Private Information Trading and Corporate Governance In Emerging Markets

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Abstract

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1. Introduction

Recent scandals on Wall Street suggest that exploitation of uninformed investors could be quite pervasive in the market place.[2] Numerous media coverage and empirical studies have shown that firms, brokers, and analysts have manipulated financial information in order to profit from unwary investors.[3] The revelations have dealt a serious blow to investor trust in the US, much like crony capitalism shattered investor confidence in Southeast Asia in 1997. Recent fiasco on Wall Street and the financial crisis in Asia has demonstrated that corporate governance is of primary importance for investment returns.

One of the main difficulties in studying corporate governance is lack of quality information. This is especially the case in emerging markets, where there are fewer disclosure rules, and much less enforcement of insider trading laws. Moreover, disclosed information, including analyst reports, is often subject to manipulation. Corporate governance problems are even more pervasive in emerging markets due to poor protection of the minority shareholder rights, unequal treatment of foreign and domestic stockholders, and underdeveloped legal and regulatory environment. To protect themselves against corporate predators, investors in emerging markets need to find alternative source of information on corporate governance.

This paper contributes to the literature by establishing a relationship between returns autocorrelation and corporate governance. Our paper is based on a dynamic volume-return model of Llorente, Michaely, Saar, and Wang (2001, LMSW hereafter). The essence of the model is that intensive trading volume together with stock return autocorrelation can help us identify firms with high degree of 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

[2] Recent the New York State attorney general has made numerous investigations into leading Wall Street firms for issuing inflated investment ratings and offering "hot" IPOs in turn for investment banking business from telecom companies. Several CEOs from once high-flying companies have been indicted or have pleaded guilty to outright stealing from shareholders.

[3] Hayes (1998), Lim (2001), and Michaely and Womack (1999) have shown that information is manipulated in order to drum up investment banking business, to maintain access to information, or to stimulate trading by investors. (For example, numerous telecom analysts were alleged or found to have inflated earnings forecasts for companies such as Global Crossing, Quest, WorldCom and Winstar. Despite mounting loss and falling revenues, many continued their buy recommendation for investors until their bankruptcy.)

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 degree of information asymmetry in emerging market stocks. We will implicitly control for market microstructure effects such as bid-ask spread, poor liquidity, and nonsynchronous trading.

Another goal of this study is to establish a link between a measure of private information trading and various indicators of corporate governance quality. Intuitively, informational asymmetry is related to the quality of corporate governance and information disclosure. Therefore, intensity of private information trading is a useful indicator for identifying corporate governance problems on both macro- and micro-level in the economy. We examine how the regulatory environment in the emerging markets' countries affects informational trading. We also study the relation between intensity of private information trading and company-specific indicators of investor rights protection. We find that stocks in countries that enforce insider-trading law, have higher standards of information disclosure, and provide better investor protection exhibit less private information trading. One of the main advantages of our study is that it relies on trading data rather than accounting data, whose standards could vary greatly across-different markets.

Our study builds on a growing literature on return autocorrelation and turnover. Harvey (1995a) was first to examine the determinants of return autocorrelation in emerging market indices. He documented that a lack of diversification and trading depth induces spurious serial correlation in some countries but noted that more needs to done to explain the return autocorrelation. Rouwenhorst (1999) found that return factors and turnover are related in emerging markets. However, the focus of his study is on liquidity issues. Our paper extends a large body of literature on emerging market asset pricing by studying high frequency daily data at the firm level. Most previous studies, such as Bailey and Lim (1992), Bekaert and Harvey (1995, 1997, 2000), Bekaert, Harvey, and Ng (2002), Harvey (1995a, 1995b), and Henry (1999, 2000), use the low frequency monthly data.

Our paper is related to several recent studies that have investigated the impact of information asymmetry on foreign equity holdings. Brennan and Cao (1997) demonstrated that

a disadvantage in information might help explain foreign investors' home bias.[4] Bhattacharya, Daouk, Jorgenson, and Kehr (2000) also showed 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 discovered that lack of prosecution of inside trading create a hazardous investment environment for foreign investors in emerging markets.[5] 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.

The rest of the paper is organized into the following sections. Section 2 describes the methodology for measuring private information trading after controlling for microstructure effects. Section 3 presents the empirical results. Section 4 discusses private information trading around corporate events and corporate governance issues in Russia. Section 5 concludes.

2. 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

[4] Albuquerque, Bauer and Schneider (2001) also develop a framework for characterizing asymmetric information in international equity markets. In addition, Bhattacharya, Daouk, and Welker (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.

[5] 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 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. The degree of informational asymmetry is measured using a standard deviation of second signal σ_G^2. In addition, investors are also endowed with a non-traded asset with payoff N_t, and the random endowment $Z_t^i, i = 1,2$. Investors maximize their expected utility over the next period wealth using a common exponential utility function conditional on their respective information set. All shocks to the economy are 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 point out that the above model provides two important motives for trading: hedging risk and speculation on future returns by informed investors. Each investor holds stock and non-traded 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:

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

Here, C_1 represents the unconditional return autocorrelation provided the correlation between volume and return is small. C_2 indicates whether stocks are dominated by hedging trades or trades generated by private information. Thus, a statistically positive C_2 coefficient suggests significant informational trades, whereas a statistically negative C_2 coefficient indicates dominating hedging trades. In principle, all stocks have both informational and hedging trades. When either of them dominates, C_2 becomes statistically insignificant. LMSW note that "…When all trades are hedging trades, current returns together with high volume predict strong reversals in future returns."[6] This implies a negative C_2 coefficient. Another way of understanding a negative C_2 is that it captures the liquidity effect, which measures the price impact of a given size trade. Thus, the more illiquid the stock, the larger will be the price impact, and the more negative the C_2 coefficient will be. Pastor and Stambaugh (2002) have used this result to measure stock and constructed a market liquidity measure based on aggregating C_2 coefficients across stocks.

However, if speculative trades are more important, the stock's future expected payoff changes.[7] Because LMSW adopt non-fully revealing signaling equilibrium model all the information about future expected payoff is not incorporated in the today's stock price. Therefore it takes one or several more trading periods in order for information to be incorporated fully in the stock price. LMSW have shown that, *ceteris paribus*, C_2 increases with the degree of information asymmetry.[8]

One apparent advantage of the LMSW model is that it can be easily extended to implicitly control for returns autocorrelation resulted from microstructure effects such as bid-ask bounce and non-synchronous trading (or stale prices). According to Roll (1984), the bid-ask bounce would introduce a negative serial correlation for stock returns, which can be captured by a negative C_1 coefficient. On the other hand, if non-synchronous trading (or stale prices) dominates, then we would expect a positive serial correlation for stock returns, which

[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.

can be captured by a positive C_1 coefficient. C_1 could also be positive (or negative) if there is short-term price momentum (or reversal).

In this paper, we will estimate the above equation and measure the intensity of asymmetric information in emerging market stocks. Following LMSW, we make several modifications of the theoretical model for empirical analysis. The theoretical model 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. We begin by estimating the following regression derived from equation (1):

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

We use daily continuously compounded return and trading volume for the estimation of (2). Following earlier studies, such as LMSW and Stickel and Verrecchia (1994), we define continuously compounded return as $R_{i,t} = \log((P_{i,t} + D_{it})/P_{i,t-1})$, and volume as $V_{i,t} = \log(VOL_{i,t}/N_{i,t}) - 1/20 \sum_{j=1}^{20} \log(VOL_{i,t-j}/N_{i,t-j})$, 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 detrended daily turnover as a measure of trading volume for individual stocks. Lo and Wang (2000) provide theoretical justification for 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 and detrend resulting series by subtracting 20-day moving average[9]. Here we assume the error term in equation (2) is uncorrelated over time, but its variance may vary.[10]

We also examine the dynamic volume-return relationship by using excess returns and excess turnover. Our objective is to remove the market effect and concentrate on the idiosyncratic component of individual stock return and volume. It is conceivable that the

[9] We also detrend series by 60-day and 120-day moving average. The number of stocks robust to MA specification in each country is reported in the last column of Table 2.

market component in returns and turnover is associated with "allocational trades" while company-specific (idiosyncratic) component is associated with private informational trade. This may make it easier to discover the presence of informational trades. Thus, we will run the following regression:

$$R^e_{i,t+1} = C_0 + C_1 R^e_{i,t} + C_2 R^e_{i,t} V^e_{i,t} + \varepsilon_{i,t+1}, \qquad \textbf{(3)}$$

where $R^e_{i,t} = R_{i,t} - R_{m,t}$, $V^e_{i,t} = V_{i,t} - V_{m,t}$ are return and turnover in excess of the market.[11]

3. Empirical Results on Speculative Trading and Corporate Governance

3.1 Data

We collect trading data for other emerging markets from Datastream.[12] 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, Pakistan, Peru, Philippines, Portugal, Russia, 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 investible index for the above emerging markets. Overall we have a total of 1005 emerging markets stocks. Market capitalization for each country and some basic statistics are reported in Table 1. The sample period is from January 1, 1995 to November 1, 2001. This results in a total of 1785 daily

[10] See Harvey (1995b), and Bekaert and Harvey (1995, 2000) for time-varying volatility in emerging markets.
[11] We have also tried to define excess return and excess turnover by using the CAPM model and the market model respectively. The empirical results are not qualitatively affected.
[12] The only exception here is Russia, where the data is obtained from Russian Trading System website. Gasprom trading data comes from AKM Russian consulting agency. Russian sample starts at September 1st, 1995, ends November 1st, 2001.

observations on three variables: close price, number of shares traded, and the total number of shares outstanding for the selected stocks. [13] All returns are converted to US-dollar returns.

The second column of Table 1 presents the market capitalization of each country on January 11, 2002, the starting date of our research. At the time, the smallest market in our sample was Sri Lanka with a market cap of US$0.49 Billion and the largest market was South Korea with US$124 Billion. The third column gives the number of stocks in each country used for our study. The fourth to sixth column presents the arithmetic mean, geometric mean, and standard deviation of daily stock returns for each country. We compute these statistics for each company first and then average them across stocks within a country. One can see that the average daily returns are mostly negative during the 1995-2001 sample period. This is not surprising, since most countries in our study have suffered through a series of financial crises. The daily return volatility ranges from 2.2% in Portugal to 6.2% in Russia. The seventh and eighth column presents the mean and standard deviation of daily turnover. Again, we compute these statistics first for each company and then average them across stocks within a country. We can see that the average turnover varies dramatically across countries, with a sluggish turnover of 0.06% for Columbia and an extremely heavy turnover of 3.2% in South Korea. There is also a large variation of turnover volatility across markets, ranging from 0.12% in Russia to 6.2% in South Korea.

The ninth to eleventh column presents the mean, median, and standard deviation of first order autocorrelation in daily returns. For the mean and median, we compute them for each company first and then average them across stocks within a country. For the standard deviation, however, it is computed as the *cross-sectional* variation of autocorrelations. We can see from the ninth column that the mean autocorrelation of stocks tend to positive in most countries but it could be negative such as in Pakistan. From the variation of autocorrelations, we can see that even for counties like Russia, where the mean autocorrelation is negative (-0.074), the large standard deviation (0.154) suggests that there are still a large number of stocks with positive autocorrelation. These results are similar in spirit to those found in Harvey (1995a), who discovers positive first order autocorrelations for almost all emerging market

[13] 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.

indices but they vary greatly across markets. He further finds that the variation is partly explained by difference in market cap, trading volume, and asset concentration. However, he found there is much variation left to be explained. Our objective here is to further explore return autocorrelation and turnover and to extract some useful information on speculative trading and corporate governance.

3.2 Measuring Private Information Trading

We start by estimating equation (2) for all emerging market stocks in our sample. For simplicity, we aggregate the parameter estimates by countries and the results are presented in Table 2, Panel A. Column 2 reports the cross-sectional averages of C_1 coefficients for each country in the sample. We can see that the average for most countries are positive, suggesting the presence of price momentum or the effects of non-synchronous trading. These results are consistent with those of Harvey (1995a), who finds that emerging market indices generally exhibit short-term positive serial correlation.

Column 3 reports the cross-sectional averages of C_2 coefficients for each country in the sample and Column 4 reports the percentage of positive C_2 coefficients. Average C_2 coefficient is positive for 10 out of 19 countries in the sample. Argentina, Brazil, Indonesia, Pakistan and Russia have the strongest evidence for informational trading. 50% or more of the stocks in Mexico, Pakistan, Peru, Portugal, Sri Lanka, Turkey, and Venezuela have shown positive C_2 coefficients. However, the percentage for Chile, Colombia, Greece, India, South Korea, Malaysia, Philippines, and Thailand is less than 50%. We find the strongest evidence of information trading in Brazil ($C_2 > 0$ for 72% of the stocks) and the least evidence in South Korea ($C_2 > 0$ for 15.5% of the stocks). It is interesting that South Korea is generally perceived to have the most developed financial market among all the countries in our study and it also happens to show the least private information trading in the tests.

It is worth noting that the total number of positive coefficients could be misleading because some of the positive coefficients might be not statistically significant. Thus, we also report the percentage of companies with significantly positive C_2 coefficients (at 5% level) in column 5. The t-statistic is computed based on the White heteroscedasticity robust covariance matrix. The C_2 coefficient is statistically significant and positive for 140 stocks or 14% of our

sample. It is interesting to note that Indonesia, one of the countries perceived to have the worst crony capitalism in the world, also happens to have the highest percentage, 42%, of significantly positive C_2 coefficients. Since C_2 coefficient is determined by a balance between liquidity and information trading, it is remarkable that many Russian stocks still show a presence of information trading despite a low turnover. This implies that speculative trading must be quite extreme in order to dominate the effects of liquidity.

We have also found that the sign of C_2 coefficient from regression (2) is robust to different specification of turnover measures. We consider log turnover detrended with a 20-, 60-, or 120-day moving average. Column 7 of Table 2, Panel A reports the number of stocks whose C_2 coefficient does not change sign under three different specifications of trading volume. Percentage of robust stocks varies between 71% (for Peru) and 93% (for India). Overall, Panel A results suggest the presence of private information trading in emerging markets, more pervasive in some countries than in others.

Next, we consider specifications for return and volume that are free of the market component. It is conceivable that the market component in return and turnover reflects overall market information while the idiosyncratic part corresponds to trades based on private information related to the company. Thus, we would expect more C_2 coefficients to be positive in a modified regression (3). Panel B of Table 2 reports regression results. We find that the total number of positive C_2 coefficients has increased from 414 (Panel A) to 497 (Panel B). The increase in the number of positive C_2 coefficients is also noticed at the country level for 16 out of 19 countries. Unfortunately, due to the increase in measurement errors, we have a drop in the percentage of companies with significantly positive C_2 coefficients. The robustness check of C_2 coefficients with respect to three different turnover measures indicates that results are quite robust to the alternative specifications of 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 return and turnover

into market and idiosyncratic components.[14] Our results suggest that there is noticeable information asymmetry in emerging market stocks.

3.3 Speculative Trading and Corporate Governance

In this section, we will examine relationship between private information trading and our broadly defined corporate governance measures. Our intuition is that informational asymmetry should be related to the quality of corporate governance and information disclosure. Therefore, intensity of private information trading could be a useful indicator for identifying corporate governance problems in emerging markets. For simplicity, we will classify various indicators of corporate governance into two broad categories, the rule of law and investor rights. Our first step is to relate the intensity of private information trading to the rule of law and information disclosure, which defines the macro-environment for corporate governance.

Here we will briefly introduce our data source and the definition of the indicators. The variable used for the enforcement of insider trading laws is from Bhattacharya and Daouk (2002). It 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.[15] The following indicators are obtained from the study of "Law and finance" by LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998), which include the Efficiency of Judicial System, the Risk of Expropriation, and the Quality of Accounting Standards.[16] We will pool all companies in our sample to run the following cross-sectional regression using the above indicators:

$$C_{2,i} = a_0 + a_1 ITLE_i + a_2 EJS_i + a_3 RExp_i + a_4 QAS_i + error_i, \qquad \textbf{(4)}$$

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

[15] See Bhattacharya and Daouk (2002) 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 but enforcement varies across countries.

[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[16]. The index of the accounting standards is created by examining and rating the 1990 annual reports on their inclusion

where $ITLE_i$ is Insider Trading Law Enforcement Index, EJS_i is Efficiency of Judicial System, RE_i is the Risk of Expropriation, QAS_i - Quality of Accounting Standards for country *i*. The results of cross-sectional regression (4) are reported in Table 3, panel A. The dependent variable C_2 for each company is obtained from regression (2). One can see that C_2 is inversely related to 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, inefficient judicial system, high risk of expropriation and low quality of the accounting standards are expected to have more private information trading. Our results also remain unchanged if we regress C_2 coefficients on each individual indictor.[17]

As a robustness check, we also conduct a cross-sectional regression analysis for C_2 estimates obtained from the modified regression (3). Our results remain largely unchanged, especially for the single indicator regression. The only difference is that EJS_i and QAS_i become insignificant in the joint estimation. Note that the risk of expropriation index has the highest adjusted R-square value and t-statistics in the individual regressions.

Next, we explore relationship across countries between private information trading and the protection of the shareholder rights. We perform regression of C_2 coefficients on a set of indictors designed to capture the degree of investor rights protection and voting procedures across countries. In particular, we include the variables from Table 2 of LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998):[18]

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and omission of 90 items in seven categories (general information, income statements, funds flow statement, balance sheets, accounting standards, stock data, and special items).

[17] 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.

[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 "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

$$C_{2,i} = a_0 + a_1 OSOV_i + a_2 OMN_i + a_3 PRI_i + a_4 ESM_i + a_5 CO_i + a_6 SNB_i + a_7 CumVot_i + error_i, \quad \textbf{(5)}$$

where $OSOV_i$ stands for One share-One vote 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*. One can see that the first five variables are clearly related to minority investor protection. The last two variables, SNB_i -- shares not blocked before meeting dummy variable and $CumVot_i$ -- proportional representation of cumulative voting dummy variable, are procedural variables whose impact on investor protection is somewhat ambiguous.

Table 4 reports results for cross-sectional regression (5). Panel A uses C_2 estimates obtained from regression (2) for 978 stocks,[19] while Panel B uses C_2 estimates from regression (3). Notice that all of the coefficients in the individual regressions are significant at the 5% level in Panel A of Table 4. 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. As expected, 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. We also find that a higher percentage of share capital needed to call extraordinary

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 "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 data for the latter is obtained from Table 7 in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

[19] We exclude Russia from this part of the study because we are not aware of such macro-indicators for it.

shareholders' meeting is positively related to C_2. Moreover, higher degree of ownership concentration seems to give rise to more informational trading. However, our results on the "preemptive rights to issue" are ambiguous, since the results are not different in the single and joint estimation.

Next, we discover that the "shares not blocked before meeting" variable is positively related to C_2. One possible explanation here is that, if shares are not blocked before the shareholders' meeting then they can be sold just before the meeting to take advantage of insider information. As a result, speculative trading could be high. The "cumulative voting/ proportional representation" dummy variable is positively related to C_2. Here, most estimates of a_i from the cross-sectional regression (5) do not change their sign irrespective of whether we run the regression individually or jointly. All indicators, except for the "preemptive rights to issue", are statistically significant and preserve their signs in the individual regressions in Panel B, where we report regression results using C_2 estimates from regression (3). The only exception is the "preemptive rights to issue" variable, which becomes insignificant in Panel B.

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

$$C_{2,i} = \sum_{j=1}^{19} \alpha_j D_j + \alpha_{20} \log(MktCap_i) + error_i, \qquad \textbf{(6)}$$

where D_j is the country dummy and $\log(MktCap_i)$ is the log of company's average market capitalization in US dollars during the sample period. Here we use the country dummy variables to control for differences in the quality of corporate governance and information disclosure. Table 5 reports results of regression (6). In regression I, dependent variable is C_2 coefficient from regression (2). In regression II, dependent variable is C_2 estimate from regression (3). We obtain statistically significant inverse relationship between log average market cap and the coefficients C_2 in both cases. Thus, the intensity of speculative trading is higher for small companies in emerging markets. Note that this finding is in line with the

original results of LMSW who find that small capitalization stocks exhibit more informational trading than large capitalization stocks.

4. Special Case of the Russian Market

In this section, we will explicitly link the extent of private information trading to corporate governance rankings. This section is based on the Russian data set, because we were able to obtain corporate governance rankings only for Russian companies. 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 could be incorporated in stock prices through their trades.

4.1 Corporate events

The theoretical model of 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[20]. We will focus on the announcement and holding of corporate meetings. These are important corporate events in Russia, 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 most 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 may start trading before major news comes to the market. To detect such informational trade, we need 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, plus the period between the announcement date and the effective date of the meeting, and 10 days after the effective date of the meeting.

[20] We conjecture that corporate events periods are associated with high trading volume days.

For each stock we create a corporate dummy variable $D^c_{i,t}$, which is one when the dates belongs to the event window of stock *i*, and zero otherwise. To capture additional information asymmetry during the event trading periods we estimate the following regression:

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + C_3 R_{i,t} V_{i,t} D^c_{i,t} + \varepsilon_{i,t+1}. \quad \textbf{(7)}$$

Here, C_2 shows what is the usual informational trading for stock i, and C_3 shows the additional information asymmetry around corporate events days. We have obtained data about corporate announcements and their dates from Bloomberg. We report event dates in Appendix Table 1. The database includes corporate meetings, capital changes, as well as all the press conferences on company-related news. Press conferences in Russia are usually quite significant events because they are often related to some scandals that have a large impact on share prices. Intuitively, if insiders have some corporate information before it is made public, then we could expect more speculative trading around event dates.

Table 6 reports results for regression (7): estimated coefficients along with t-statistic for each stock, adjusted R^2, and the number of observations available for each stock. While many C_3 coefficients are insignificant, we find the remainders are almost all positive. This supports our story of more informational trading around corporate meetings. For example, C_3 coefficient for Russia's largest company, Gasprom (Russian gas monopoly), is 0.443 around event periods. In general, our results support the hypothesis that major Russian "blue chips" show strong indications of speculative trading during event periods. Our results are consistent with several other papers investigating the relation between dynamics of return and trading volume using US data (see Stickel and 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[21].

[21] We have also looked how the nature of trades changes after the introduction of American Depositary Receipts (ADRs) on Russian stocks. The hypothesis is that the ADR introduction facilitates hiding of informational trades. Thus, the informational/allocational trading pattern should change as a result of international cross-listing. We did not find a structural break in the stocks' trading patterns after ADR introduction. This result suggests the

4.2 Corporate Governance Issues

Next, we study relation between the intensity of speculative trading and Russian corporate governance. We use corporate governance risk ranking for Russian companies computed by the investment bank Brunswick UBS Warburg.[22] It ranks corporate governance of Russian companies on a scale from 0 to 60, with higher numbers indicating higher level of corporate governance risk. Following Black (2001a), we emphasize that corporate governance risk in emerging markets be interpreted as a risk stemming predominantly from the risk associated with information disclosure and the risk of self-dealing.[23] Black's (2001b) sample consists of 20 companies, 15 of which are included in our sample[24]. Although we limit our cross-sectional analysis to only 15 companies, their stocks account for 89.6% of the Russian market capitalization. We consider the following regression specification:

$$C_{2,i} = a_0 + a_1 GovernanceRisk_i + error_i, \qquad \textbf{(8)}$$

We run OLS regression of specification (8) and correct errors for heteroskedasticity. The results are reported in Figure 1 and 2. The governance risk ranking is clearly positively related to the intensity of private information trading. The relationship is statistically significant. We obtain similar results using C_2 obtained regression (3). While we are aware that the sample is

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introduction of ADR did not greatly change the segmentation of market for Russian stocks. (see Domowitz, Glen, and Madhavan (1998) for a discussion on international cross-listing and segmentation of stock markets).

[22] There are several risk categories included in the corporate governance risk rating of Brunswick UBS Warburg for Russian companies. These are 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 attitude towards shareholders (8%), Registrar risk (Registrar affiliated with the company) (2%). Notice that none of these components involves a firm's market value. Corresponding weights are shown in brackets.

[23] 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

[24] 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.

relatively small, our results nonetheless suggest a possible relationship between corporate governance and private information trading.

5 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 emerging markets. We have also related measures of speculative trading to country legal environment and corporate governance. One of the main advantages of our study is that it relies on trading data rather than accounting data. As a result, our data enjoys a high degree of transparency and uniformity across different markets, which makes it easier for cross-country comparison.

Our empirical study finds 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 the most capitalized Russian stocks is related to poor corporate governance. 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 can be used as a possible measure of "information asymmetry" for ranking emerging market stocks.

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 information asymmetry remains when we remove the market-wide variations from the analysis. Second, we show that our findings are not sensitive to alternative definitions of trading volume. We have also made a methodological contribution to the private

information literature by combining the traditional event study approach with LMSW regressions. In the past, studies of private information (insider) trading used 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.

However, there are several possible caveats for our measure of information asymmetry. 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 vary in its intensity and trading frequency.[25] As a result, it might be difficult for an econometrician to detect the speculative trading. Moreover, while we provide some measure for the intensity of "information asymmetry" and its relationship to poor corporate governance, it is not a direct measure of financial loss likely to be incurred by uninformed investors.

With these limitations in mind, the approach developed in paper could be useful for emerging market researchers and investors. Recent investor experience in the U.S. with Enron and WorldCom highlights the importance of corporate governance. While the measures developed in the paper are certainly quite crude instruments for the job, they provide some independent information on the status of corporate governance of emerging market companies. A bi-product of our information measure is that it may sometimes serve as a liquidity proxy when C_2 is negative. Pastor and Stambaugh (2002) demonstrated that aggregated C_2 could be used as a proxy for the liquidity factor in the U.S. market. It world be interesting to see whether similar results can be obtained in emerging markets as well.

[25] For example, if insider trading is conducted within a few hours or over a few weeks rather than over several days, then it would be hard for an econometrician to detect using only daily return and turnover data.

There are many issues that remain to be examined. First, as a measure of "information asymmetry" (and indirectly for corporate governance as well) 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 minority shareholders. 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 poor corporate governance in emerging market stocks, 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.

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Table 1. Descriptive Statistics for Emerging Markets

The start date for the sample of emerging markets is December 30, 1994. The end date is November 1, 2001. Presented country market capitalization as of January 11, 2002 based on the sample. For Argentina we have excluded foreign companies because no data is reported on them in Datastream files.

Country	Mkt Cap (BN $US)	Stocks	Daily Mean		Daily Std. Dev.	Turnover		Autocorrelation			Average Obs
			Arithmetic %	Geometric %	%	Mean %	Std. Dev %	Mean $\rho_{1,cs}$	Median $\rho_{1,cs}$	Std. Dev. $\rho_{1,cs}$	
Argentina	13.97	20	-0.07	-0.12	3.09	0.11	0.13	0.050	0.037	0.064	1604
Brazil	69.86	50	0.02	-0.04	3.75	0.68	2.07	0.050	0.066	0.062	669
Chile	30.10	40	0.00	-0.02	2.06	0.27	0.94	0.116	0.116	0.064	1421
Colombia	2.61	16	-0.06	-0.11	3.30	0.06	0.28	0.028	0.030	0.114	902
Greece	60.42	50	0.05	0.00	2.92	0.72	2.32	0.164	0.152	0.102	1187
India	44.81	30	0.01	-0.03	2.85	1.68	2.91	0.070	0.062	0.039	1596
Indonesia	17.59	49	-0.02	-0.13	4.84	0.42	1.10	-0.023	-0.005	0.128	1105
South Korea	124.54	200	-0.05	-0.14	4.26	3.19	6.17	0.059	0.058	0.044	1640
Malaysia	71.01	102	-0.04	-0.10	3.32	0.18	0.37	-0.003	-0.014	0.077	1534
Mexico	106.66	89	0.00	-0.03	2.74	0.31	1.16	0.050	0.056	0.081	1082
Pakistan	5.24	85	-0.06	-0.11	3.35	0.93	1.76	-0.038	-0.019	0.089	968
Peru	3.25	35	-0.04	-0.08	3.88	0.61	1.47	0.001	0.008	0.097	852
Philippines	10.55	33	-0.10	-0.16	3.48	0.18	0.35	0.038	0.046	0.056	1557
Portugal	45.49	29	-0.04	-0.07	2.19	0.78	1.60	0.065	0.078	0.080	1209
Russia	49.43	28	0.27	0.07	6.22	0.07	0.12	-0.074	-0.048	0.154	867
Sri Lanka	0.49	25	-0.04	-0.08	2.81	0.12	0.90	-0.017	-0.009	0.076	963
Thailand	19.43	50	-0.10	-0.18	4.07	0.46	0.80	0.033	0.043	0.058	1605
Turkey	25.99	50	0.15	0.06	4.42	2.41	4.62	0.012	0.016	0.042	1352
Venezuela	3.27	20	-0.05	-0.11	3.65	0.25	1.01	0.030	0.000	0.046	1175

Table 2. Dynamic Volume-Return Relationship, Emerging Markets sample

Panel A: The table records the results of the regression analysis for the 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*** indexes the companies in the corresponding country from our sample. $R_{i,t}$ is the continuously compounded daily return, and $V_{i,t}$ denotes the company turnover. The fraction of positive C_2 coefficients (column four) and the fraction of 5%-level-significant C_2 coefficients (column five) are reported in percentage points. "Stocks robust to MA specification"(column seven) reports the number of stocks whose C_2 coefficients do not change sign under alternative specifications for turnover (in particular when we detrend the turnover measure by a 60-day and 120-day moving average.)

Country	Total number of stocks	Mean C_1	Mean C_2	% $C_2 > 0$ out of total	% $t(C_2) > 1.95$ out of total	Mean adj. R^2	Stocks robust to MA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Argentina	20	0.050	0.021	60.00	25.00	0.009	17
Brazil	50	0.020	0.029	72.00	20.00	0.007	37
Chile	40	0.134	-0.014	42.50	7.50	0.022	32
Colombia	16	0.073	-0.056	37.50	0.00	0.046	12
Greece	50	0.176	-0.043	28.00	2.00	0.032	38
India	30	0.090	-0.038	23.33	3.33	0.009	28
Indonesia	50	-0.038	0.023	60.00	42.00	0.029	38
South Korea	200	0.077	-0.048	15.50	3.00	0.009	177
Malaysia	102	0.016	-0.030	30.39	7.84	0.011	91
Mexico	82	0.051	0.002	50.00	19.51	0.019	68
Pakistan	83	-0.072	0.023	55.42	18.07	0.032	67
Peru	35	0.012	0.007	54.29	17.14	0.042	25
Philippines	33	0.039	-0.007	42.42	18.18	0.007	27
Portugal	29	0.064	0.005	62.07	20.69	0.014	26
Russia	28	-0.098	0.018	57.14	25.00	0.053	25
Sri Lanka	25	-0.054	0.008	56.00	24.00	0.015	21
Thailand	50	0.042	-0.006	46.00	12.00	0.007	38
Turkey	50	0.012	0.002	50.00	12.00	0.002	37
Venezuela	20	0.008	0.013	65.00	25.00	0.024	17

Panel B: The table records the results of the regression analysis for the model

$$R^e_{i,t+1} = C_0 + C_1 R^e_{i,t} + C_2 R^e_{i,t} V^e_{i,t} + \varepsilon_{i,t+1},$$

where ***i*** indexes the companies in the corresponding country in the sample. $R^e_{i,t}$ is the continuously compounded daily excess return (excess over the market return), and $V^e_{i,t}$ denotes the excess company turnover (excess over a measure of the market turnover). The fraction of positive C_2 coefficients (column four) and the fraction of 5%-level-significant C_2 coefficients (column five) are reported in percentage points. "Stocks robust to MA specification" (column seven) indicates the number of stocks whose C_2 coefficients do not change sign under alternative specifications of turnover (in particular when we detrend the turnover measure by a 60-day and 120-day moving average.)

Country	Total number of stocks	Mean C_1	Mean C_2	% $C_2 > 0$ out of total	% $t(C_2) > 1.95$ out of total	Mean adj. R^2	Stocks robust to MA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Argentina	20	0.003	0.040	75.00	20.00	0.009	17
Brazil	50	-0.116	0.020	70.00	14.00	0.007	30
Chile	40	0.061	-0.004	45.00	7.50	0.009	34
Colombia	16	0.009	-0.043	50.00	6.25	0.041	14
Greece	50	0.162	-0.005	48.00	8.00	0.033	33
India	30	0.058	-0.018	26.67	0.00	0.005	26
Indonesia	50	-0.177	0.009	62.00	14.00	0.042	42
South Korea	200	0.039	-0.024	28.50	1.50	0.006	151
Malaysia	102	-0.042	-0.005	50.98	0.98	0.009	83
Mexico	86	0.017	0.001	53.49	6.98	0.016	67
Pakistan	84	-0.092	0.005	58.33	7.14	0.032	58
Peru	35	-0.004	-0.004	40.00	5.71	0.042	29
Philippines	33	-0.029	0.012	69.70	9.09	0.005	25
Portugal	29	0.050	0.016	68.97	6.90	0.009	23
Russia	28	-0.264	0.033	60.71	32.14	0.099	24
Sri Lanka	25	-0.107	0.007	48.00	4.00	0.022	19
Thailand	50	-0.020	-0.002	52.00	6.00	0.007	38
Turkey	50	-0.001	-0.002	54.00	4.00	0.003	35
Venezuela	20	-0.040	0.030	75.00	20.00	0.019	18

Table 3. 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 indexes the corresponding company in the sample. The table records the cross-sectional regressions of C_2 coefficients from the LMSW model on four indices: the existence and enforcement of insider trading laws (value one 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 2, Panel A. 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).

	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)	

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

Panel B: 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 2, Panel B (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.

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

Table 4. Investor Rights and Private Information Trading, Emerging Markets Sample

Panel A: The table records the results of the regression analysis for the model

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

where ***i*** indexes the corresponding company in the sample (we have pooled together all companies across countries.) The dependent variable is the C_2 coefficient in Table 2, Panel A. The values for the independent variables are obtained from tables two and seven in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998). Reported t-statistics (in parentheses) are based on the White heteroscedasticity-consistent standard errors.

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

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

Panel B: The table records the results of the regression analysis for the model in Panel A, where the dependent variable is C_2 coefficients from Table 2, Panel B (i.e. a correction for market component.) 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.

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

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

Table 5. The relationship between coefficients C_2 and stock market capitalization, Emerging Markets Sample

The table records the regression of the C_2 coefficient on country dummies and the average company capitalization in logs of US$ values.

$$C_{2,i} = \sum_{j=1}^{19} \alpha_j D_j + \alpha_{20} \log(MktCap_i) + error_i,$$

where ***i*** indexes the corresponding company in the sample. Reported t-statistics are based on the White heteroscedasticity-consistent standard errors. Regression I reports results where dependent variable is the coefficient C_2 obtained from the regression specification in Table 2, Panel A. Regression II reports results for dependent variable the coefficient C_2 obtained from the regression specification in Table 2, Panel B. The value of the dummy variable $\mathbf{D_i}$ is 1 when the corresponding company is included in the country ***i*** stock market index, and zero otherwise. $\mathbf{D_1}$ is the dummy variable 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 Pakistan, $\mathbf{D_{12}}$ for Peru, $\mathbf{D_{13}}$ for Philippines, $\mathbf{D_{14}}$ for Portugal, $\mathbf{D_{15}}$ for Russia, $\mathbf{D_{16}}$ for Sri Lanka, $\mathbf{D_{17}}$ for Thailand, $\mathbf{D_{18}}$ for Turkey, and $\mathbf{D_{19}}$ for Venezuela.

	Regression I		Regression II	
	Coefficient	T-Stat	Coefficient	T-Stat
Stock Market Capitalization	-0.01**	(-2.51)	-0.01**	(-2.40)
D_1	0.14**	(2.84)	0.15**	(2.88)
D_2	0.16**	(3.04)	0.16**	(3.00)
D_3	0.11**	(2.22)	0.11**	(2.22)
D_4	0.04	(0.69)	0.10*	(1.68)
D_5	0.08	(1.45)	0.11*	(1.94)
D_6	0.09*	(1.72)	0.09	(1.59)
D_7	0.14**	(2.96)	0.11**	(2.11)
D_8	0.07*	(1.46)	0.07	(1.44)
D_9	0.09*	(1.88)	0.13**	(2.42)
D_{10}	0.12**	(2.53)	0.13**	(2.51)
D_{11}	0.13**	(2.93)	0.14**	(2.88)
D_{12}	0.11**	(2.47)	0.10**	(2.25)
D_{13}	0.11**	(2.35)	0.14**	(2.57)
D_{14}	0.13**	(2.56)	0.12**	(2.18)
D_{15}	0.14**	(2.79)	0.18**	(3.02)
D_{16}	0.11**	(2.74)	0.11**	(2.42)
D_{17}	0.11**	(2.36)	0.13**	(2.48)
D_{18}	0.12**	(2.57)	0.13**	(2.48)
D_{19}	0.12**	(2.66)	0.13**	(2.65)
Adj. R^2	0.163		0.170	

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

Table 6: Conditioning on corporate events in the RTS sample

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

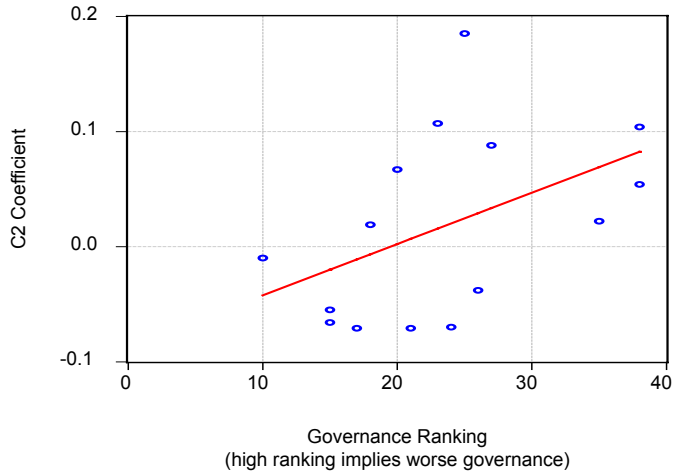
$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + C_3 R_{i,t} V_{i,t} D^c_{i,t} + \varepsilon_{i,t+1},$$

where ***i*** indexes the corresponding company in the sample. $D^c_{i,t}$ is a dummy variable with value 1 for the event period around the corporate events described in Appendix table one, 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. $R_{i,t}$ is the continuously compounded daily return, and $V_{i,t}$ denotes the daily stock turnover.

Company	C_0	C_1	C_2	C_3	t-stat for (C_0)	t-stat for (C_1)	t-stat for (C_2)	t-stat for (C_3)	Adj. R^2
Aeroflot	-0.001	-0.137	**-0.095**	**0.184**	-0.25	-3.48	**-2.74****	**2.56****	0.024
Cerepovetz Severstal	0.004	-0.291	**-0.057**	**0.064**	0.72	-6.16	**-1.10**	**0.09**	0.080
GAZ	0.000	-0.035	**-0.064**	**-0.173**	0.04	-0.85	**-1.83***	**-1.47**	0.010
Gazprom	-0.001	0.156	**-0.234**	**0.443**	-0.70	5.09	**-4.07****	**6.70****	0.064
Irkutskenergo	0.001	-0.013	**-0.077**	**0.060**	0.49	-0.45	**-2.40****	**0.59**	0.003
Kamaz	-0.005	-0.142	**0.039**	**0.137**	-0.76	-2.88	**0.70**	**1.47**	0.016
Lenenergo	0.002	-0.215	**0.098**	**-0.235**	0.41	-4.90	**2.28****	**-2.23****	0.061
Lukoil com	0.000	-0.016	**0.066**	**0.013**	0.32	-0.56	**1.85***	**0.11**	0.001
Lukoil pfd	-0.001	-0.079	**0.189**	**-0.113**	-0.47	-2.61	**6.97****	**-1.46**	0.049
MGTS	-0.001	-0.010	**-0.012**	**0.149**	-0.09	-0.19	**-0.24**	**1.80***	0.003
Mosenergo	0.000	0.062	**-0.050**	**-0.023**	0.22	2.30	**-1.99****	**-0.23**	0.003
Norilsk Nickel com	0.000	-0.362	**0.066**	**0.027**	0.15	-13.68	**2.47****	**0.19**	0.130
Norilsk Nickel pfd	0.000	-0.252	**0.145**	**0.120**	-0.02	-4.84	**2.95****	**0.58**	0.032
PTS	0.005	-0.257	**-0.137**	**0.090**	0.68	-5.42	**-5.00****	**1.08**	0.162
Purneftegaz	0.001	-0.495	**0.169**	**-0.313**	0.10	-12.45	**3.34****	**-1.31**	0.281
Rostelecom com	0.000	0.084	**-0.111**	**0.150**	0.05	2.91	**-3.45****	**2.25****	0.009
Rostelecom pfd	-0.004	-0.063	**0.064**	**0.134**	-1.61	-1.84	**1.92***	**3.05****	0.069
Sahalinmorneftegaz	0.003	-0.287	**0.027**	**-0.066**	0.24	-4.92	**0.39**	**-0.10**	0.077
Sberbank of Russia	-0.002	-0.118	**0.051**	**0.241**	-0.90	-3.58	**2.14****	**2.12****	0.021
Sibneft	-0.002	-0.379	**0.003**	**0.209**	-0.42	-6.97	**0.05**	**1.58**	0.134
Slavneft	0.000	-0.343	**0.003**	**0.529**	0.00	-8.61	**0.09**	**6.06****	0.144
Surgutneftegaz com	0.002	0.091	**-0.038**	**0.001**	1.12	3.15	**-1.12**	**0.01**	0.005
Surgutneftegaz pfd	0.002	-0.269	**-0.092**	**0.259**	0.81	-6.82	**-1.95****	**2.15****	0.107
Tatneft	0.000	-0.084	**0.019**	**0.172**	-0.06	-2.76	**0.60**	**1.75***	0.006
UES com	0.001	0.041	**-0.075**	**0.060**	0.82	1.55	**-1.87****	**0.44**	0.001
UES pfd	0.001	0.018	**-0.065**	**-0.040**	0.36	0.54	**-2.21****	**-0.54**	0.005
Uralsviazinform	-0.007	-0.306	**0.001**	**0.032**	-1.06	-5.73	**0.02**	**0.33**	0.084
Yukos	0.000	-0.112	**-0.002**	**0.002**	0.04	-1.44	**-0.03**	**0.03**	0.007
Average	**0.000**	**-0.136**	**-0.006**	**0.075**					**0.057**
% positive coefficients			**50%**	**75%**					
% t-stat > 1.95							**21.43%**	**25%**	
% t-stat > 1.64							**28.57%**	**32.14%**	

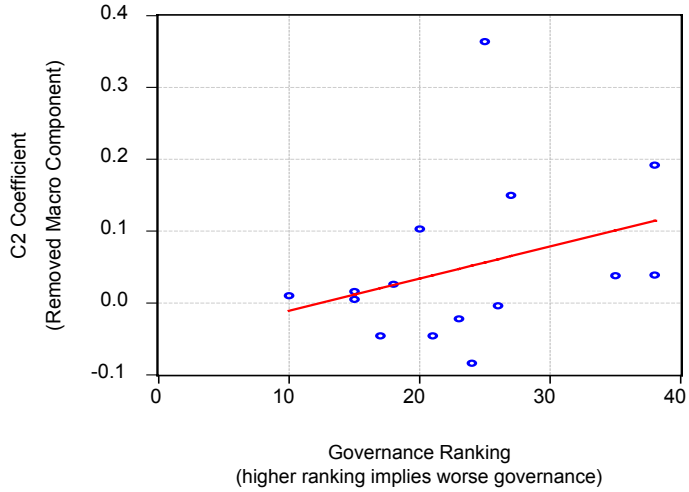
Note. ** - significant at 5 %, * - significant at 10 %

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.

Appendix.

Table 1. Corporate Events, RTS sample

Company	Corporate Event Date	Corporate Meetings and Press Conferences
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
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
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
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
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
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
MGTS	*Announcement*	4/6/99, 4/12/00, 4/13/01
	Effective	6/26/99, 6/17/00, 5/14/01, 6/16/01
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
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
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
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
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

(Table 1 continued)

Sberbank	*Announcement*	6/7/99, 6/3/00, 5/18/01
	Effective	6/30/99, 6/30/00, 6/27/01
Severstal	*Announcement*	3/17/99, 3/21/00, 5/29/01
	Effective	4/30/99, 4/28/00, 6/29/01
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
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
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
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
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
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
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

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.