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Explaining the price differential between
common and preferred shares**

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The Puzzle of Dual Class Stock in Russia

**Explaining the Price Differential
between Common and Preferred Shares**

Alexander Muravyev

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This paper attempts to explain a large premium paid on common (voting) shares relative to preferred (non-voting) shares in the Russian stock market. Empirical analysis focuses on two main explanations relating the premium either to the voting right attached to common shares or to differences in liquidity between the two classes of stock. Two avenues through which the right to vote may give rise to the premium are distinguished. First, the presence of private benefits of control and the possibility of control contests may make the votes held by small investors pivotal, and therefore valuable. Second, non-voting shareholders may be expropriated as a class by voting shareholders. Case studies and regression analysis of RTS stock exchange data from 1997-2003 provide support for the control contest model of the premium as well as for the liquidity argument. The study finds no evidence that the premium is related to expropriation of preferred shareholders as a class.

Keywords. Russia, dual-class stock, voting premium, ownership structure, corporate governance.

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NON-TECHNICAL SUMMARY

This paper investigates empirically the reasons for a large price differential between common (voting) and preferred (non-voting) shares in the Russian stock market. Despite lower dividend on common shares they have been traded with substantial premium over the price of preferred shares. The case of Russia is interesting because the average premium on common shares has been much larger than the premium on voting shares in other countries and has been extremely volatile, which is not a characteristic of other stock markets.

Empirical analysis focuses on two main explanations relating the premium either to the voting right attached to common shares or to liquidity differences between the two classes of stock. Two avenues through which the right to vote may give rise to the premium are distinguished. The premium may stem from private benefits available to those who control the firm and the possibility of control fights which make the votes held by small investors pivotal, and therefore valuable. The other avenue is that non-voting shareholders *as a class* may be expropriated by voting shareholders, i.e. through actions that ultimately divert cash flows from the former to the latter. The second explanation – the liquidity argument – states that (at least a part of) the observed price differential between voting and non-voting shares may be due to inferior liquidity of the latter class of shares.

The paper examines the relevance of these explanations empirically using case studies and cross-sectional regression analysis of RTS stock exchange data from 1997-2003. The main findings are as follows. The data support the hypothesis that the premium is related to private benefits of control and the possibility of control contests. In particular, a single case study of a contested takeover shows the relevance of control changes for the size of the premium. Econometric analysis reveals that the magnitude of the premium is negatively related to the difference between the ownership stakes of the largest owner and the second largest one. This suggests that the votes of marginal shareholders – those who trade in the stock market – are more valuable when the two largest shareholders of the firm are of a similar size (which may eventually lead to a control fight) and become less valuable when ownership is concentrated in the hands of one party only (implying that control over the firm is unlikely to be contested). Importantly, this relationship does not change if the largest shareholder has over 50% of votes. This result can be rationalized if significant minority owners have a certain bargaining power versus the largest (controlling) shareholder and may seize some of the control benefits.

The study finds no evidence that the premium is related to expropriation of preferred shareholders *as a class*. The econometric analysis uses the cross-company variation of the vetoing power of preferred shareholders in case their “class rights” are concerned as a proxy for the expropriation risk. Theoretically, such conditional vetoing power should reduce the expropriation risk facing non-voting shareholders. However, the premium turns out to be unaffected by this factor. The result may testify either to that the expropriation of preferred shareholders is irrelevant or that the proxy for the expropriation risk employed in the study is imperfect.

The explanation based on liquidity finds considerable support – indirectly in the case studies and explicitly in the econometric analysis. In particular, the premium raises with illiquidity of preferred stock, the result is significant both statistically and economically.

Yet the control contest model of the voting premium and the liquidity story do not explain much of the variation of the premium, especially over time. The impact of firm-specific characteristics on the premium turns out to be of minor importance compared to the impact of a hidden common factor that seems to be related to changing economic and institutional environment. An exact answer to the question of what determines a significant variation of the premium over time requires further research.

1. INTRODUCTION

In the traditional theory of finance, the value of securities is associated with future cash flows discounted at the rate that reflects their risk. In other words, the value of securities is assumed to depend on the pecuniary benefits they are entitled to by law or by contract. Other properties of securities, for example, voting rights attached to company shares, are considered as having no effect on their prices.

Valuation of dual class stock in the Russian stock market seems to be at odds with this assumption. In Russia companies are allowed to issue two classes of stock – the so-called common and preferred shares with the right to vote and entitlement to dividend being the two major differences between these classes. Common shares bear one vote each while preferred shares are non-voting (except for a few special cases that are strictly regulated in the corporate law). The latter, however, have superior dividend rights. Indeed, the history of dividend payments by Russian companies shows that preferred shareholders have usually received several times as much as common ones. Despite the disadvantageous position of common shares with respect to dividends, they have been traded with a substantial premium, up to several hundred percent, over the price of preferred shares.¹ Moreover, the premium has been extremely volatile: it was relatively low in 1996 and 1997, increased dramatically soon after the outburst of the 1998 financial crisis and declined slowly since 2000. As an illustration, appendix 1 shows dividends and prices of common and preferred shares for five large Russian companies.

What can explain the observed premium on common shares in Russia? It is somewhat tempting to relate the premium to the voting right that is attached to common shares. Indeed, there is an extensive literature documenting a positive value of the voting right in corporations with dual-class stock structure across the globe. Empirical studies in developed and developing economies show that the voting premium – usually estimated for shares that differ with respect to the voting rights only – ranges from 5.4 to 82% (Becht et al., 2002). It has also been suggested that the value of a vote is stable in time on the country level (Nenova, 2003). The latter is obviously not the case in Russia. Moreover, the size of the premium that is paid on common (voting) shares in the country fell outside the conventional range – the average in 1997-2003 is 118% – and even more so given the preferential dividend on non-voting shares. These facts question the interpretation of the premium as “the value of the voting right” and provide a reason for an investigation.

There have been just a few attempts to interpret and to explain the premium on common shares in Russia. Willer (1997) interprets the premium as evidence of the prime importance of control rights and suggests that its decline in 1995 – 1996 testifies to that firms started to honor shareholder rights

¹ Hereafter the premium is defined as the difference between the price of a voting share and the price of a non-voting one divided by the price of a non-voting share.

and regulatory progress was made. The focus of a recent paper by Goetzman et al. (2003) is on a particular explanation of the premium: expropriation of preferred shareholders as a class, which implies actions that ultimately diverts cash flows from preferred shareholders to common ones. Using a simple perpetual growth model and assuming some plausible levels of the interest rate and company growth rate, the authors find it difficult to justify the level of the premium by expropriation only unless some improbable disaster scenarios involving an outright transfer of cash flow from preferred shareholders to common ones are considered. The impossibility to relate the premium to the expropriation of preferred shareholders only testifies to the existence of other determinants of the premium which have not been explored in the mentioned paper. Using a factor analysis of time-series data referring to share prices of five companies the authors find evidence of a systematic factor underlying the discrepancy of prices between common and preferred shares in Russia, and suggest that this factor is related to corporate governance. However, there is still no clear answer to the question of what determines the premium in Russia.

This paper attempts to explain the difference in valuation of the two classes of stock in Russian companies on the empirical level. It proceeds as follows. Section 2 discusses main characteristics of dual class stock in the overseas financial markets and in Russia, as well as reasons for the issue of such stock. Regulations in the Russian corporate law are examined in greater detail in order to identify potential sources of the differential valuation of common and preferred shares. Section 3 focuses on the explanations for differential valuation of dual-class stock that are proposed in the literature: the presence of private benefits of control and the possibility of control fights, the expropriation of non-voting shareholders as a class, and the difference in liquidity between the two classes of stock. A preliminary assessment of the relevance of these explanations in the Russian context is carried out in Section 4. Section 5 presents empirical evidence which comes from two sources: case studies and a cross-sectional econometric analysis. Section 6 discusses the results.

2. THE INCIDENCE AND REGULATION OF DUAL CLASS STOCK

2.1. Dual class shares in the world

The issue of dual class stock typically implies differentiation of voting rights across classes – a deviation from the one-share-one-vote rule.² A significant increase in the use of dual class stock occurred since the 1980s, in particular in small stock markets (Rydqvist, 1992; Smith and Amoako-Adu, 1995; Nenova, 2003). Currently a high proportion of listed firms have dual-class structure in Brazil, Canada, Denmark, Finland, Germany, Italy, Norway, Korea, Mexico, Sweden, and Switzerland. Companies with dual-class stock also exist in Australia, Chile, France, Hong-Kong,

² This may be introduced indirectly: Israeli companies, for example, have issued shares entitled to one vote each but with different par values (Levy, 1983).

South Africa, the UK, and the US. In some countries, however, the law explicitly forbids differentiation of voting rights, for example, in Belgium, China, Japan, Singapore, and Spain (Nenova, 2003).

When shares with differentiated voting right are not explicitly banned by the corporate law, they are often subject to strict regulations. For example, the French corporate law has allowed three categories of restricted voting shares: shares that are identical to common ones in all respects, including dividend entitlement, but can never vote; shares with superior dividend rights and no voting right as well as shares with superior dividend right and a contingent voting right (which these shares obtain after three consecutive years of not fully paid dividends) (Muus, 1998). The regulations often specify the minimum features of the inferior voting or non-voting stock. For example, an additional dividend and seniority over common stock in the case of company liquidation have been granted to the so-called savings (non-voting) shares in Italy, which bear no voting rights (Zingales, 1994). In Germany, preference (non-voting) shares have been entitled by law to a priority dividend which is to be distributed among preference shareholders before any dividend payments to common shareholders. These preference shares are cumulative and have a contingent voting right in case the priority dividend has not been paid in full (Hoffmann-Burchardi, 1999). In many countries, the issuing companies can further increase the minimum features of non-voting or restricted voting stock with respect to dividends, contingent rights to vote or preferred claims.³

In some jurisdictions, the legal status of differentiated voting shares is largely determined by companies themselves, in their articles of incorporation. With such enabling approach of the corporate law, a diversity of voting structures may emerge. In these cases, however, restrictions may be imposed by stock exchanges. For example, differentiated voting shares were prohibited between 1926 and 1986 in the New York Stock Exchange: companies could get a new listing only if they issued a single class of voting stock (Seligman, 1986). Similarly, American Stock Exchange adopted the “Wang formula” which required, for example, that the voting ratio between superior and inferior voting shares should not be greater than 10:1 and that the latter could elect a minority of directors (Zingales, 1995).

The main reason behind the issue of differentiated voting shares is that it enables the founders or controlling shareholders of a firm to raise funds through sale of common stock without jeopardizing their control over the company (Becht et al., 2002). Besides, the issue of non-voting or restricted voting shares has been directly promoted by governments of several countries. The purpose has been to retain either government or national control over important enterprises while allowing them to issue common stock. For example, state-controlled companies in France used to issue non-voting shares in order not to undermine the controlling position of the state (Muus, 1998) and low vote stock was issued to foreign investors in Sweden in order to limit their influence in national companies (Bergström and Rydqvist, 1990).

³ A review of dual class shares in Europe is contained in McCahery et al. (2003).

2.2. Common and preferred shares in Russia

Dual class shares were authorized in Russia in 1992, when a major presidential decree on privatization was enacted.⁴ This document established three basic models of privatizing state-owned enterprises as well as provided a *standard corporate charter*, which all privatized companies had to adopt. According to the decree, enterprises that followed the so-called “first option” of privatization (as a rule, relatively capital-intensive firms that could not be bought out by their managers and employees under other options due to the wealth constraints) were re-established as companies with up to 25% of their charter capital represented by preferred shares. During the first stage of privatization, these shares were exclusively distributed to company employees and retirees for free.⁵ In Russia, the decision to have dual class stock was largely not a company’s choice, but a consequence of the privatization regulations.

The legal status of the two classes of shares was initially specified in the standard corporate charter. While the rights attached to common shares were generally quite similar to those existing in most other countries (they are basically reduced to the right to vote at shareholder meetings and the right to receive dividends, which, however, are indefinite), the status of preferred shares was peculiar. First, they could never make up more than 25% of the charter capital and had to have the same par value as common shares. Second, each year the preferred stock of a company was entitled to a dividend equivalent to 10% of the company net profit.⁶ Third, the dividend per preferred share could not be lower than and had to be paid before the dividend per common share. Fourth, preferred shareholders were granted special rights in the event of liquidation. In particular, they had the right to get announced but unpaid dividends as well as the face value of their shares (provided that creditor claims were satisfied). Remaining assets were to be distributed among all categories of shareholders in proportion to their fractional ownership. Finally and most important, some provisions concerned voting rights. Usually preferred shareholders did not have the right to vote. However, the standard charter endowed them with the right to vote on decisions that involved their interests as well as on every decision in case the dividend on preferred shares was not paid or was not paid in full (temporary enfranchisement). Moreover, preferred shareholders even had a vetoing power on decisions that involved their “class rights” – such decisions (changes in corporate charters concerning dividends, rights in liquidation, etc.) had to be approved by two thirds of the votes of preferred shareholders attending shareholder meeting. Finally, some charters were drafted to contain the provision that preferred shares could be converted into common ones, usually under certain conditions.⁷

⁴ Presidential Decree No. 721 dated 1 July 1992 “On organizational measures on transformation of state enterprises, voluntary associations of state enterprises into joint-stock companies”.

⁵ An account of the Russian privatization is provided, for example, in Hare and Muravyev (2003).

⁶ This rule held for companies with exactly one quarter of equity represented by preferred shares. In case this fraction was smaller, the share of net profit allocated to dividends on preferred stock was typically reduced proportionally.

⁷ The most famous case is Norilsk Nickel company whose preferred shares could be converted into common ones at will of their holders, but only after the sale of at least one share from the block that was originally retained in state ownership.

Changes in the status of preferred shares were introduced with the enactment of the law on joint-stock companies in July 1996. Most importantly, the law did not contain the provision that preferred shareholders could block corporate charters amendments that involved their interests. When such amendments were on the agenda, these shareholders were granted just one vote per share, with the possibility of voting together with common shareholders. Given that preferred shareholders held only 25% of equity at best, as a group they could not veto any resolution of shareholder meetings. A large fraction of companies changed the rule regulating the voting power of preferred shareholders strictly in accordance with the law. However, the law itself did not require automatic removal of the preferred shareholders' vetoing power. In fact, many companies continued to keep the respective rule in their charters.⁸

Not less importantly, the law did not confirm the old rule that 10% of the company net profit had to be paid as dividends on preferred stock. Neither did it require that the dividend on preferred share had to exceed the dividend on common one. Firms that issued preferred stock were required "to determine the dividend on preferred share", either as a fixed amount, percentage of net profit or any other precise way. This loose provision, especially when combined with the loss of the vetoing power by preferred shareholders, facilitated variation in the dividend rights attached to preferred stock.⁹

In 2001, shareholder rights were substantially modified through amendments in the corporate law aimed at better protection of minority shareholders. A crucial change affecting preferred shareholders solely was that they regained the vetoing power on corporate charter amendments that involved their interests. Starting from January 2002 such changes have to be approved by 75% of the votes of preferred shareholders participating in shareholder meeting, and these votes are to be counted separately from the votes of common shareholders.

To summarize, since their introduction in 1992, preferred shares have enjoyed a number of advantages of a pecuniary character over common shares. The apparent disadvantages have been the absence of the voting right and the possibility of "class rights" changes detrimental to preferred shareholders (especially until 2002 when the vetoing power of preferred shareholders was instituted

⁸ By 1998 about one-half of the companies that had issued preferred shares eliminated from their charters the rule on the vetoing power of preferred shareholders (Securities Market, 1998). The reasons for retaining or removing this rule are not clear: for example, most regional telecommunication companies (a famous exception is MGTS – Moscow City Telephone Company) did abolish the rule while most regional power utilities preserved it. In both sectors the regional companies are controlled by state holdings – Svyazinvest (again, MGTS is an exception) and Unified Energy Systems respectively.

⁹ During the last years, changes in the rules regulating dividend on preferred shares did occur, but not very frequently. For example, most telecommunication companies and power utilities still stick to the old ten-percent-of-net-profit rule (Securities Market, 2001a). The companies that changed the rule (typically reducing the dividend on preferred shares) include Megionneftegas, which replaced 10% of the net profit with 1%, Khantymansiyskokrtelecom, which introduced a fixed dividend equal to 10% of the face value of its preferred shares, Baltica Brewery which calculates dividends on preferred shares using the Savings Bank (Sberbank) interest rate. Even in such cases, the dividend per preferred share typically remains bounded below by the dividend per common share.

in the law). In other words, preferred shares have presumably borne an additional risk, namely the risk of expropriation by common shareholders.

3. THEORETICAL FRAMEWORK

The existing literature relates differential valuation of dual class stock either to differential voting rights or to liquidity differences between the classes of stock. In turn, there are two avenues through which the right to vote may give rise to the premium. Firstly, the premium may stem from private benefits available to those who control the firm and the possibility of control fights which make the votes held by small investors pivotal, and therefore valuable, as shown by Grossman and Hart (1988), Zingales (1995) and Rydqvist (1996), among others. Secondly, non-voting shareholders *as a class* may be expropriated by voting shareholders, i.e. through actions that ultimately divert cash flows from the former to the latter. The liquidity argument simply states that a less liquid class of shares should be traded with a discount.

3.1. The control contest model and the value of the voting right

The cornerstone of this explanation of the premium is the existence of the so-called private benefits of control that can be appropriated by the party which controls the firm. Besides dividends and capital gains, which are shared with other shareholders, the controlling shareholders (or managers) can benefit from high wages, transfer pricing, and payments in kind or simply receive psychological benefits from being in control over the firm. These benefits are often extracted by the controlling owner to the detriment of minority shareholders, implying expropriation of the latter. Minority shareholders, however, cannot do much about such expropriation due to non-verifiable nature of the control benefits. If these private benefits could be evaluated they would immediately lose their “privacy” and minority shareholders could bring in a lawsuit against the corporation or the controlling owner.¹⁰

The market price of shares reflects their value to the marginal investor who has no means to enjoy private benefits of control. Why then is the voting stock priced with premium? The theory says that investors attach some value to the voting right as long as there is competition among different

¹⁰ The theory suggests that incentives for expropriation increase with the gap between the control rights and the cash-flow rights, as first shown by Jensen and Meckling (1976). Hence, a link between expropriation and firm-specific characteristics such as the distribution of ownership, the size of assets under control, etc. On the country level, expropriation seems to be strongly influenced by the institutional and economic environment. For example, it has been argued that the incentives to expropriate tend to rise in bad states of nature when the opportunities of raising additional funds in the market are limited (Shleifer and Vishny, 1997). Recent papers that exploit the legal approach to corporate governance show that private benefits of control depend on the legal norms protecting minority shareholders and on the quality of law enforcement in a particular jurisdiction (see, e.g., La Porta et al. 1999; Johnson et al., 2000) as well as on a number of extra legal institutions such as competition, internal norms, pressure from labour, media diffusion, and tax enforcement (Dyck and Zingales, 2002).

management teams to acquire these votes. Voting shares have higher prices in the stock market since even a small fraction of them may be pivotal in a control contest while non-voting shares are irrelevant in battles for control. Consequently, the voting premium reflects the price a potential bidder would be willing to pay to atomistic holders of voting stock in order to establish control over the company and thus may be interpreted as a measure of the private benefits of control.¹¹

A formal model of differential premium is provided by Zingales (1995). Assuming that 1) a company has two classes of shares which are identical in all respects except for the right to vote (one class has all votes), 2) there is competition for control over the firm among two parties (contested tender offer), 3) a bid involves all the shares of the company, both voting and non-voting, though they may have different prices, he shows that the voting premium is equal to the ratio between the value of the private benefits of control and the value of cash flow rights (the present value of corporate benefits distributed pro rata to shareholders) divided by the fraction of voting shares in the company's equity. In mathematical terms, the following expression for the voting premium arises:

$$VP^{CC} = (B/y) (1/\pi), \quad (1)$$

where VP^{CC} denotes the voting premium in the event of a control contest, B measures the size of the private benefits of control, y indicates the value of cash flow rights, and π represents the proportion of voting shares outstanding. The intuition behind π is that when the fraction of voting shares becomes larger, so does the number of shares among which the benefits of control are to be distributed.

This model applies only in the event of a control contest. Zingales (1995) then argues that the voting premium observed in daily trading should reflect the expectation of different prices of the two classes of stock in case of such an event. Therefore, it should be equal to the voting premium during a control contest times the probability (Φ) that such an event will take place:

$$VP = \Phi VP^{CC} = \Phi (B/y) (1/\pi). \quad (2)$$

Thus, according to the model, there are three major determinants of the magnitude of the voting premium: the relative size of the private benefits of control (B/y), the probability of a control contest, and the fraction of the voting stock in the company's equity. The probability Φ of a contested tender offer directly depends on the ownership structure of companies: it is zero if a company has a majority shareholder, positive but small if there is one large owner and all other shareholders are small, and large when there are multiple large shareholders with similar stakes while the remaining shares are distributed among small owners.¹²

¹¹ Obviously, the price of the votes that comprise a controlling block is bounded above by the expected value of private benefits of the acquirer. An alternative way to measure private benefits of control is to look at the difference between the price of shares in transactions involving control block change and the share price in the stock market after the announcement of the control block sale (Barclay and Holderness, 1989).

¹² Strictly speaking, even in the case of majority control there remains a probability that the controlling shareholder will sell a part of the shares (e.g., the state may implement a partial of full privatization) or the controlling coalition will come apart. Hence, majority control does not completely prevent the possibility of future control fights.

Pros and cons. The model is well-suited for the institutional environment where companies tend to have no controlling shareholders and there exists an active market for corporate control with intense competition. If takeovers are not contested, no fraction of private benefits of a potential winner can be extracted by minority voting shareholders: the bid price will be equal to the expected cash flow benefits under new management (the minimum price sufficient to overcome the free-rider problem) which is the same for both classes of shares (Zingales, 1995).

The assumptions of the model are rather binding. An active market for corporate control does not exist in most countries of the world (Denis and McConnell, 2002). Even in the US and UK, the two countries where takeovers are frequent, the fraction of hostile takeovers is very small (Becht, 2002). In most other countries of the world, concentrated ownership structures prevail (La Porta et al., 1999) and control transactions typically take the form of off-exchange block trades that do not involve minority shareholders. In this institutional environment, the price of the controlling block is usually set in the bargaining process between the incumbent and the acquirer; hence, minority voting shareholders fare no better than non-voting shareholders. Empirical evidence seems to confirm this view. For example, Franks and Mayer (2001) find that changes in control through block trades in Germany bring limited gains that accrue only to the large blockholders.

An important issue is takeover regulations. The model assumes that the law, stock market regulations and corporate charter provisions do not require a control contestant to offer *all classes of shares* the same tender price. If they do, the premium disappears straight away. If, in contrast, the law introduces a mandatory bid rule within the class of voting shares only, e.g. when a bidder is required to pay minority voting shareholders the same price as for the controlling block of shares, the premium remains.

Finally, takeover regulations not only affect the division of rents between existing shareholders and potential winners of control, but also the probability of launching a takeover attempt. While stricter regulations help minority shareholders to obtain a greater fraction of the private benefits that can be enjoyed by the party in control, they reduce the probability of launching a takeover. Hence, takeover regulations may have an ambiguous effect on the voting premium. These issues have received considerable attention in the literature and are reviewed in Becht et al. (2002).

Though the assumptions of the model are not very realistic in the institutional environments that prevail in the world, it has been supported in many empirical studies and remains the dominant explanation of the voting premium. For example, Zingales (1994) reports that the premium in Italy is directly related to the value of control and varies according to the ownership structure and the concentration of the voting rights. Rydqvist (1996) focuses on the link between the voting premium and the ownership structure in Sweden and reports that the premium is larger in companies where the two biggest blockholders are of equal size – which increases the probability of a control contest – than in firms where the first blockholder is much larger than the second one. The control contest model underlies the analysis of the voting premium by Nicodano (1998), who focuses on the effect of pyramiding, an additional deviation from the one-share-one-vote rule, in Italy; by Hoffmann-Burchardi (1999), who studies the role of institutional and regulatory environment in Germany and

finds lower voting premium in companies that accepted the mandatory bid rule; by Nenova (2003) whose innovative study focuses on the institutional determinants of the value of controlling blocks using a cross-country sample of firms.

3.2. Expropriation of non-voting shareholders as a class

Extraction of private benefits of control often, though not always, involves expropriation of minority shareholders. The control contest model sketched above assumes that the extraction of private benefits is detrimental to voting shareholders to the same extent as to non-voting ones, but the former are able to recover at least a part of the loss if control over the company can be contested.

Another possibility is expropriation of non-voting shareholders only. Such expropriation implies diverting cash flows from non-voting shareholders to voting ones either through explicit changes in the corporate charter that reduce cash flow rights of the former group or through more sophisticated techniques such as share swaps in mergers. This scenario is not implausible: voting shareholders may have both incentives and power to make such decisions. Given the complete separation between cash flow rights and control rights in the case of non-voting shares, a particularly strong protection may be needed for non-voting shareholders.¹³ As in the general case of minority shareholder expropriation, this comes from both legal and extra-legal mechanisms.

Usually this issue is explicitly addressed in the corporate law, for example, by strictly linking the dividend and other features of non-voting shares to the analogous features of voting shares. In more flexible regulatory environments that permit varying the rights attached to non-voting stock, the law typically requires a majority consent of the holders of those shares when a change in their “class rights” is on the agenda (i.e., the shareholders are granted a conditional right to vote). Yet it is far from obvious that even with these mechanisms the protection of non-voting shareholders is not worse than that of voting ones. Explicit legal norms may simply fail to cover all eventualities. The conditional right to vote may also be ineffective due to the free rider problem facing non-voting shareholders. This assumption is valid if voting and non-voting shares tend to be held by different investors with non-voting shares being heavily dispersed, which is not unusual.¹⁴ Indeed, non-negligible blocks of voting shares are often held in order to exert some influence over the company. In contrast, there is no strong reason for keeping non-voting shares concentrated since the conditional right to vote is rarely activated and is always limited in scope. If non-voting shares are heavily dispersed, their holders are likely to free-ride and not use their conditional right to vote which facilitates “class rights” changes.

¹³ The threat of losing reputation in the stock market is not a sufficient barrier for such behaviour, especially in economic downturns when the prospects of raising funds in the market are dim, as argued by Shleifer and Vishny (1997) and Johnson and Shleifer (2001).

¹⁴ For example, non-voting savings shares in Italy were introduced specifically to promote stock ownership among small investors (Zingales, 1994); the Russian privatisation program allocated non-voting shares exclusively among company employees and retirees which resulted in a large dispersion of these shares.

3.3. Differences in liquidity

Since the studies by Stoll and Whaley (1983) and Amihud and Mendelson (1986), the role of liquidity for valuation of securities is widely acknowledged: higher liquidity *ceteris paribus* contributes to higher prices. The logic is simple: the less liquid security should have higher trading costs which should be reflected in a lower price of that instrument. Moreover, the effect of trading costs is not of second-order and may be considerable since these costs have to be incurred every time the asset is traded.

Pros and cons. Measuring liquidity of a stock is somewhat controversial: there is no single measure that captures all essential aspects of liquidity (Amihud and Mendelson, 1991).¹⁵ It is even more complicated to judge relative liquidity of dual class shares. For example, these classes typically constitute unequal proportions of company equity and are issued in different numbers. Other things being equal, the larger the fraction of a particular class in company equity, the higher its liquidity compared to the other class. However, for corporate control reasons voting shares may be held more concentrated than non-voting stock. Hence, a large share of voting stock may be not traded in the market. As a result, when the fraction of non-voting stock is relatively small, the number and the volume of transactions may be larger for common stock while the ratio of the number of shares traded in the stock exchange to the total number of shares may be larger for preferred stock.

Empirical evidence of the effect of liquidity on dual-class stock prices is mixed. For example, Smith and Amoako-Adu (1995) find no compelling evidence that liquidity – measured by turnover – matters for the voting premium in Canada. No effect of liquidity measured by the average trading volume in the superior class divided by the average trading volume in the inferior voting class is reported by Zingales (1995) for the US and Chung and Kim (1999) for Korea. However, Nenova (2003) reports a significant effect of liquidity (proxied by log-difference in turnover and bid-ask spread) on the value of corporate voting rights from cross-country data analysis and warns against biases that may arise if liquidity is not properly controlled for.

4. INSTITUTIONAL ENVIRONMENT AND THE VALIDITY OF VARIOUS EXPLANATIONS IN THE RUSSIAN CONTEXT

4.1. The control contest model of the voting premium

Private benefits of control. It is widely agreed upon that the corporate governance standards in Russia are inferior to those in the well-developed markets and the opportunities of controlling shareholders to extract private benefits are immense. For example, Shleifer and Vishny (1997)

¹⁵ The traditional measure is the ratio of the volume of transactions (in monetary terms) to the average absolute percentage change in price. Instead of the volume of trade proxies, liquidity may be measured by the number of transactions, the spread between ask and bid prices, the number of days between the end of the month and the day of the previous recorded stock exchange transaction, etc.

suggest that in the mid-1990s Russian managers could appropriate up to 99% of the profit of the companies they run. Black et al. (2000) refer to the cases of transfer pricing in Russian oil companies which sold production at below market prices to offshore firms that were affiliated with controlling shareholders/managers of these oil companies. Such cases provide a strong argument for the relevance of the control contest model in the Russian case: a high premium on common stock is perfectly consistent with large private benefits of control.

Ownership structure. An immediate objection to the above supposition comes from a single glance at the ownership structure of the publicly traded companies in Russia. The ownership structure of the companies that are traded in the RTS¹⁶ is highly concentrated and most of them have a controlling shareholder who wields over 50% of votes. For example, among the companies whose common and preferred shares were regularly traded in the RTS between 1997 and 2003, only 16% did not have a controlling owner.¹⁷ This observation implies that the probability of a control contest is very small, if not zero, which casts doubts on the relevance of the control contest model.¹⁸

Another important observation that questions, in turn, the last argument is that the controlling shareholder in many companies that have common and preferred shares outstanding has been the state, either directly or through state holding companies like Svyazinvest, Unified Energy Systems, Rosneft, Slavneft, ONAKO, etc. One may therefore hypothesize that the voting premium exists due to the anticipation by the market that the state will gradually privatize these companies which will eventually open up the window for control contests. Thus, the identity of a controlling shareholder may matter for the probability of control contest.

Takeover regulations. The takeover regulations in Russia are not stringent. The article 80 of the Law on Joint Stock Companies requires a party that has purchased at least 30 percent of common shares to make an offer to the remaining common shareholders at the market price but not less than the average price over the six-month period before the purchase of the block. Importantly, the price at which the offer has to be made is not linked to the price paid for the controlling block. And the rule itself creates an ample room for different appraisals of the offer price, especially if company shares are illiquid. Hence, even when an offer to minority shareholders is made, it may be at a large discount to the price of a share in the controlling block.

4.2. Expropriation of preferred shareholders as a class

The analysis of the legal status of the two classes of stock in Russia in Section 2.2 indicates insecurity of the status of preferred shares, which was particularly pronounced until the vetoing

¹⁶ RTS stands for the Russian Trading System, the first electronic trading system in Russia established in September 1995, and transformed into RTS Stock Exchange in 1997.

¹⁷ These data are available from the descriptive statistics of the sample which are shown in Appendix 4.

¹⁸ A substantial number of mergers and acquisitions in Russia are reported in the Datastream; however, they have typically involved companies that are not listed on the stock exchange and have been carried out through large block sales.

power of preferred shareholders was introduced in the corporate law in 2002. Indeed, changes in the corporate charters that disfavor preferred shareholders did occur (see footnote 10 in Section 2.2 above). Besides immediate changes in the corporate charter concerning dividend rights, expropriation took place, for example, through swaps during mergers or through arbitrary interpretation of the term “net profit” on which the dividend on preferred shares is functionally dependent while the dividend on common shares is not.¹⁹

In part, the reason for such expropriation lies in the very design of the security-voting structure of Russian companies. The issue of dual class stock was determined by the privatization regulations rather than by shareholders and managers of companies. The security-voting structure created by privatization may be inefficient (for example, the requirement to allocate 10% of net profit to dividends on preferred stock restricts the choice of investment projects the firm can finance from retained earnings).

4.3. Different liquidity of the two classes of stock

Several features of the privatization process in Russia predetermined lower liquidity of preferred shares compared to common ones, especially in earlier stages of the development of the stock market. First, the share of preferred stock was restricted to 25% of equity at most. Second, the allocation of preferred stock in negligible fractions among company employees only made it virtually non-tradable for a long time. The purchase of these shares from employees – which was necessary to build up standard tradable lots – took considerable time. In contrast, large fractions of common stock were sold to institutional investors at voucher and money auctions encouraging trading activity in the market.

Most conventional measures of liquidity – based on the number of transactions, the turnover volumes or the bid-ask spread – show that preferred shares in Russia have been less liquid than common ones (e.g., Securities Market, 2001b). Hence, the liquidity argument may be relevant for explaining the differential valuation of dual class stock in Russia.

5. EMPIRICAL ANALYSIS OF THE DUAL CLASS STOCK IN RUSSIA

The determinants of the differential valuation of dual class stock have been studied using several methodological approaches: case studies (see e.g., Lease et al., 1984; Zingales, 1995), event studies (e.g., Doidge, 2003) and regression analyses of cross-sectional or panel data (Zingales, 1995; Smith

¹⁹ Surgutneftegas is an example of the latter opportunity. Despite the fact that the company retains the ten-percent-of-net-profit rule in its charter, the dividends on its preferred shares have been several times smaller compared to what the rule actually implies. The reason lies in a peculiar interpretation of the term “net profit”: to calculate it, the company subtracts capital expenditures and several other items from the after-tax profit. An attempt of the preferred shareholders to force the company to stick to the rule by initiating a lawsuit failed as the term “net profit” is not explicitly defined in the law.

and Amoako-Adu, 1995; Chung and Kim, 1999). Among the three, the applicability of the event study methodology in the Russian stock market raises the greatest concern.²⁰ Therefore, the empirical analysis that follows relies upon five case studies and a cross-sectional econometric analysis.

5.1. Case study evidence

This section presents case-study evidence on the reaction of the premium to several types of corporate events: a contested takeover, a corporate charter change detrimental to preferred shareholders, and a conversion of preferred shares.

5.1.1. Takeover of GAZ

Gorkovsky Avtomobilny Zavod (GAZ) is the second-largest automaker in Russia whose equity has been split between common and preferred shares in proportion of 75 to 25%. Common shares have been traded in the RTS since 1995 while preferred stock became listed in 1999.

In 2000 the company was taken over by Siberian Aluminum group. The exact date when the takeover attempt was launched is unknown (shares were being bought secretly, without a public offer). According to the financial press, an aggressive and stealthy attack was launched in late September 2000.²¹ By mid-November 2000, the predator was able to acquire from 25% to 50% of the GAZ voting shares. The exact figure is unavailable as most shares were held by nominees and the ultimate owners were not disclosed. Nevertheless, company reports to the Federal Commission for the Securities Market (FCSM) show a rapid concentration of ownership in the hands of one nominee holder whose voting stake rose from 12% in the second quarter to 43% in the fourth one. Moreover, the reports to the FCSM suggest that the control block was consolidated in a series of block transactions. Additional evidence in support of this conjecture comes from data on share trade in the RTS: during the takeover period (September – November), the volume of transactions with company common stock was less than 2% of the total number of voting shares outstanding.

An immediate consequence of the takeover was a company board meeting on 29 November, 2000 which convened an extraordinary meeting of shareholders and introduced some changes in the

²⁰ One problem is a small number of observations corresponding to each type of events in 1997-2003. A more fundamental problem is the inability to identify the exact timing of many events. Event studies are used to investigate the effect of unanticipated events and rely on the efficient market theory that assumes near perfect information in the stock market. In Russia, the low transparency of companies and the presence of insider trading in the market of which there is abundant evidence (see, e.g., case 3 below) undermine the usefulness of this approach. If information on a prospective event leaks out before being publicly announced, the reaction of the stock market is gradual rather than instantaneous. The best the researcher can do in this case is to increase the width of the event window, but this reduces the power of event studies.

²¹ Additional evidence of that the takeover was contested comes from the GAZ reports to the Federal Commission for the Securities Market (FCSM) on changes in the ownership structure. In particular, during the takeover period there was an increase in the fraction of GAZ shares held by GAZinvest – a firm that is mainly (52.8%) owned by GAZ itself. This seems to be an attempt of the incumbent management to prevent the takeover.

management team. Further changes such as election of a new board followed in January 2001, at the extraordinary shareholder meeting.

A reaction of the premium to the event may be judged by comparing the premium some time before the probable launch of the takeover attempt, during the takeover period, and afterwards. If the control contest model holds, one would expect that the premium raised during the acquisition period and declined to a new minimum after the success of the takeover had become apparent. In what follows the takeover period is assumed to last from mid-September to November 29 (the date of the board meeting that revealed success of the acquisition). The choice of the pre-acquisition period is severely restricted since preferred shares stayed illiquid for the most part of the year.²² There were two transactions with preferred stock in August and no transactions between March and July as well as in September. The common stock was more liquid – there were 10 transactions in August 2000. Therefore, the pre-acquisition period may be defined as the entire month of August 2000. Post-acquisition period is defined as the period between 30 November (the day after the board meeting) and the end of the year. There were two transactions with preferred stock within the post-acquisition period and only one transaction with common shares. Fig. 1 shows the dynamics of prices of common and preferred stock around the takeover period (August 2000 – February 2001).

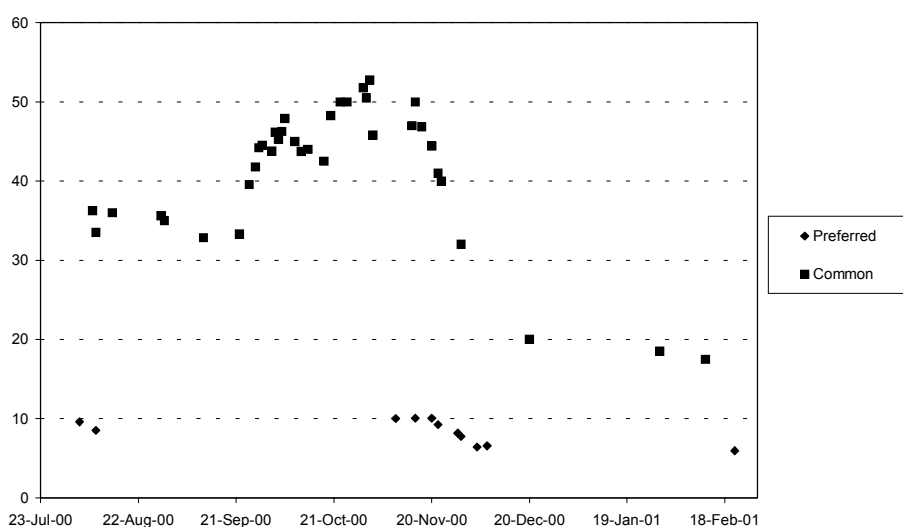


Fig. 1. Prices of common and preferred stock of GAZ around the takeover, USD

The graph shows a large increase of the common stock price within the takeover period – from around \$35 up to \$53 and a strong decline afterwards. The price of preferred stock also declined in the post-acquisition period, but to a lesser extent. Using average prices of common and preferred shares (volumes of trade are the weights) in each of the three periods, one finds that the premium increased from 305% in the pre-takeover period to 374% in September-November and declined subsequently to 207%.

²² There were 263 registered transactions with common shares of GAZ and only 14 transactions with preferred stock during the entire year of 2000.

However, it is not clear whether the fall in the voting premium is indeed related to the takeover and does not just reflect a common trend in the market. To check whether this is indeed the case, the GAZ voting premium is adjusted for the average voting premium in the Russian stock market which is estimated as the equally-weighted average of the premium in three large companies: Unified Energy Systems, Surgutneftegaz and Rostelecom (see Appendix 2 for details).

The market-adjusted premium on GAZ common shares is depicted in Fig. 2 (this is a simple difference between the GAZ premium and the market premium). It shows that the premium experienced a jump during the takeover period and declined afterwards.

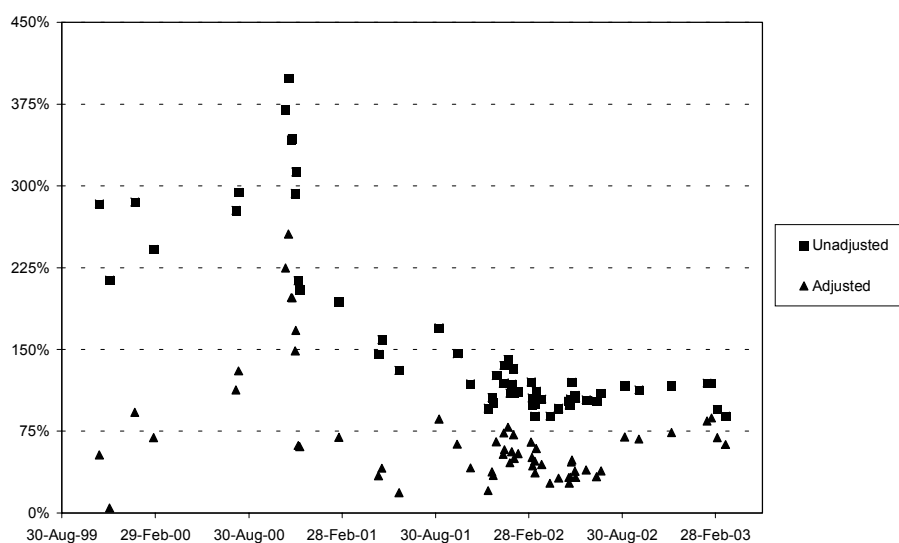


Fig. 2. Premium on GAZ common shares

With adjustment for the market-average premium the GAZ premium changed from 142% to 227% and 64% respectively. The jump of the GAZ premium in the takeover period and subsequent decline provide some evidence of the relevance of the control contest model.

However, even after the successful takeover a substantial voting premium (above the market-average) remained. This hints on a possible impact of other factors such as expropriation risks or liquidity. The latter factor may be particularly relevant since the number of transactions with GAZ preferred stock has been very low.

5.1.2. Change in the dividend rule in Avtovaz

Avtovaz is the largest automaker in Russia producing Samara-Lada cars. Its common and preferred shares are issued in the proportion of 85 to 15% and have been listed in the RTS since 1998.

At the 2002 annual shareholder meeting the ten-percent-of-net profit rule was removed from the corporate charter, which was apparently done in order to reduce dividends on preferred shares, as the company history of dividend payments suggests. In particular, up to 2001 Avtovaz always reported losses and dividends could not simply be paid. At that time there were no attempts to change the dividend rule. The first year when the company reported a positive profit was 2001. Preferred shareholders were expected to receive a dividend in accordance with the

ten-percent-of-net-profit rule and this immediately brought the issue of charter amendments to the agenda.

The amendment to the charter, however, was made without supermajority approval of preferred shareholders: at the meeting, the votes of common and preferred shareholders were counted together and not separately, which is required by the law. The charter change was later challenged in the court. Until the final ruling, a temporary ban was imposed on any decision of the company that concerned dividends on preferred shares. In particular, the board of directors was banned from making proposals on dividend payments to the 2003 annual shareholders meeting. However, just before the meeting the company obtained a ruling of another court which prescribed the company to determine the dividend for the 2002 financial year. The two contradictory rulings allowed the board to make a proposal on the size of dividends which was later accepted by the annual shareholder meeting.

The event of interest is the change in the dividend rule. The exact date of the event is known (the meeting was held on Saturday, May 25, 2002). However, there remains a question of whether the event was completely unexpected by the market: the agenda of the shareholder meeting, including the proposal to change the dividend rule, was approved on April 25, 2002.

The dynamics of the prices of common and preferred shares around the event date (March 25 – June 25, 2002) is shown on Fig. 3 while the premium on Avtovaz common stock is depicted in Fig. 4. There were no transactions with preferred shares during the first trading day after the event (Monday, May 27) so that an immediate reaction cannot be figured out. A fairly flat pattern of share prices and no apparent break in the premium cast doubts on whether the market reacted to the event that apparently disfavored preferred shareholders.

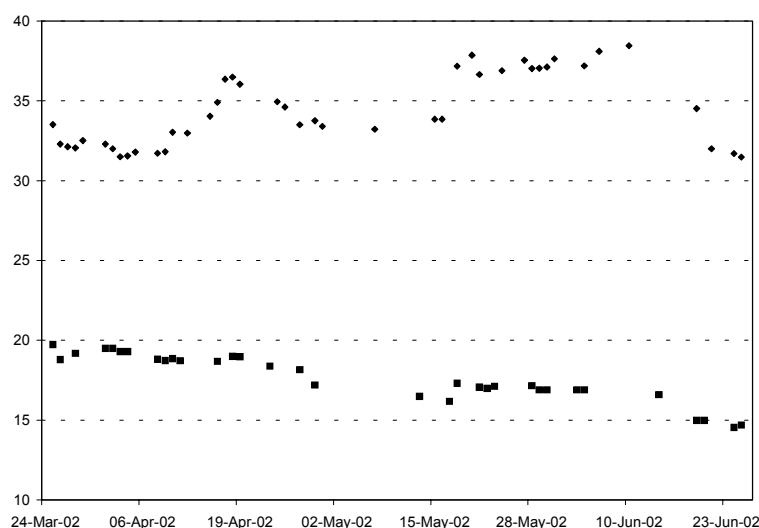


Fig. 3. Avtovaz share prices around the event date, USD

More specifically, by calculating the premium based on average prices of the two classes of stock one week before the event (\$37.080 for common and \$16.973 for preferred) and one week after it

(\$37.181 and \$16.992 respectively), one finds a change in the premium from 118.5% to 118.8%, which is negligible (volumes of trade are used as weights).

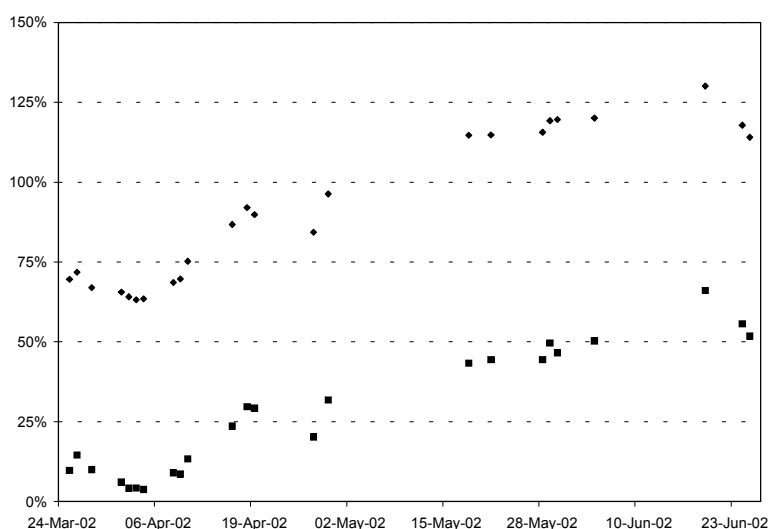


Fig. 4. The premium on Avtovaz common shares

The change in the adjusted increases somewhat since the market premium averaged 71.2% and 70.4% one week before and one week after the event. Nevertheless, one may conclude that even if there was a negative reaction of the market on the corporate charter change, it was almost negligible.

5.1.3. Conversion of LUKoil preferred stock

LUKoil has been among the three largest oil companies in Russia. Initially, the stock of the company was split between common and preferred shares in the proportion of 91 to 9%. LUKoil common shares entered the RTS listing in 1995 and preferred shares followed in 1996.

In 2001 LUKoil converted its preferred shares into common ones in proportion of one to one. The conversion was initiated by the management team and was intended to eliminate “a serious violation of the shareholder rights”. As explained by L. Fedun, a LUKoil vice-president, the company allocated a certain fraction of its net profit to dividends and the lion share went to preferred shareholders, which was considered unjust. Despite the fact that preferred shares constituted about 9% of the charter capital, they received over half of the dividends paid by the company.

Interestingly, the first official information about prospective conversion of preferred shares appeared at the beginning of April 2001 when the LUKoil board of directors adopted the agenda for the annual shareholder meeting and proposed conversion of preferred shares into common one in proportion of one to one. However, the difference in prices of the two classes of stock virtually disappeared already in December 2000, i.e. four months before the official announcement that the conversion issue would be voted at the shareholder meeting. The dynamics of the premium on LUKoil common shares is shown in Fig. 5.

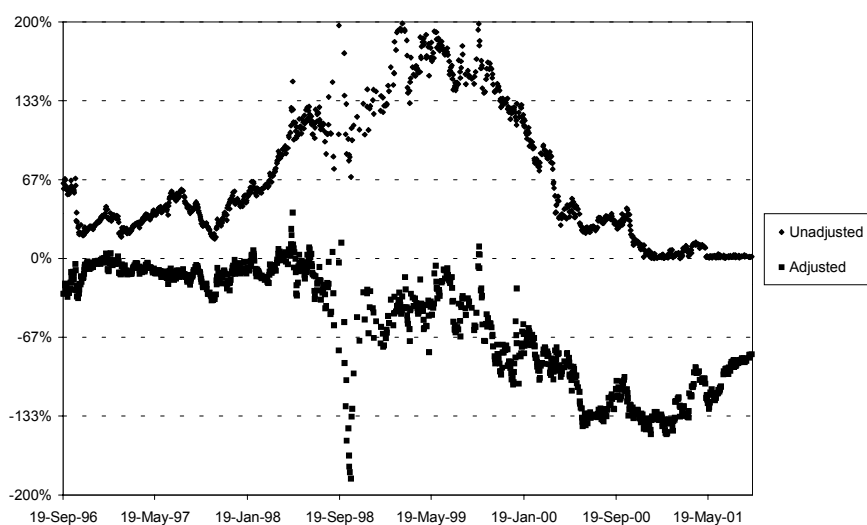


Fig. 5. LUKoil premium on common stock

This case shows that the premium disappears when preferred shares become convertible. In addition, the case provides strong evidence of the presence of insider information and insider trading in the stock market (absent that, why the premium declined after the 1998 crisis relative to the market and, more importantly, vanished four month before the first public announcement of the prospective conversion?). This illustrates a potential problem with event studies: it is difficult to attribute changes in the relative value of shares to a particular event.

5.1.4. Optional conversion of Bashkirenergo preferred stock

Bashkirenergo is a regional power utility company serving 4 million people in the republic of Bashkortostan. The company's stock was originally split between common and preferred shares in the proportion of 90 to 10%. By 2003, the proportion changed to 95 to 5%. Both classes have been traded in the RTS since 1997.

The case of Bashkirenergo is interesting due to the nature of preferred stock of the company. Besides standard characteristics (such as ten-percent-of-net-profit rule), from the time of privatization onwards its preferred shares could be converted into ordinary ones at any transaction at buyer's will. This virtually made the preferred stock of the company a "super-preferred" stock. From March 1997 to May 2003 there have been 2758 transactions with common shares and only 36 (in 30 trading days) with preferred ones. Between November 1997 and February 2002, there have been only 5 trading days with transactions involving preferred stock of the company. The premium on common shares is depicted in Fig. 6.

The graph shows that even "super-preferred" shares are not consistently traded with premium over common stock. This is particularly surprising given the size of dividends paid on the two classes of stock. Between 1995 and 2002 the dividend per preferred share was on average eight times larger than the dividend per common share; in each separate year the ratio of the two dividends varied from one to fifteen. Given the small number of transactions with Bashkirenergo preferred stock, its

illiquidity seems to be a barrier for the rise of the preferred share price above the common share price.

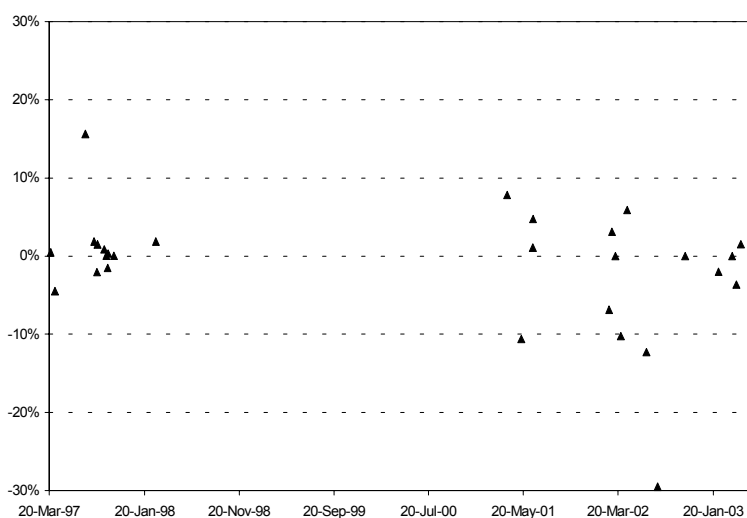


Fig. 6. Bashkirenergo premium on common stock (unadjusted)

5.1.5. Conversion of Norilsk Nickel preferred stock

Norilsk Nickel is among the world's leading producers of nickel and platinum. Its stock was initially split between common and preferred shares in the proportion of 75 to 25%. Common and preferred shares were traded since 1995 and 1996 respectively. The company was reorganized in 2001; the process implied a swap of shares of another company for both classes of Norilsk Nickel shares.

From the time of privatization the charter of Norilsk Nickel contained the provision that preferred shares could be converted into common ones (in proportion of one to one) after the sale of at least one share from the block that the government reserved in state ownership. This event (a formal privatization of the state block) occurred on August 5, 1997; since then the preferred stock became convertible. The dynamics of the premium on common stock is shown in Fig. 7.

The effect of making preferred shares convertible is clear: the premium on common shares which typically fluctuated in the range from 40% to 100% fell to the range from 0% to 20%. In some periods, the premium was even negative.

5.1.6. A summary

The case study evidence provides some support for the control contest model of the premium (GAZ) and hints on the relevance of the explanation based on liquidity differences (GAZ and Bashkirenergo). A single case study of an apparent expropriation of preferred shareholders (Avtovaz) fails to reveal any sizeable effect of expropriation on the premium. Moreover, this case shows that the vetoing power of preferred shareholders is not necessarily an effective means to

prevent expropriation. The case studies document the high importance of the convertibility option. There is also an indication of the presence of an important common factor underlying the dynamics of the premium in individual companies: similar dynamics is observed in the three companies selected for the estimation of the market index, the premium in LUKoil did not deviate much from the market index until late 1999, when information on prospective conversion presumably started to leak from the company, the premium in GAZ follows the market fairly closely (except for the takeover period).

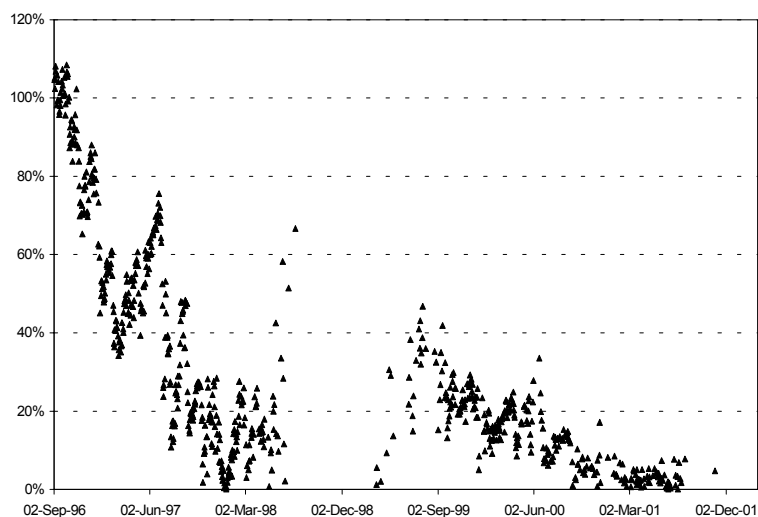


Fig. 7. Norilsk Nickel premium on common stock (unadjusted)

5.2. Econometric analysis

5.2.1. Data and sample description

A small number of observations are the major problem complicating regression analysis of the premium on common shares in Russia. Though there have been over 150 companies with both common and preferred shares listed in the RTS stock exchange between 1996 and 2003, in any given year the number of companies whose preferred shares were more or less actively traded in the market was several times smaller. This leaves the researcher with 50-60 observations of the premium per year at best. A natural solution for the small sample problem is to use observations from different periods (which results in pooled cross-sections or panel data).

The study is based on the sample embracing Russian companies whose common and preferred shares of the companies listed in the RTS from 1997 to 2003.²³ A particular company is included on the basis of the following criteria:

- 1) it has issued two classes of stock;

²³ Preferred stock appeared in the RTS only in September 1996. In principle, earlier data from over-the-counter market may also be used, but only at the cost of losing liquidity information.

- 2) both common and preferred stock have been listed in the RTS stock exchange;
- 3) both common and preferred stocks have been traded between 10 February and 15 March the same year at least once over the entire period 1997-2003.
- 4) the dividend on preferred shares of the company has been bounded below by the dividend on its common shares.²⁴

The period from mid-February to mid-March is chosen for two reasons. Firstly, a sensible correction of share prices for expected dividends (they are likely to be incorporated in the prices) is possible in this period: information about the performance of companies in the previous financial year is released and provides a clue about dividends. One may simply assume that the market anticipates future dividends correctly: the expectations coincide with the ex post dividends paid by the companies. Secondly, the length of the period is motivated by the necessity to increase the number of observations: the longer the period, the larger the number of companies in the sample. An obvious shortcoming of this strategy is that with longer periods the difference in average-over-the-period prices of the two classes of stock may be less informative, especially when one class of shares is traded at the beginning of a period characterized by large changes of share prices while the other class – at the end of the period.

A screening of the RTS data shows that 92 companies satisfy the mentioned restrictions on sample selection. The total number of observations (firm-years) in the dataset is 264. Fifty-seven companies out of 92 are observed at least twice during the seven year period. This gives a panel with 229 observations. Thirty-five companies are observed only once.

Almost all data are publicly available in the Internet. As regards share prices and other information concerning trading in the RTS, they are available on the RTS web-site (<http://www.rts.ru>). Company data are available from quarterly reports to the FCSM and are downloadable from its web-site (<http://disclosure.fesm.ru>). Since quarterly reports of companies are available starting from 1998 at best, other sources such as company annual reports and financial press were occasionally used to obtain missing data.

5.2.2. Econometric specification

Based on the theoretical considerations discussed above, the general functional relationship can be expressed the following way:

$$VP = F(\pi, \Phi, B/y, Expr, \Delta Liquidity), \quad (3)$$

where VP is a premium on common shares, π , Φ , B/y are the variables in the control contest model of the voting premium (2), $Expr$ is a measure of expropriation risks facing preferred shareholders, and $\Delta Liquidity$ is a measure of relative liquidity of preferred shares. This model contains several variables that cannot be measured directly and for which there are no conventional proxies. The

²⁴ This condition is needed in order to exclude preferred shares which promise a fixed amount dividend and therefore resemble corporate bonds rather than non-voting stock.

exact specification, therefore, critically depends on the ability to resolve a number of measurement issues.

Variables in the control contest model of the voting premium. First and foremost, there is no straightforward way to obtain the value of the Φ factor. Rydqvist (1987) was the first to use a modified version of the Shapley value (Milnor and Shapley, 1978) to assess the probability that the votes of small outside shareholders are pivotal for obtaining majority control over the firm. This approach was applied in subsequent studies by Zingales (1994), Robinson et al. (1995), and Chung and Kim (1999), among others. If approximated by the Shapley value, Φ equals zero when one individual owns more than 50% of the votes, is small when one investor owns large but minority fraction of votes and no others wield any significant block, and increases dramatically when two shareholders own large fractions of votes and the pivotal votes are distributed among small shareholders. The Φ factor, when approximated by the Shapley value, proves to be a statistically significant explanatory variable in all mentioned studies. However, the theoretical foundations of the Shapley value are not unquestionable (Zingales, 1995) and other proxies for the probability of a contested takeover may be warranted.

Alternative approaches to measuring the probability of a takeover can be found, for example, in Zingales (1994) and Smith and Amoako-Adu (1995). Zingales (1994) suggests two proxies: a dummy equal to unity if one shareholder owns a majority of stock and zero otherwise and a dummy equal to unity if there are at least two large shareholders but neither has a majority of votes. Smith and Amoako-Adu (1995) use a vector of variables comprising ownership (the fraction of votes held by insiders), size (measured as the logarithm of the market value of equity), and abnormal stock return as a combined proxy for the Φ factor. The intuition behind the size factor is that larger companies are less likely to be the targets in control contests since cost of obtaining control over them is higher. Abnormal stock returns are used in order to measure company performance: it is argued that poorly performing companies are more likely to be acquired because takeovers are a means of replacing inefficient management.²⁵

The validity of the Shapley value in the Russian case is problematic. The main reason is the presence of controlling shareholders in most firms (84% in the sample) implying that the variable takes too many zero values and has little explanatory power. Moreover, the Shapley value cannot be measured precisely since only the upper tail of the distribution of ownership in each company is known (the disclosure cut-off is 5%). As shown by Leech (1988), approximations of the Shapley value contain a significant error when the ownership stake of the largest shareholder exceeds 30%. But this is a typical case in Russia. In what follows, therefore, the Φ factor is approximated by (a) majority control dummy, (b) a dummy for majority control by the state (and its affiliates) plus a dummy for majority control by private shareholders, (c) the ownership stake of the largest shareholder, (d) the difference between the ownership stake of the largest shareholders and the second largest one. The intuition behind the last approximation is that the smaller the difference, the

²⁵ This variable, however, proves to be statistically insignificant in the mentioned study.

more valuable are the votes of small shareholders, in particular if the company is not majority controlled.

The value of the private benefits of control, as already mentioned, is unobservable. For that reason it is always omitted in regression analysis. There is, however, at least one opportunity to explicitly take into account the variation of the relative size of the private benefits of control (B/y) across Russian companies. This can be done by constructing a dummy which equals unity if a company has introduced its shares to the US stock market by issuing American Depositary Receipts (ADRs) and zero otherwise. The rationale is as follows. A company that wants to issue ADRs has to adhere to fairly strict disclosure rules in the US. Greater disclosure implies that the opportunities to extract private benefits of control vanish. A more extensive discussion of the role of ADRs in reducing private benefits of control is provided in Doidge (2003).

Dividend differences. Controlling for dividend differences across Russian companies represents a challenge in the empirical analysis: dividends per common and preferred shares typically differ; moreover, they are not functionally dependent on each other. One possibility is to subtract expected dividends (which may be proxied by actual dividends the company pays ex post) from the prices of common and preferred stock and to use the resulting values to calculate the premium:

$$VPA = \frac{(price_c - div_c) - (price_p - div_p)}{(price_p - div_p)}, \quad (4)$$

However, such adjustment is obviously imperfect because it ignores differences in future dividend flows. Moreover, there is no guarantee that the ex ante expectations by the market concerning future dividends coincide with the actual dividends paid by the companies ex post.²⁶

Another possibility is to include a variable defined as the difference in dividends divided by the price of preferred share as a control variable in the regression:

$$\Delta Dividends = (div_p - div_c)/price_p. \quad (5)$$

In addition, given that the dividend rights concerning preferred shares vary across companies, a dummy variable which indicates if a company adheres to the ten-percent-of-net-profit rule can also be included in the econometric model.

Liquidity. Since measuring liquidity of the two classes of stock on the basis of the volume of trade or the number of transactions may be ambiguous, this paper uses the spread-based approach to assess liquidity:

$$Liquidity = (price_a - price_b)/price_a, \quad (6)$$

where $price_a$ and $price_b$ denote ask and bid prices (closure) on the 1st of March each year or the nearest trading date in case the stock exchange was closed on the 1st of March. Defined this way, the variable takes any value in the (0; 1) interval and measures *illiquidity* of shares: the larger the

²⁶ Another objection is little evidence of that share prices in Russia are corrected for the value of dividends when the ex-dividend date passes (Securities Market, 2001).

value, the lower liquidity. The relative liquidity of the two classes of stock is defined as a ratio or difference between the estimated liquidities of the two classes, e.g., the following way:

$$\Delta Liquidity = Liquidity_c - Liquidity_p. \quad (7)$$

Alternatively, one may include in the model two variables that measure the liquidity of each class of stock separately.²⁷

Expropriation risks facing non-voting shareholders. This factor cannot be measured directly. Yet the vetoing power of preferred shareholders may serve as a reasonable proxy: if changes in the corporate charter that concern preferred shares require supermajority approval by preferred shareholders, the risk of expropriation is presumably lower than in the opposite case. A dummy variable for the vetoing power is constructed; it equals unity for all companies starting from 2002 when the vetoing power of preferred shareholders was instituted in the corporate law.

Convertibility. The sample contains only three companies that in various periods provided preferred shareholders with the opportunity to convert their preferred shares into common ones: Bashkirenergo, Norilsk Nickel and LUKoil. Given the importance of the convertibility option (which is documented in the case studies), the corresponding dummy variable is included in specifications of the econometric model.

Based on the above and assuming a linear functional form, the basic specification of the model looks as follows:

$$\begin{aligned} VPA_{it} = & \alpha + \beta_1(1/\pi)_{it} + \beta_2Control_{it} + \beta_3ADR_{it} + \beta_4Veto_{it} + \beta_5Liquidity_c_{it} + \\ & + \beta_6Liquidity_p_{it} + \beta_7Conversion_{it} + year\ dummies + \varepsilon_{it}, \end{aligned} \quad (8)$$

where the dependent variable measures the premium adjusted for expected dividends as in (4), $1/\pi$ is the inverse of the fraction of common stock in company equity, *Control* denotes the control dummy, *ADR* stands for the dummy for ADR issue, *Veto* is a dummy for the vetoing power of preferred shareholders, *Liquidity_c* and *Liquidity_p* measure liquidity of common and preferred stock respectively – this is a more flexible specification than one with the variable for relative liquidity defined in (7) – and the variable *Conversion* is a dummy for convertibility of preferred shares. The model also includes period dummies to account for aggregate changes in the premium over time (Wooldridge, 2002), with 1998 being the base year.

An alternative specification uses the dependent variable unadjusted for expected dividends (variable *VP*) and a control variable for dividend differences $\Delta Dividends$:

$$\begin{aligned} VP_{it} = & \alpha + \beta_1(1/\pi)_{it} + \beta_2Control_{it} + \beta_3ADR_{it} + \beta_4Veto_{it} + \beta_5Liquidity_c_{it} + \\ & + \beta_6Liquidity_p_{it} + \beta_7\Delta Dividend_{it} + \beta_8Conversion_{it} + year\ dummies + \varepsilon_{it}. \end{aligned} \quad (9)$$

²⁷ A reservation should be made that shares of many companies are traded in several stock exchanges (e.g., MICEX or in the form of ADRs in the US). For many shares (especially common) most trade occurs outside RTS. As a result, actual liquidity of shares may be higher than estimated from the RTS data.

Definitions of variables are provided in Appendix 3 and their descriptive statistics are reported in Appendix 4.

5.2.3. Estimation results

Given the nature of the data (264 observations of which 229 form an unbalanced panel), two estimation methods – pooled OLS or fixed/random effects estimation – may be applied. The latter method can only use 229 observations that form a panel sub-sample while the pooled OLS estimation allows to take advantage of the entire dataset. Given the small number of observations, the difference may be important. In what follows, results from the pooled OLS estimation are reported. In all regressions, standard errors are corrected for heteroskedasticity and serial correlation within clusters (firms).²⁸ Further, the models (8) and (9) are modified to exclude the first explanatory variable: it has low variation both across companies and over time so that the coefficient β_1 can hardly be estimated. The decisions to use pooled OLS and to omit the first variable are discussed in more detail in section 5.2.4.

#Regression results are shown in Appendix 5. Table A5.1 contains results from estimating the benchmark model as in (8) and its variations where the variable *Control* is replaced with other proxies for the probability of contested takeover, Φ . Results in column (R1) show statistically significant coefficients on the convertibility dummy and on the variable capturing liquidity of preferred shares (though not of common shares). The coefficients on the majority control dummy, the ADR dummy as well as on the dummy for the vetoing power of preferred shareholders have the expected negative signs, but are not statistically significant. Period dummies are jointly statistically significant at one percent level (not reported).

Regression (R2) is intended to check whether the premium depends on the identity of the controlling owner. The underlying hypothesis is that the premium on common shares is larger in companies that are controlled by the state – future privatizations may dramatically alter control structures in these firms. Therefore, the variable that reflects majority control is decomposed into two variables: one for control by the state (widely defined, including government-controlled state holding companies) and another one for control by private shareholders. The coefficients on the both variables are negative, but statistically insignificant. Thus, there is no evidence that majority control by the state is less stable than majority control by private owners. All other coefficients do not change much compared to regression (R1).

Regressions in columns (R3) – (R6) use continuous ownership variables instead of the control dummies to proxy for the probability of a takeover. Regression (R3) shows that the premium is negatively related to the ownership stake of the largest shareholder (variable *Owner1*). The respective coefficient is only significant at 10% level, however. Regression (R4) checks if this relationship depends on whether a company is majority-controlled or not: the ownership stake of the largest shareholder is interacted with the control dummy and the resulting variable is included in the

²⁸ Accounting for serial correlation among the residuals referring to the same company slightly reduces the statistical significance of the coefficients compared to the standard Huber/White/sandwich heteroscedasticity-robust estimator.

model. There is no evidence of a non-linear relationship: though the coefficient on the *Owner1* variable increases in absolute value and becomes significant at 5% level, the coefficient on the product of the two variables is statistically insignificant. Numerically, the relationship implies that a one percentage point increase in the ownership stake of the largest shareholder reduces the premium by 1.5 percentage points.

Regression (R5) proxies the probability of a takeover by the difference between the ownership stakes of the largest shareholder and the second largest one (variable *Owners1-2*). The underlying hypothesis is that the closer the fractions of shares held by the two largest shareholders, the higher the probability of a control fight. Hence, the premium should increase when the difference becomes smaller resulting in a balance of power between the two largest shareholders. This hypothesis is supported by the data: the coefficient on the variable of interest is negative and statistically significant (at 5% level).²⁹ A further check is performed in regression (R6). Regression (R6) is the same as (R5), but contains the product of the variable *Owners1_2* with the dummy for no majority control. One may expect that the difference between the ownership stakes of the two largest shareholders only matters as long as the largest owner does not have a majority control. Having obtained 50% of votes, he enjoys full control and the fraction of stock held by the second largest owner becomes irrelevant. This is not supported by the data, however. The coefficient on the product of the two variables is statistically insignificant while the coefficient on the variable *Owners1_2* is only marginally affected. Regardless of whether the largest shareholder has majority control or not, the difference between his fraction of ownership and the fraction of the second largest shareholder seems to have the same effect on the premium. Numerically, if the discrepancy between the ownership stakes of the two largest shareholders rises by one percentage point, the premium declines by 0.8 percentage points on average.

Estimation of the second benchmark model (9) yields similar results (not reported). In particular, convertibility of preferred shares and liquidity of preferred stock remain the major explanations of the premium. The coefficient on liquidity of preferred shares becomes somewhat smaller than in the first benchmark model (8), and the coefficient on liquidity of common shares becomes marginally significant at 10% level. The proxies for the probability of takeover behave the same way as before with the ownership stake of the largest owner as well as the difference between the ownership stakes of the largest and the second largest shareholders being the best explanatory variables. The coefficient on the ADR dummy is negative, but statistically insignificant. The vetoing power of preferred shareholders does not contribute to explaining the premium. Finally, the coefficient on the control variable that is supposed to capture the difference in dividends between common and preferred shares is negative and statistically significant at 1% level (the greater the dividend advantages of preferred shares, the lower the premium).

Table A5.2 shows estimation results for specification (R5) in Table A5.1 augmented with additional company-level variables: a dummy for temporal enfranchisement of preferred shares, a dummy for

²⁹ The ownership stake of the second largest shareholder *per se* has no effect on the premium as follows from the specification where this variable is included alongside the ownership stake of the largest owner (not reported).

the ten-percent-of-net-profit dividend on preferred stock and a measure of company size (log market capitalization). The results are virtually the same regardless of what method of differential dividends correction is used – an additional regressor as in (R1) – (R3) or adjusting share prices as in (R4) – (R6). The coefficients on the temporal enfranchisement dummy and the dummy for the ten-percent-of-net-profit rule are not significant. The inclusion of the proxy for company size (log market capitalization) that may capture the cost, and hence the probability, of a takeover, does not change the results much.

5.2.4. A note on estimation

The fact that the dataset is not a panel (35 companies are observed only once during the seven-year period) provides a reason to use pooled OLS. The use of OLS, however, may lead to biased estimates if there are unobserved characteristics of firms correlated with the dependent variable and any of the right-hand-side variables in the model. A sub-sample of the original dataset that forms a panel provides an opportunity to test the appropriateness of OLS estimation.

Columns R1 and R2 in Table A5.3 show results of estimating parameters of the basic model (8) by OLS using the full sample and the panel sub-sample. The results are fairly similar. Columns R3 and R4 show results obtained on the panel sub-sample using both fixed and random effects estimators. The F-test reject fixed effects at 5% level though not at 10% level. Hausman test shows no statistically significant difference between the coefficient obtained from the random and fixed effects estimators, which is normally interpreted as evidence of that the random effects estimator is justified (the estimates are consistent). Second, a Breusch and Pagan Lagrangian multiplier test is run to test for the presence of random effects. These are rejected. Overall, the tests provide no evidence of unobserved effects that may bias OLS estimates; hence, OLS estimator appears to be justified.

As pointed out above, the variable $1/\pi$ has a low variance. An attempt to estimate the full model such as (8) shows that the variable has little explanatory power but causes multicollinearity with the constant term (this is shown in the column R5, Table A5.3). This is the reason why the basic model (8) is modified to exclude the $1/\pi$ variable. The modification only marginally changes the estimated parameters of the model except for the constant term.

5.2.5. A summary

The regression analysis provides reasonable support for the relevance of the control contest model of the premium. Most evidence comes from specifications that use continuous data on ownership to proxy for the probability of contested takeovers. A more conventional proxy for the probability of a control contest – the majority control dummy – does not work, even if disaggregated into two dummies – one for majority control by the state and another one for the majority control by private owners. The coefficients on these variables are statistically insignificant, though their magnitudes (of the order of 10 to 40%) are not negligible from the economic viewpoint.

The most remarkable result related to the control contest model is as follows: the larger the difference between the ownership stake of the largest shareholder and the stake of the second

largest one, the smaller the voting premium. In particular, reducing the discrepancy between the ownership stakes of the two largest shareholders by one percentage point tends to increase the premium by 0.8 percentage points on average. This relationship would provide an immediate support for the control contest model of the premium were it observed only in companies that do not have a controlling shareholder. A puzzle is that this result holds for all companies regardless of the presence of controlling owner. This hints on the importance of significant minority ownership stakes. The result can be rationalized if large minority investors have bargaining power and enjoy private benefits regardless of whether the company is majority controlled or not (this interpretation was earlier suggested by Nicodano (1998)). For example, if a minority shareholder has a representative in the corporate board (this is not unlikely given that the boards in Russia are elected by cumulative voting), he may affect corporate decisions that require unanimous approval by the board.

The regression analysis does not say anything in favor of the expropriation hypothesis. Yet the result is hardly a convincing evidence of that the expropriation of preferred shareholders is irrelevant; it may well be due to the failure to find a good proxy for such expropriation. For example, if preferred shareholders are very small, they tend to free ride at shareholder meetings and not use their conditional voting right to prevent “class rights” changes or other cases of expropriation. Testing the relevance of this explanation would require detailed data on the distribution of preferred shares, but they are not available. The vetoing power of preferred shareholders may also turn out to be a bad proxy for the expropriation risk in case of ineffective enforcement of law, when the vetoing right can be ignored by common shareholders.

Liquidity (in particular, liquidity of preferred shares) is the most important determinant of the premium, apart from convertibility of preferred stock. The impact of liquidity is fairly robust across various specifications and the variation of the premium that liquidity may cause is substantial and exceeds 100%. The conversion option matters a lot, but this result is expected and is trivial from the economic viewpoint.

Some company-specific characteristics such as the ten-percent-of-net-profit rule, (temporary) enfranchisement, and the issue of ADRs have no effect on the premium. As regards ADR issues, the coefficient on the corresponding variable has the expected negative sign; the fact that it is statistically insignificant may stem from a high correlation observed between the variable for ADR issue and the variables for liquidity (the issue of ADR raises liquidity of both classes of shares).

Finally, it has to be mentioned that the period dummies and the dummy for convertibility of preferred stock account for the lion’s share of explained variation of the premium. A simple model without any firm-level regressors (only with the period dummies) explains about one-third of the variation in the premium. Adding the convertibility dummy increases the fraction of explained variation to 40% while including all other (company-specific) regressors raises R-squared to 50% at best. Highly significant period dummies suggest that some of the substantive determinants of the time-series variation of the premium have not been uncovered in the regression analysis.

6. CONCLUSION

Empirical analysis provides certain support for the hypothesis that the premium is related to the private benefits of control and the probability of control fights. This is despite the fact that takeovers have been exceptional, rather than typical, events in the Russian stock market, primarily due to the highly concentrated ownership structures in the publicly traded companies. A single case study of a contested takeover shows the relevance of control changes for the magnitude of the premium in Russia. Econometric analysis shows that the premium on voting shares is high when the two largest shareholders are of similar size (and may eventually start a control fight) and is low when the ownership stake of the second largest shareholder is substantially smaller than that of the largest one.

The study provides no support for the hypothesis that the premium is related to expropriation of preferred shareholders *as a class*.

The econometric analysis uses the cross-company variation of the vetoing power of preferred shareholders in case their “class rights” are concerned as a proxy for the expropriation risk. Theoretically, such conditional vetoing power should reduce the expropriation risk facing non-voting shareholders. However, the premium turns out to be unaffected by this factor. The result may testify either to that the expropriation of preferred shareholders is irrelevant or that the proxy for the expropriation risk employed in the study is imperfect. In particular, the vetoing power is an imperfect proxy for the expropriation risk when preferred shareholders are too dispersed and the free rider problem is severe, as well as when the vetoing right is badly enforced. The second conjecture is supported by evidence from a single case study showing that the rights of preferred shareholders may be de facto changed without their consent even if the latter is legally required.

The explanation based on liquidity finds considerable support – indirectly in the case studies and explicitly in the econometric analysis. In particular, the premium rises with illiquidity of preferred stock, the result is significant both statistically and economically.

Yet the control contest model of the voting premium and the liquidity story do not explain much of the variation of the premium, especially over time. The impact of firm-specific characteristics turns out to be of minor importance compared to the impact of a hidden common factor which is presumably related to changing economic and institutional environment. In particular, the premium is related to the 1998 financial crisis in Russia: the highest values are observed in the two year period following the default. Such dynamics may be a consequence of an increase in the relative size of private benefits of control, which may stem from increased incentives for expropriation in the economic downturn (Shleifer and Vishny, 1997) or from weaker restraints on the extraction of private benefits due to the decline in the quality of law enforcement in Russia between 1998 and 2000 (EBRD, various years). An exact answer to the question of what determines a significant variation of the premium over time requires further research.

APPENDICES

A1. Dual class stock: share prices and dividends

Table A1.1 Prices of common and preferred shares, USD*

Company		1997	1998	1999	2000	2001	2002	2003
Surgutneftegaz (SNGS)	common	0.58	0.15	0.07	0.29	0.24	0.34	0.32
	preferred	0.39	0.09	0.02	0.11	0.11	0.21	0.23
	premium	50%	74%	282%	175%	113%	59%	36%
LUKoil (LKOH)	common	13.69	18.09	3.86	12.57	10.62	14.16	14.51
	preferred	10.49	12.90	1.68	5.87	10.95	n/a**	n/a**
	premium	31%	40%	129%	114%	-3%	n/a	n/a
Unified Energy Systems (EESR)	common	0.14	0.25	0.03	0.14	0.09	0.17	0.12
	preferred	0.10	0.17	0.01	0.06	0.04	0.13	0.10
	premium	34%	48%	129%	155%	154%	34%	20%
Norilsk Nickel (NKEL)	common	6.38	5.51	0.66	7.16	8.56	15.59	n/a****
	preferred	4.02	4.95	n/a***	6.48	8.32	n/a***	n/a****
	premium	59%	11%	n/a	10%	3%	n/a	n/a
Rostelecom (RTKM)	common	2.90	2.96	0.75	2.54	1.01	1.03	1.23
	preferred	2.24	2.10	0.28	0.80	0.42	0.53	0.83
	premium	30%	41%	170%	219%	139%	94%	49%

* Weighted-average prices as of January each year, data from the RTS Stock Exchange.

** Preferred shares were converted into common ones.

*** Not traded in the market in the specified period.

**** Swapped for another company shares.

Table A1.2. Dividends per common and preferred shares (USD)*

Company		1997	1998	1999	2000	2001	2002	2003
Surgutneftegaz (SNGS)	common	0.0062	0.0012	0.0004	0.0007	0.0014	0.0011	0.0010
	preferred	0.0229	0.0043	0.0004	0.0030	0.0063	0.0032	0.0030
	com. to pr.	27%	27%	100%	23%	23%	33%	33%
LUKoil (LKOH)	common	0.0528	0.0362	0.0109	0.1047	0.2795	0.4848	0.6176
	preferred	0.1761	0.1499	0.1168	0.6091	2.0671	n/a	n/a
	com. to pr.	30%	24%	9%	17%	14%	n/a	n/a
Unified Energy Systems (EESR)	common	0.0009	0.0008	0.0003	0.0005	0.0007	0.0008	0.0011
	preferred	0.0009	0.0015	0.0007	0.0013	0.0026	0.0038	0.0092
	com. to pr.	100%	55%	41%	36%	27%	22%	12%

Company		1997	1998	1999	2000	2001	2002	2003
Norilsk Nickel (NKEL)	common	0	0	0	0.0094	0.0542	0.0556	n/a
	preferred	0.0004	0.0016	0	0.0094	0.0542	0.0556	n/a
	com. to pr.	0%	0%	n/a	100%	100%	n/a	n/a
Rostelecom (RTKM)	common	0	0.0135	0	0.0057	0.0057	0.0069	0.0171
	preferred	0.0837	0.0945	0	0.0282	0.0148	0.0297	0.0402
	com. to pr.	0%	14%	n/a	20%	39%	23%	43%

* Dividends from the last financial year to be paid in the current year, Ruble values adjusted using USD/RUR exchange rates as of March 1.

A2. A proxy for the market premium

The market premium on common stock is calculated as the equally-weighted average of the premium for three companies: Unified Energy Systems (EESR), Surgutneftegaz (SNGS), and Rostelecom (RTKM). The following criteria underlie the choice of these companies: their common and preferred shares have been the most liquid over the entire period (with the smallest number of missing observations); they represent the most traded sectors of the economy – power utilities, oil&gas, and telecommunications; the status of their preferred stock as well as its share in corporate equity did not change much in 1997-2003 so that the impact of idiosyncratic changes on the premium has been minimal. The series are depicted in fig. A1 (missing observations have been interpolated); the market premium is shown in fig. A2.

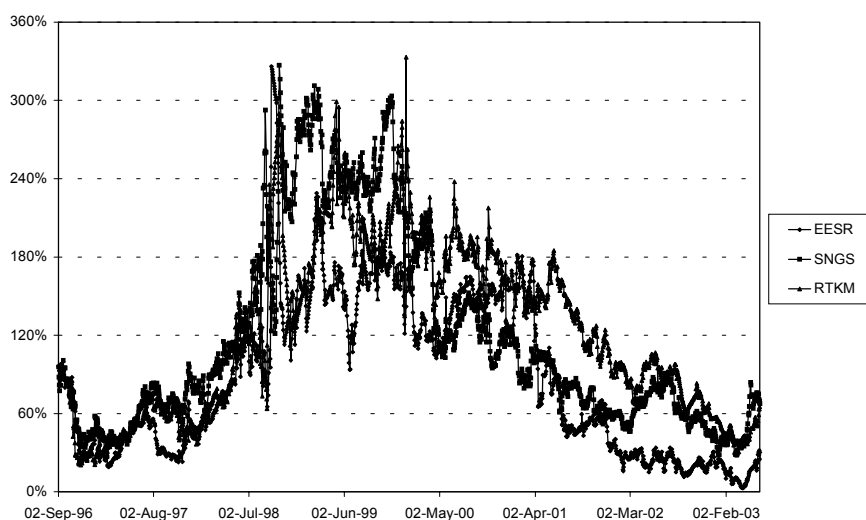


Fig. A2.1. Common stock premium for EESR, SNGS and RTKM.



Fig. A2.2. Estimated market premium on common stock.

A3. Definition of variables

VP – the voting premium (unadjusted for dividends), defined as the difference between the price of common share and the price of preferred share divided by the latter, measured in percentage points. Average prices for the period from 10 February to 15 March are used.

VPA – the same as above, but share prices are adjusted for the size of dividends the companies are expected to pay (actual dividends paid by firms are used as approximation for expected dividends).

π – the fraction of common shares outstanding.

$Liquidity_c$ – a measure of liquidity of common shares defined on the basis of bid-ask spreads; equals the difference between the ask and bid prices divided by the ask price. Bid and ask prices are taken on the 1st of March or closest available trading date. Note: higher value of the variable means lower liquidity.

$Liquidity_p$ – a measure of liquidity of preferred shares. See above.

$\Delta Liquidity$ – difference in liquidity; $Liq_p - Liq_c$.

$\Delta Dividend$ – the difference in dividends on preferred and common shares; equals to the difference between the dividend on preferred share and the dividend on common share divided by the price of preferred share.

$Control$ – a dummy for majority control (50% of voting shares or more in the hands of a single shareholder).

$Control_st$ – a dummy for majority control by the state (50% of voting shares or more).

$Control_pr$ – a dummy for majority control by a private shareholder (50% of voting shares or more).

$No_Control$ – a dummy for no majority control by a single shareholder.

Owner1 – the ownership fraction of the largest shareholder.

Owner1-2 – the difference between the ownership stakes of the two largest owners.

Conversion – a dummy for convertible preferred shares.

Div10 – a dummy for ten-percent-of-net-profit rule applied to dividends on preferred shares.

Veto – a dummy for the vetoing power of preferred shareholders.

ADR – a dummy for ADR issue.

Vote – a dummy for temporary enfranchisement of preferred stock.

$\ln(\text{capitaliz})$ – log capitalization measured in million rubles.

A4. Descriptive statistics

Variable		Mean	Std. Dev.	Min	Max
VP	overall	118.138	90.232	-26.581	499.984
	between		77.973	5.182	476.923
	within		66.887	-62.637	353.760
VPA	overall	137.849	103.558	-26.581	567.113
	between		86.214	8.563	527.212
	within		78.498	-50.915	467.299
π	overall	0.789	0.060	0.750	0.963
	between		0.053	0.750	0.963
	within		0.014	0.707	0.892
Control	overall	0.845	0.363	0	1
	between		0.341	0	1
	within		0.162	-0.012	1.645
Control_st	overall	0.742	0.438	0	1
	between		0.445	0	1
	within		0.105	-0.115	1.142
Control_pr	overall	0.102	0.304	0	1
	between		0.310	0	1
	within		0.156	-0.469	0.902
Owner1	overall	41.288	9.193	9.448	75.750
	between		9.769	14.400	69.520
	within		2.844	21.765	57.448
Owner1-2	overall	27.852	13.027	0.050	74.450
	between		13.011	0.050	63.057
	within		5.880	4.524	56.812

Variable		Mean	Std. Dev.	Min	Max
ADR	overall	0.273	0.446	0	1
	between		0.319	0	1
	within		0.240	-0.584	1.073
Veto	overall	0.538	0.500	0	1
	between		0.438	0	1
	within		0.305	-0.129	1.371
Liquidity_c	overall	0.174	0.174	0.001	0.940
	between		0.167	0.006	0.793
	within		0.105	-0.209	0.765
Liquidity_p	overall	0.240	0.225	0.003	0.990
	between		0.209	0.022	0.867
	within		0.147	-0.128	0.839
Δ Dividend	overall	0.061	0.088	0	0.600
	between		0.058	0	0.287
	within		0.072	-0.164	0.553
Conversion	overall	0.030	0.172	0	1
	between		0.134	0	1
	within		0.078	-0.770	0.830
Vote	overall	0.083	0.277	0	1
	between		0.270	0	1
	within		0.192	-0.583	0.940
Div10	overall	0.936	0.246	0	1
	between		0.238	0	1
	within		0.087	0.269	1.602
Ln(capitaliz)	overall	7.915	1.744	4.267	12.955
	between		1.560	4.762	11.707
	within		0.613	6.097	9.666

Descriptive statistics: 1997

Variable	Obs	Mean	Std. Dev.	Min	Max
VP	37	55.846	29.013	-14.071	121.213
VPA	37	71.475	45.910	-11.045	238.146
π	37	0.780	0.058	0.750	0.953
Control	37	0.919	0.277	0	1
Control_st	37	0.730	0.450	0	1

Variable	Obs	Mean	Std. Dev.	Min	Max
Control_pr	37	0.189	0.397	0	1
Owner1	37	41.029	6.449	24.790	53.000
Owner1-2	37	31.263	10.349	4.490	50.978
ADR	37	0.081	0.277	0	1
Veto	37	0.351	0.484	0	1
Liquidity_c	37	0.137	0.127	0.004	0.539
Liquidity_p	37	0.175	0.189	0.003	0.690
Δ Dividend	37	0.066	0.112	0.000	0.600
Conversion	37	0.027	0.164	0	1
Vote	37	0.027	0.164	0	1
Div10	37	1	0	1	1
Ln(capitaliz)	37	7.611	1.320	4.831	10.992

Descriptive statistics: 2003

Variable	Obs	Mean	Std. Dev.	Min	Max
VP	37	73.586	39.533	4.392	155.866
VPA	37	79.183	41.304	12.983	176.178
π	37	0.801	0.054	0.750	0.952
Control	37	0.865	0.347	0	1
Control_st	37	0.757	0.435	0	1
Control_pr	37	0.108	0.315	0	1
Owner1	37	45.559	10.611	20.680	74.240
Owner1-2	37	29.268	16.057	2.000	72.930
ADR	37	0.378	0.492	0	1
Veto	37	1.000	0.000	1	1
Liquidity_c	37	0.115	0.142	0.001	0.537
Liquidity_p	37	0.138	0.142	0.013	0.571
Δ Dividend	37	0.018	0.023	0	0.076
Conversion	37	0.000	0.000	0	0
Vote	37	0.162	0.374	0	1
Div10	37	0.892	0.315	0	1
Ln(capitaliz)	37	8.963	1.466	6.684	12.946

A5. Regression results**Table A5.1.** Determinants of the premium (adjusted for dividend differences): k pooled OLS estimates

Dependent var.: VPA	(R1)	(R2)	(R3)	(R4)	(R5)	(R6)
Control	-19.832 (-0.86)					
Control_st		-17.178 (-0.75)				
Control_pr		-37.71 (-1.36)				
Owner1			-1.41 (-1.84)	-1.537 (-2.16)		
Owner1×no_Control				-0.209 (-0.37)		
Owner1-2					-0.845 (-1.97)	-0.829 (-2.00)
Owner1-2×no_Control						0.233 (0.27)
ADR	-10.702 (-0.86)	-11.642 (-0.94)	-12.85 (-1.08)	-12.629 (-1.04)	-9.849 (-0.83)	-10.216 (-0.85)
Veto	-7.151 (-0.45)	-8.7 (-0.54)	4.128 (0.28)	5.676 (0.36)	0.811 (0.05)	0.254 (0.02)
Liquidity_c	-71.087 (-1.37)	-70.761 (-1.37)	-71.493 (-1.43)	-73.774 (-1.44)	-76.488 (-1.55)	-74.632 (-1.50)
Liquidity_p	152.175 (3.42)	148.939 (3.32)	149.289 (3.40)	150.236 (3.39)	157.2 (3.65)	156.512 (3.64)
Conversion	-166.609 (-7.11)	-161.897 (-6.65)	-161.698 (-8.83)	-158.283 (-7.96)	-156.875 (-10.60)	-159.726 (-8.99)
Intercept	154.324 (5.23)	155.303 (5.26)	191.926 (5.29)	197.306 (5.93)	158.483 (7.74)	157.877 (7.88)
Number of obs.	264	264	264	264	264	264
R-squared	0.466	0.469	0.475	0.475	0.472	0.472

Table A5.2. Determinants of the premium: pooled OLS estimates with additional regressors

	(R1)	(R2)	(R3)	(R4)	(R5)	(R6)
Dependent var.:	VPA	VPA	VPA	VP	VP	VP
Owner1-2	-0.845 (-1.97)	-0.845 (-1.92)	-0.844 (-1.90)	-0.83 (-2.09)	-0.839 (-2.08)	-0.842 (-2.06)
ADR	-9.849 (-0.83)	-8.462 (-0.71)	-8.242 (-0.61)	-10.135 (-0.93)	-9.866 (-0.89)	-10.652 (-0.85)
Veto	0.811 (0.05)	0.49 (0.03)	0.624 (0.04)	-4.378 (-0.34)	-4.517 (-0.35)	-4.998 (-0.39)
Liquidity_c	-76.488 (-1.55)	-70.332 (-1.42)	-70.902 (-1.40)	-82.944 (-1.88)	-77.718 (-1.74)	-75.733 (-1.67)
Liquidity_p	157.2 (3.65)	155.189 (3.62)	154.667 (3.52)	127.64 (3.55)	126.385 (3.51)	128.244 (3.37)
Conversion	-156.875 (-10.60)	-155.434 (-9.97)	-155.18 (-9.39)	-144.213 (-8.71)	-142.369 (-8.67)	-143.275 (-8.18)
Vote		8.189 (0.35)	8.278 (0.34)		-3.198 (-0.20)	-3.52 (-0.22)
Div10		-13.539 (-0.90)	-13.762 (-0.88)		-11.543 (-0.87)	-10.748 (-0.77)
Ln(capitaliz)			-0.215 (-0.05)			0.769 (0.19)
Δ Dividend				-153.029 (-2.81)	-152.302 (-2.75)	-151.92 (-2.71)
Intercept	158.483 (7.74)	170.324 (6.82)	172.164 (4.02)	157.509 (8.84)	168.35 (8.04)	161.76 (4.11)
Number of obs.	264	264	264	264	264	264
R-squared	0.472	0.474	0.474	0.474	0.475	0.475

Table A5.3. Comparison of various methods of estimation

	(R1)	(R2)	(R3)	(R4)	(R5)
Dependent var.: VPA	OLS (full sample)	OLS (panel)	FE	RE	OLS (full sample)
Owner1-2	-0.845 (-1.97)	-1.074 (-2.34)	-0.379 (-0.46)	-0.914 (-2.15)	-0.853 (-1.96)
ADR	-9.849 (-0.83)	-8.994 (-0.73)	15.786 (0.72)	-5.935 (-0.43)	-11.109 (-0.84)
Veto	0.811 (0.05)	2.198 (0.15)	-8.772 (-0.37)	2.677 (0.19)	-1.698 (-0.10)
Liquidity_c	-76.488 (-1.55)	-102.49 (-1.76)	-54.68 (-0.94)	-97.445 (-2.16)	-73.892 (-1.49)
Liquidity_p	157.2 (3.65)	166.243 (3.37)	99.252 (2.27)	158.649 (4.55)	156.138 (3.61)
Conversion	-156.875 (-10.60)	-161.407 (-12.22)	-124.809 (-2.08)	-156.544 (-5.15)	-161.591 (-8.35)
Year 1997	-72.835 (-5.47)	-61.138 (-4.60)	-60.33 (-3.42)	-61.697 (-3.67)	-72.806 (-5.44)
Year 1999	26.83 (0.85)	31.916 (0.97)	66.465 (2.34)	37.07 (1.45)	25.395 (0.78)
Year 2000	69.044 (3.61)	72.208 (3.85)	80.151 (4.57)	73.77 (4.40)	68.734 (3.59)
Year 2001	27.555 (1.27)	42.317 (1.86)	38.525 (2.09)	41.905 (2.46)	27.071 (1.26)
Year 2002	-58.675 (-3.63)	-52.401 (-3.26)	-54.143 (-2.31)	-53.202 (-2.82)	-57.053 (-3.38)
Year 2003	-64.528 (-3.74)	-65.057 (-3.77)	-71.325 (-3.00)	-67.34 (-3.41)	-63.759 (-3.60)
1/ π					-33.606 (-0.42)
Intercept	158.483 (7.74)	160.238 (7.70)	143.328 (4.77)	155.466 (8.25)	202.926 (1.77)
Number of obs.	264	229	229	229	264
R-squared	0.472	0.484	0.492	0	0.473
Hausman test: RE vs FE				Prob > Chi2 = = 0.2768	
Breusch & Pagan test for RE				Prob > Chi2 = = 0.4268	
F-test for FE			Prob > F = = 0.0581		

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