Price Movements, working paper, Board of Governors of the Federal Reserve System.

Bailey, W., and C. X. Mao, 2001, Investment Restrictions and the Cross-Border Flow of Information: Some Empirical Evidence, Working paper, Cornell University

Banerjee, A. and W. Eckard, 2001, Why Regulate Insider Trading? Evidence from the Great Merger Wave (1897-1903), *American Economic Review*, 1329-1349.

Bekaert, G., and C. Harvey, 1995, Time-Varying World Market Integration, 50, 403-444.

Bekaert, G., and C. Harvey, 2000, Foreign Speculators and Emerging Equity Markets, 55, 565-613.

Bhattacharya, U., and H. Daouk, 2002, The world price of insider trading, *Journal of Finance,* 57, 75-108 .

Bhattacharya, U., and H. Daouk, Brian Jorgenson, and Carl-Heinrich Kehr, 2000, When an event is not an event: The curious case of an emerging market, *Journal of Financial Economics* 55, 69-101.

Black, Bernard, 2001a, Does Corporate Governance Matter? A Crude test Using Russian Data, *University of Pennsylvania Law Review*, Vol. 149, pp. 2131-2150.

Black, Bernard, 2001b, The Corporate Governance and Market Value of Russian Firms, *Emerging Markets Review*, 2.

Brennan, M, and H. Cao, International Portfolio Investment Flows, *Journal of Finance*, Vol. 52, No. 5. (Dec., 1997), pp. 1851-1880.

Brennan, M. and A. Subrahmanyam, 1995, Investment Analysis and Price Formation in Securities Markets, *Journal of Financial Economics* 38, 361-381.

Campbell, J.Y., S.J. Grossman, and J. Wang, 1993, Trading Volume and Serial Correlation in Stock Returns, *Quarterly Journal of Economics* 108, 905-939.

Conrad, J., A. Hameed, and C.M. Niden, 1992, Volume and Autocovariances in Short-Horizon Individual Security Returns, *Journal of Finance* 49, 1305-1329.

Domowitz I., J. Glen, and A. Madhavan, International Cross-Listing and Order Flow Migration: Evidence From An Emerging Market, *Journal of Finance* 53, 2001-2027, 1998.

Easley, D., and M. O'Hara, 1987, Price, Trade Size, and Information In Securities Markets, *Journal of Financial Economics* 18, 69-90.

Gallant, R., P. Rossi, and Tauchen, G., 1992, Stock Prices and Volume, *Review of Financial Studies* 5, 199-242.

Glosten, L. and P. Milgrom, 1985, Bid, Ask and Transaction Prices in a Market-Maker Market with Heterogeneously Informed Traders, *Journal of Financial Economics* 14, 71-100.

Harvey, C., 1991, The world price of covariance risk, *Journal of Finance* 46, 111-157.

Harvey, C., 1995, Predictable risk and returns in emerging markets, *Review of Financial Studies* 8, 773-816.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131-1150.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.

Llorente G., R. Michaely, G. Saar, and J. Wang, 2001, Dynamic Volume-return Relation of Individual Stocks, forthcoming in *Review of Financial Studies*

Lo, A.W., and A.C. MacKinlay, 1990, An Econometric Analysis of Nonsynchronous Trading, *Journal of Econometrics* 45, 181-211.

Lo, A. and J. Wang, 2000, Trading Volume: Definitions, Data Analysis, and Implications of Portfolio Theory, *Review of Financial Studies* 13, 257-300.

Madhavan, A., M. Richardson, and M. Roomans, 1997, Why Do Security Prices Change? A Transaction-Level Analysis of NYSE Stocks, *Review of Financial Studies* 10, 1035-1064.

Stickel, S.E. and R.E. Verrecchia, 1994, Evidence that Volume Sustains Price Changes, *Financial Analyst Journal* (November-December), 57-67.

Appendix.

Table 1A. Descriptive Statistics for RTS companies

Company Name	Start Date	End Date	RTS Weights (%)	Return		Turnover		Market Cap (End date) (US$ BN)
				Mean (%)	Std. Dev. (%)	Mean (%)	Std. Dev. (%)	
Aeroflot	09.29.1997	11.01.2001	0.52	-0.24	6.27	0.06	0.08	0.307
Cherepovets Severstal	09.01.1995	11.01.2001	0.90	0.40	6.57	0.02	0.02	0.331
Gaz	09.01.1995	11.01.2001	0.38	0.40	6.57	0.09	0.12	0.081
Gazprom	07.03.1997	11.01.2001	MSE	-0.07	5.51	0.04	0.03	10.393
Irkutskenergo	09.01.1995	11.01.2001	1.26	0.001	5.56	0.10	0.16	0.348
Kamaz	09.01.1995	11.01.2001	0.56	0.21	7.88	0.01	0.02	0.233
Lenenergo	09.01.1995	11.01.2001	0.52	0.90	7.99	0.04	0.09	0.254
Lukoil	09.01.1995	11.01.2001	26.35	0.05	4.36	0.04	0.05	8.739
MGTS	09.01.1995	11.01.2001	1.32	0.70	7.72	0.08	0.41	0.455
Mosenergo	09.01.1995	11.01.2001	3.08	0.05	5.38	0.12	0.11	0.907
Norilsk Nickel	09.01.1995	11.01.2001	3.34	0.30	5.78	0.06	0.07	1.943
Petersburg Tele. Net	09.01.1995	11.01.2001	0.70	1.19	7.99	0.06	0.45	0.138
Purneftegaz	09.01.1995	11.01.2001	0.46	0.19	6.03	0.07	0.12	0.271
Rostelecom	09.01.1995	11.01.2001	4.80	-0.02	5.03	0.08	0.08	0.466
Sahalinmorneftegaz	09.01.1995	11.01.2001	0.50	0.82	9.78	0.05	0.06	0.232
Sberbank of Russia	12.15.1996	11.01.2001	1.74	0.14	6.04	0.04	0.05	0.646
Sibneft	09.05.1997	11.01.2001	3.06	0.34	6.33	0.01	0.02	2.987
Slavneft-Megion.	09.01.1995	11.01.2001	0.55	-0.02	8.60	0.08	0.11	0.378
Surgutneftegaz	09.01.1995	11.01.2001	15.93	0.28	5.34	0.05	0.05	9.039
Tatneft	10.17.1995	11.01.2001	2.78	0.13	5.67	0.08	0.07	1.095
United Energy Sys.	09.01.1995	11.01.2001	14.58	0.07	5.31	0.11	0.09	4.133
Uralsvyazinform	12.15.1996	11.01.2001	0.38	0.56	7.88	0.03	0.04	0.060
Yukos	06.18.1997	11.01.2001	4.91	0.51	8.23	0.02	0.03	4.810
AVERAGE (COM. SHARES)			**88.62 (total)**	**0.30**	**6.60**	**0.06**	**0.10**	**48.246(total)**
Lukoil	09.19.1996	11.01.2001	2.18	0.12	5.54	0.07	0.09	0.849
Norilsk Nickel	09.02.1996	11.01.2001	0.33	0.37	5.96	0.32	0.52	0.130
Rostelecom	10.07.1996	11.01.2001	0.56	0.001	5.77	0.07	0.09	0.068
Surgutneftegaz	09.02.1996	11.01.2001	2.58	0.14	5.23	0.11	0.12	1.178
Unified Energy System	09.02.1996	11.01.2001	0.29	0.08	6.09	0.25	0.30	0.133
AVERAGE (PREF. SHARES)			**5.94 (total)**	**0.16**	**5.63**	**0.14**	**0.22**	**1.18 (total)**
AVERAGE (ALL SHARES)			**94.56 (total)**	**02.8**	**6.46**	**0.07**	**0.12**	**49.426 (total)**

Note. Gasprom is traded on Moscow Stock Exchange. The RTS weights are from the Brunswick UBS Warburg Russian Equity Guide. Mean and standard deviation of daily returns and turnover are reported in percentage points.

Table 1A (continued). Descriptive Statistics for the RTS companies' ADR

Company Name	Start date	End date	ADR/Shares ratio	Return		Turnover		Market Cap (end date) (US$ BN)
				Mean (%)	Std. Dev (%)	Mean (%)	Std. Dev (%)	
Gazprom	09/27/99	10/26/01	1:10	0.05	5.52	0.08	0.14	0.207
Inrkutskenergo	01/24/97	10/15/01	1:50	-0.24	23.56	0.040	0.08	0.367
Lukoil com	01/12/96	11/01/01	1:4	0.05	16.00	0.06	0.07	8.748
Rostelecom com	02/17/98	10/19/01	1:6	-0.20	5.39	0.14	0.13	0.437
Surgutneftegaz com	01/08/97	11/02/01	1:50	0.06	6.85	0.02	0.03	8.752
Surgutneftegaz pfd	03/23/98	10/29/01	1:100	0.93	21.22	0.04	0.07	1.229
Sibneft	04/26/99	11/01/01	1:10	1.58	9.74	0.01	0.02	3.556
Tatneft	11/20/97	10/29/01	1:20	-0.02	9.84	0.09	0.11	0.105
UES com	11/05/97	10/29/01	1:100	-0.17	8.18	0.01	0.02	3.915
Yukos	03/16/01	11/01/01	1:15	0.30	2.16	0.02	0.03	8.463
AVERAGE (ALL ADR)				**0.23**	**10.85**	**0.05**	**0.07**	**35.78 (total)**

Note. There are only eight ADRs introduced for corresponding securities so far. ADR/Shares Ratios are computed on 12/31/00. Here and thereafter com. stands for class of common shares and pfd stands for class of preferred shares. When we do not explicitly indicate common or preferred class of shares, we mean common class of shares

Table 2A. Descriptive Statistics for Emerging Markets

Country	Mkt cap (end date) (BN US$.)	Total number of companies	Return		Turnover		Average number of days traded
			Mean (%)	St.Dev(%)	Mean(%)	St.Dev(%)	
Argentina	13.97	20	-0.07	3.19	0.11	0.13	1604
Brazil	69.86	53	0.06	3.34	0.68	2.07	669
Chile	30.10	40	0.01	2.18	0.27	0.94	1421
Colombia	2.61	16	-0.28	6.56	0.06	0.28	902
Greece	60.42	50	0.03	2.93	0.72	2.32	1187
India	44.81	30	0.02	2.98	1.68	2.91	1596
Indonesia	17.59	49	-0.02	5.63	0.42	1.10	1105
South Korea	124.54	200	-0.05	4.42	3.19	6.17	1640
Malaysia	71.01	102	-0.04	3.44	0.18	0.37	1534
Mexico	106.66	89	0.07	3.59	0.31	1.16	1082
Pakistan	5.24	85	-0.09	5.38	0.93	1.76	968
Peru	3.25	35	-0.14	6.93	0.61	1.47	852
Philippines	10.55	33	-0.10	3.64	0.18	0.35	1557
Portugal	45.49	29	-0.05	2.26	0.78	1.60	1209
Sri Lanka	0.49	25	-0.05	3.93	0.12	0.90	963
Thailand	19.43	50	-0.10	4.23	0.46	0.80	1605
Turkey	25.99	47	0.16	4.56	2.41	4.62	1352
Venezuela	3.27	20	-0.07	5.17	0.25	1.01	1175

Note 1. Start date for the common sample of emerging markets countries is December 30, 1994. End date is November 1, 2001. Countries' market caps as of January 11, 2002 based on the sample selection.

Note 2. For Argentina we have excluded foreign companies because no data is reported on them in Datastream files. For Indonesia the presented statistics are for all companies included in the Datastream market index except for the company Bentoel Intl. Investama. The latter has been excluded due to the fact that on multiple occasions its number of shares traded exceeded the total number of shares outstanding. However, the latter does not change our analysis because we have demeaned the series by a 20–day moving average before performing the regression analysis. Thus we report in our regression analysis results for that company too. For similar reasons, the above reported descriptive statistics for Turkey exclude the companies Unye Cimento, Tansas, and Vestel. However, we report in our regression analysis results for these three companies too.

Table 3A. Corporate Events, RTS sample.

Company	Corporate Event Date	Corporate Meetings and Press Conferences
Irkutskenergo	*Announcement*	3/25/99, 1/20/00, 3/20/00, 3/27/00, 5/03/00, 5/10/00, 3/28/01
	Effective	4/7/99, 3/28/00, 3/31/00, 4/28/00, 5/5/00, 6/30/00, 4/28/01
MGTS	*Announcement*	4/6/99, 4/12/00, 4/13/01
	Effective	6/26/99, 6/17/00, 5/14/01, 6/16/01
Sberbank	*Announcement*	6/7/99, 6/3/00, 5/18/01
	Effective	6/30/99, 6/30/00, 6/27/01
Tatneft	*Announcement*	3/11/99, 2/29/00, 3/25/00, 7/24/00, 11/28/00, 3/30/01
	Effective	6/25/99, 3/25/00, 6/23/00, 7/25/00, 11/28/00, 6/22/01
Sibneft	*Announcement*	5/27/99, 5/17/00, 10/9/00, 10/11/00, 5/3/01, 7/6/01, 9/17/01, 10/08/01, 10/30/01
	Effective	6/29/99, 5/17/00, 6/28/00, 10/10/00, 11/28/00, 6/29/01, 8/17/01, 11/12/01, 12/01/01
Mosenergo	*Announcement*	3/6/99, 3/20/00, 12/28/00
	Effective	4/26/99, 5/15/00, 5/18/01
Norilsk Nickel	*Announcement*	5/18/99, 4/11/00, 8/19/00. 10/16/00, 2/13/01, 4/28/01
	Effective	6/18/99, 6/23/00, 8/22/00, 11/24/00, 2/13/01, 5/21/01
Rostelecom	*Announcement*	6/1/95, 5/1/96, 6/1/97, 6/1/98, 4/2/99, 4/8/99, 5/3/00, 10/16/00, 5/22/01
	Effective	6/25/95, 6/17/96, 7/18/97, 6/27/98, 4/7/99, 6/26/99, 6/24/00, 11/18/00, 6/30/01
Yukos*	*Announcement*	2/18/99, 5/18/99, 10/18/99, 4/17/00, 4/19/00, 10/26/00, 4/19/01, 10/4/01
	Effective	2/20/99, 6/29/99, 10/23/99, 4/18/00, 6/3/00, 10/26/00, 6/20/01, 10/18/01
Unified Energy System	*Announcement*	6/19/98, 4/30/99, 10/20/99, 3/20/00, 3/31/00, 4/28/00, 5/12/00, 7/27/00, 8/21/00, 11/16/00, 1/26/01, 3/1/01
	Effective	6/19/98, 6/25/99, 10/26/99, 4/4/00, 4/28/00, 5/12/00, 6/30/00, 7/27/00, 8/30/00, 11/3/00, 11/16/00, 2/2/01, 4/28/01

(Table 3A continued)

Surgutneftegaz	*Announcement*	3/17/99, 1/11/00, 3/23/00, 6/5/00, 3/5/01
	Effective	5/22/99, 2/10/00, 5/6/00, 6/30/00, 5/6/01
Lukoil	*Announcement*	3/15/99, 5/12/99, 3/31/00, 4/6/01
	Effective	4/9/99, 6/29/99, 6/8/00, 6/28/01
Gazprom	*Announcement*	2/17/99, 7/14/99, 7/22/99, 8/24/99, 3/7/00, 8/28/00, 10/23/00, 12/4/00, 1/01/01, 2/08/01, 4/16/01, 5/21/01, 7/12/01, 10/10/01
	Effective	6/30/99, 7/20/99, 7/26/99, 8/26/99, 6/30/00, 9/1/00, 10/26/00, 11/3/00, 12/9/00, 1/23/01, 2/14/01, 5/30/01, 6/29/01, 7/23/01, 10/16/01
PTS	*Announcement*	4/14/99, 2/16/00, 4/26/00, 4/17/01, 10/08/01
	Effective	5/27/99, 4/3/00, 6/9/00, 5/25/01, 11/28/01
Aeroflot	*Announcement*	3/17/99, 4/16/99, 3/13/00, 3/16/00, 2/15/01, 3/4/01, 3/30/01, 8/17/01
	Effective	3/17/99, 4/23/99, 5/12/99, 6/26/99, 3/15/00, 6/24/00, 3/30/01, 4/9/01, 5/19/01, 9/6/01
Gaz	*Announcement*	3/17/99, 2/14/00, 11/28/00, 11/29/00, 3/30/01
	Effective	4/24/99, 4/29/00, 11/29/00, 1/20/01, 6/23/01
Lenenrgo	*Announcement*	2/12/99, 10/12/99, 3/20/00, 2/22/01
	Effective	5/20/99, 12/8/99, 5/25/00, 5/24/01
Slavneft	*Announcement*	4/30/99, 2/28/00, 5/5/00, 3/5/01
	Effective	10/3/98, 1/30/99, 6/29/99, 1/14/00, 6/30/00, 6/29/01
Purneftegaz	*Announcement*	3/31/99, 2/28/00, 10/11/00, 5/4/01, 7/6/01
	Effective	4/23/99, 4/20/00, 10/23/00, 5/25/01, 7/31/01
Severstal	*Announcement*	3/17/99, 3/21/00, 5/29/01
	Effective	4/30/99, 4/28/00, 6/29/01
Sakhalin-morneftegaz	*Announcement*	3/23/99, 11/5/99, 4/25/00, 12/26/00, 3/30/01, 9/14/01
	Effective	4/26/99, 11/24/99, 4/27/00, 12/26/00, 5/12/01, 10/2/01
Uralsvyazinform	*Announcement*	3/10/99, 4/5/99, 4/11/00, 7/24/01
	Effective	4/6/99, 5/21/99, 5/26/00, 9/27/01
Kamaz	*Announcement*	5/31/99, 8/24/99, 10/18/99, 3/27/00, 6/3/00, 5/17/01
	Effective	6/30/99, 9/24/99, 10/20/99, 4/25/00, 6/29/00, 6/27/01

Note. The table lists the announced days and the effective days for **corporate meetings** listed in Bloomberg for the period 09/01/1995 – 11/01/2001. Notice that Bloomberg effectively started covering most of the listed companies above in 1997. However, for several companies, the coverage starts in 1995. Note that for some companies more effective dates might be available.

*From 06/30/1999 to 05/16/2000 no deals are reported in RTS for the company Yukos. The latter was not admitted for trading at RTS for the above-mentioned period.

Table 4A. Ownership structure of RTS companies

Company	Top Shareholders	Voting %	% Shares	Governance Index
Gaz	Siberian Aluminum	N/A	25.00 %	17
	CS First Boston Europe Ltd.	14.07 %	13.55 %	
	Avtobank	13.30 %	10.16 %	
	Depository Clearing Company	6.08 %	6.58 %	
Uralsvyazinform	Svyazinvest JSC	N/A	53.20 %	NA
	The Bank of New York (nominal shareholder)	N/A	8.62 %	
Purneftegaz	Rosneft Oil Company	50.70 %	38.00 %	NA
	Chestlow Ltd.	N/A	26.68 %	
	Depository Clearing Company	8.57 %	6.42 %	
Sahalinmorneftegaz	N/A	N/A	N/A	NA
Aeroflot	State Property Fund	N/A	51.00 %	NA
	Institutional Investors	N/A	34.00 %	
	Management & Employees	N/A	15.00 %	
Lenenergo	Unified Energy Systems JSC	N/A	49.00 %	
	E.ON Energie	N/A	9.29 %	
Slavneft-Megionneftegaz	State Property Fund	N/A	45.00 %	
	Russian Federation Property Fund	N/A	30.00 %	
	Mingosimuschesvo RB (State Property)	N/A	10.80 %	
	Excalibur Capital Resources Ltd.	N/A	6.20 %	
Kamaz	Russian Federation Property Fund	N/A	35.84 %	
	Vneshtorgbank	N/A	18.94 %	
	Republic of Tatarstan	N/A	13.74 %	
PTS	Communication Investment Company JSC	N/A	41.02 %	
	Brunswick Warburg Nominees JSC	N/A	18.23 %	
	Credit Suisse First Boston Securities JSC	N/A	10.55 %	
Cherepovetskii SK	N/A	N/A	N/A.	NA
Irkutskenergo	Russian Federation Ministry of Property Relations	N/A	20.00 %	
	OAO Central Company VS FPG (managing trustee)	N/A	20.00 %	10
	ZAO Brunswick UBS Warburg (nominal shareholder)	N/A	19.51 %	
	ZAO Depository-Clearing Company (nominal shareholder)	N/A	18.89 %	
	The Non-Government Pension Fund, Energy	N/A	5.15 %	
	ING Depository (nominal shareholder)	N/A	5.14 %	
MGTS	Moscow Committee for Science & Technology	55.62 %	46.35 %	
	Svyazinvest JSC	28.00 %	23.23 %	NA
Sberbank of Russia	Central Bank of Russia	N/A	58.70%	NA
Tatneft	Republic of Tatarstan	32.86 %	30.77 %	18
	TAIF	N/A	5.82 %	

(Table 4A continued)

Sibneft	National Depository Center	N/A	21.10%	25
	ABN AMRO Bank	N/A	19.60%	
	ING Bank ZAO	N/A	19.30%	
	Deutsche Bank	N/A	17.40%	
	OAO Western Siberian Depository	N/A	6.90%	
Mosenergo	Unified Energy Systems JSC	N/A	50.87%	15
Norilsk Nickel	Rosbank JSC	N/A	52.81%	27
	Depository Clearing Company (Nominee)	N/A	10.49%	
	CSFB (Nominee)	N/A	8.30%	
Rostelecom	OAO Svyazinvest	50.67 %	38.00%	15
	Foregin Companies	24.64 %	30.12%	
Yukos	Citibank	N/A	20.00%	51
	Credit Suisse First Boston	N/A	16.37%	
	Temerein Enterprises Ltd.	N/A	12.83%	
	Barion Enterprises Ltd.	N/A	10.49%	
	Wandsworth Enterprises Ltd.	N/A	9.57%	
	Cayard Enterprises Ltd.	N/A	8.99%	
	Kincald Enterprises Ltd.	N/A	8.16%	
Unfied Energy System	Russia State Property Fund	N/A	51.62%	24
	Bank of New York International Nominees	N/A	19.96%	
	Non-Commercial Partnership "National Depository Center"	N/A	6.44%	
Surgutneftegaz	Surgutneftegaz Oil Company	N/A	46.00%	26
Lukoil	ING Bank (Eurasia)	46.13 %	41.40%	20
	State Property Fund	26.41 %	23.70%	
	Depository Company Nikoil	N/A	8.90%	
Gazprom	Russian Federation	N/A	35.00%	38
	Stroytransgaz	N/A	5.70%	

Note. The data for the top shareholders has been hand collected from Bloomberg terminals as of November 1st, 2001. Corporate Governance Index is collected from Brunswick UBS Warburg.