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Performance of domestic and cross-border acquisitions: empirical evidence from Russian acquirers

Olivier Bertrand and Marie-Ann Betschinger

Summary

This paper investigates the impact of domestic and international acquisitions initiated by Russian firms on their operating performance. In general, acquisitions can be associated with synergy gains, internalisation advantages and higher market power. However, acquisitions may also give rise to agency problems as well as new integration and organisational costs, leading to an ambiguous overall impact on the performance of acquirers. Based on a sample of more than 600 acquirers we show that both domestic and international acquisitions tend to reduce the performance of acquirers compared to non-acquiring firms. Examining how different deal, firm and industry level characteristics moderate the value destroying effects of acquisitions, our results suggest that Russian acquirers suffer from the inability to leverage value due to limited M&A experience and capability, especially when making international acquisitions.

Keywords: M&A, Restructuring, FDI, Emerging Countries, Russia

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Contact details: Olivier Bertrand, Graduate School of Management, St. Petersburg State University, Volkhovsky Per.3, 199004 St. Petersburg, Russia

email: olivier.bertrand@som.pu.ru.

Olivier Bertrand is at the Graduate School of Management, St. Petersburg State University. Marie-Ann Betschinger is at the Higher School of Economics. The paper was prepared for a Conference on Diversification of the Russian Economy held at the EBRD in February 2011.

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1. Introduction

Since the beginning of the 20th century, several waves of corporate mergers and acquisitions (M&As) have led to substantial industrial restructuring in different parts of the world and have therefore attracted the attention of policy-makers and academic scholars across different disciplines.[1] However, while empirical studies on M&A are quite numerous, the bulk of these studies focus on domestic M&As or those carried out by firms based in developed countries (for a survey see Tichy, 2002; Martynova and Renneboog, 2008 or Haleblian and others, 2009). Yet, since the beginning of the 1990s, an increasing share of M&As has taken the form of cross-border acquisitions. Moreover, in recent years, there has been a rapid growth of the market for corporate control in emerging countries such as China, India and Russia. In 2010, emerging markets took a substantial share in the total market of global M&A. Of the total of three trillion US dollars spent on 40,983 transactions, US$ 923.5 billion and 14,700 deals took place in emerging markets – hence, roughly one-third of overall activities. Russia was responsible for about 14 per cent of emerging market M&A deals in terms of number and 9 per cent in terms of value (Harrison, 2011). In emerging countries, M&A activities, moreover, play an important role in the economy. For instance, at the peak of Russian M&A activities in 2007, the M&A volume accounted for more than 10 per cent of the Russian GDP (Radygin, 2010). Also, players from emerging economies increasingly participate in global transactions – in 2009 their activities accounted for almost 30 per cent of worldwide FDI outflows, most of which took the form of cross-border M&As (UNCTAD, 2010). In that year, according to the UNCTAD statistics, Russia placed seventh in outward FDI flows after the United States, France, Japan, Germany, China and Hong Kong. Hence, emerging market firms both consolidate at the national scale and acquire firms in advanced and less developed market economies. We, however, still know very little about domestic and international acquisitions from emerging market firms.

This paper aims to help bridge this gap by assessing if and under which conditions domestic and cross-border M&A deals improve the economic performance of Russian firms in their domestic market from 2000-08. Russian firms during this period form an interesting case for studying the effects of M&A: firms had on average very little acquisition experience due to the different market system during the Soviet era.

[1] Note that while our data sample includes acquisitions only, we use the terms merger and acquisition indistinctly, as it is usually done in the literature.

M&As can have a major impact on the competencies, organisation and therefore performance of the involved firms. The major channels through which M&As can increase the performance of acquirers are economies of scale and scope, improved capacity utilisation, possibly lower transaction costs as compared to market relationships, or for instance the acquisition and redeployment of new resources and capabilities (for example, Capron, 1999). A source of value creation for firms also lies in the increased market power that a firm may obtain (for example, Gugler and others, 2003). Cross-border M&As may have an even larger effect since the major reasons for firms to move abroad are to acquire additional resources and skills that are not available on the domestic market, increase the efficiency of business operations across and within borders, as well as to find new opportunities for growth – and hence overcome the restrictions of the domestic goods market. Emerging market firms have been encouraged to more aggressively use international M&As as a tool for overcoming competitive disadvantages than developed market firms since their competitive disadvantages are larger and M&As offer a speedy way for gaining access to missing resources and assets (Luo and Tung, 2007). But when going abroad businesses face a number of challenges that could outweigh the benefits of internationalisation and eventually reduce the performance of acquirers. Firms need to learn how to operate in new economic, legal, administrative and cultural environments. Also, they may encounter significant information asymmetries and are more likely to overestimate synergies and overpay for foreign targets than domestic bidders. By extending the boundaries of their firms across borders, they need to master increasing organisational complexity, integrating and coordinating activities among different countries (for example, Shimizu and others, 2004). Emerging market firms, moreover, often have to deal with reputation problems when investing in the more developed market economies.

This paper adds to the growing literature on M&A value generation of emerging market firms by focusing on the impact of both domestic and international M&A on the long-term performance of the acquiring firm. To our knowledge this is the first paper that systematically analyses performance implications of M&A in Russia in general, and of international activities of Russian firms in particular and, moreover, explores complementarities between domestic and international deals in an acquirer's deal portfolio. By assessing if and under which conditions M&A deals improve the profitability of Russian firms, we furthermore contribute to the literature on the effectiveness of market-driven restructuring processes in the Russian economy. There is no empirical evidence on the effectiveness of the market for

corporate control in Russia, although M&As are known to be able to restructure national industries more quickly and deeply than entry and exit processes can (Geroski, 1992; European Commission, 1996).[2] M&As enable assets to be reshuffled across and within industries and corporate control. Also, politicians in emerging economies often consider internationalisation of their firms as a device for enhancing the competitiveness of their economies.[3] Hence, by exploring the performance effects of domestic and international M&A and by identifying the forces that drive them, we contribute to the debate on industrial and competition policy in emerging countries (Rodrick, 2004; Evenett, 2005).[4]

Using the databases Zephir and Ruslana (Bureau Van Dijk), we evaluate the return on assets as an indicator for the performance of acquirers and non-acquiring firms. We apply dynamic GMM estimation – for studies that implement GMM when analysing M&As, see for example Harris and Robinson (2002), Gugler and Yurtoglu (2004), Bertrand and Zuniga (2006) or Hakkala and others (2007) – since the GMM technique allows us to correct for simultaneity, dynamic and firm effects biases. We find that both domestic and international deals are performance-reducing. M&As destroy value. Nevertheless, deal specificities, acquirer characteristics and industry context matter. In the case of cross-border deals with targets located in former Soviet Union countries, positive and negative effects seem to cancel out and the acquisition effect is no longer significant. This is also the case for cross-border deals within the same industry and for high-tech industry acquisitions. Moreover, we find that acquisition programmes and larger firm size reduce the negative impact in particular of domestic acquisitions. Deals that take place in more concentrated industries are less value-reducing, too. Hence, empirical evidence suggests that more experience and capability in deal selection as well as structuring and integration lead to a better performance of acquirers. But, additionally, better performance is possibly also driven by market power reasons. Cross-border deals mainly show the same pattern as domestic deals.

[2] As opposed to M&As, there has been analysis in the Russian context on new firm entry or the implication of competition patterns and policy instruments for firm restructuring (for example, Berkowitz and Jackson, 2006; Djankov and Murrell, 2002; Commander and others, 1996; Pissarides and others, 2003).

[3] In 2008, Dmitry Medvedev – the president of Russia – openly encouraged Russian companies to internationalise by acquiring assets overseas (Filippov, 2008). He publicly made a statement that expanding Russian presence abroad would be beneficial for the Russian economy and would reduce its dependence on foreign technology.

[4] Note that the private benefits from acquirers may not coincide with social gains when they result from larger market power and better price-setting abilities of the acquiring firms. Acquisitions may indeed hurt consumers and create deadweight losses. However, the effects on social welfare is likely to be ambiguous if more power in the input market represents a form of countervailing power to already powerful incumbents (see Roller and others, 2000).

The paper is set out as follows: first, we provide a brief overview of the empirical literature in the field and then turn to the theoretical arguments underlying the performance effects in Section 3. In Section 4 we present the empirical sample and econometric set-up before discussing the results in Section 5. Section 6 concludes.

2. Literature overview

Overall, the empirical evidence on performance effects for domestic and cross-border acquirers is mixed. In general the finance literature concludes that M&As increase the value of target firms, while the outcome is less clear for acquirers. Most studies find that firm value is reduced or that M&As exert no impact at all, leading to a so-called underperformance puzzle (Agrawal and Jaffe, 2000; Andrade and others, 2001; Moeller and others, 2004). However, more recent studies find that acquisitions can generate value for acquirers (Martynova and Rennebog, 2008). Value creation is mostly attributed to deal factors and characteristics of the involved firms (Dutta and Jog, 2009). Although the performance of deals over the century does not seem to have improved on average – or only marginally (Martynova and Rennebog, 2008) – there is also micro-level evidence to show that firms can learn and improve the performance of their deals. Learning and experience effects occur via learning through a firm's own deals and/or by learning from peers (Barkema and Schijven, 2008). Furthermore, the institutional environment within which acquirers are embedded seems to play an important role. For instance, Dutta and Jog (2009) argue that most of the studies have used data on US companies (see also, for instance, Martynova and Rennebog, 2011). They find for their Canadian sample that M&As in the long term do not destroy value. They explain this partially by the different set of anti-takeover measures available to US firms as opposed to Canadian firms that raise the costs of acquisitions disproportionally for American firms.

In general, cross-border acquisitions largely remain under-explored compared to domestic M&As. Existing empirical results tend to show that in cross-border deals targets seem to gain to a larger degree than in domestic deals (see, for example, Harris and Ravenscraft, 1991). Again, findings on acquirers are mixed but suggest that, under certain conditions, they can benefit more than when making domestic acquisitions (Markides and Ittner, 1994; Markides and Oyon, 1998; Shimizu and others, 2004). Morck and Yeung (1992) as well as Chari and others (2010) highlight that acquirers only experience a rise in post-merger performance in cross-border transactions if they have intangible asset firm-based advantages that can be exploited abroad.[5] This would suggest that acquisitions by emerging market firms – firms which are often interested in gaining such an advantage through acquisitions abroad instead

[5] Intangible assets are mainly based on proprietary information. Hence they cannot be traded on the market at arm's length and need to be internalised. Acquirers benefit from the increased scale over which the intangible assets can then be used (Morck and Yeung, 1992). In particular in emerging markets acquisitions help developed market firms to overcome incomplete contracting problems. They can share proprietary assets and so benefit from the increased scale across which they can apply these assets (Chari, 2010).

of exploiting existing ones – would be unlikely to increase their post-merger performance. Also, positive returns for acquirers from developed markets have been linked to gains from overcoming the problem of financial market segmentation faced by the target (Francis and others, 2008) and improving the target's corporate governance when the latter is located in countries with a worse shareholder protection environment than the acquirer (Chari and others, 2010).[6]

This would imply that acquirers from emerging markets, most often based in weak corporate governance environments, should have difficulties in creating value through M&As in particular in developed markets. However, this outcome is not confirmed in the very few empirical studies that focus on emerging market acquirers' performance analysis. For instance, Chernykh and others (2010) show that the abnormal return for targets acquired by emerging market firms is on average positive, the magnitude more than doubling when the target is from a developed market. Moreover, emerging market acquirers also experience significant positive announcement returns when the target is based in a developed market. When the target is located outside these markets the effect is, however, no longer given. Furthermore, Aybar and Ficici (2009) find for their sample of 422 emerging market firm acquisitions that the market reaction to acquisitions of targets in developed markets is positive, while it is negative to acquisitions in other emerging market countries.

Most of the previously cited studies use short-term cumulative or buy-and-hold abnormal returns as a measure for deal performance. Nevertheless, in the case of emerging market firms, only few firms are listed or, if listed, their stock is not necessarily liquidly traded. To overcome this problem, one can rely – as it will be done in our study – on accounting data-based performance measures. The literature based on accounting measures of performance – such as profitability (for example, Ravenscraft and Scherer, 1987; Healy and others, 1992; Gugler and others, 2003), productivity (Lichtenberg and Siegel, 1987; Mc Guckin and others, 1995; Bertrand and Zitouna, 2008) or innovation indicators (Bertrand and Zuniga, 2006; Bertrand, 2009) – also lead to ambiguous results. For instance, profitability can be captured using cash flow-based or earnings-based measures. Studies using the former have identified positive returns, while the latter negative ones (for example, Rennebog and Martynova, 2008;

[6] Therefore developed market acquirers can bring better institutions through control rights to the targets and thus drive the shareholder gain of the acquiring firms.

Ravenscraft and Scherer, 1987, 1989). To our knowledge, no accounting data-based paper has yet investigated the performance of acquirers in emerging markets.

Finally, when examining cross-border M&As, there is a related literature that explores the effects of foreign direct investment (FDI) on the activity of investors in their home market (see Desai and others, 2009; Barba Navaretti and others, 2010) or the impact of international diversification on firm performance (for example, Denis and others, 2002). For Russian firms, while there is some anecdotal evidence on their internationalisation patterns (for example, Bulatov, 1998; the Skolkovo Survey on Russian multinationals in 2007), there is no study investigating how FDI affects Russian firms.

3. Theoretical background

From a strict theoretical point of view, the effects of M&As are ambiguous. There are two main categories of effects that are at play and are likely to affect the performance of acquirers. First, acquirers can increase their market power and capture more consumer surplus by setting higher prices and lowering the quantity sold in the product market. They can also strengthen their bargaining power towards suppliers in the input markets or benefit from vertical foreclosure (see Roller and others, 2000). Second, M&As can enhance the efficiency of acquirers in different ways. Acquirers can reap economies of scale and scope, get learning economies, improve capacity utilisation (Scherer and Ross, 1990), benefit from lower transaction costs as compared to market relationships (Coase, 1937) or/and the acquisition of new resources and capabilities (Capron, 1999) depending on the type of acquisitions (that is, horizontal, vertical or conglomeral).

Negative influences on profitability can occur when acquisitions are carried out solely for the purpose of increasing market power – under certain circumstances profits can be reduced due to business stealing effects (see, for example, Salant and others, 1983) – or building an empire.[7] The latter decreases firm performance when acquisitions of firms are not made to maximise firm value, but to fully exploit the free cash flows available to managers. Hence, when internal funds exceed those needed for the investment into positive net present value projects, managers decide to use them for firm value-reducing projects rather than pass them on to the shareholders of the firm. Here, free cash flows become a source of value reducing acquisitions (Jensen, 1986). Also, since the human capital of managers is bound to the firm, risk-averse managers can decide to diversify firm activities via an acquisition to reduce firm risk independent of the price paid (Amihud and Lev, 1981). Also in this case the utility function of the manager is maximised, but not that of the firm. Furthermore, managers could be reluctant to distribute cash to shareholders and prefer to make investments in the form of acquisitions that reduce the likelihood of their own replacement (Shleifer and Vishny, 1989). Finally, M&As could engender (unexpected) post-acquisition organisational and integration costs. Organisational integration of business units may impede the generation of efficiency gains (Caves, 1989). It may also affect current business activities of the firm. For instance, it may divert the attention and efforts of managers as well as financial resources, from

[7] Merging firms have to reduce their production to increase the level of price. However, the firms that are not involved in the merger then respond by producing more, which harms the profitability of merging firms.

innovation. In the long run, the growing size of the company could be accompanied by larger bureaucracy costs (Hannan and Freeman, 1984).

Comparing the effects of domestic and cross-border M&As is not straightforward and leads to ambiguous conclusions, too. Cross-border M&As could produce larger positive efficiency effects since the major reasons for firms to move abroad are to acquire additional resources and skills that are not available on the domestic market, increase the efficiency of business operations across and within borders, as well as find new opportunities for growth – and hence overcome restrictions of the domestic goods market (see for instance, Shimizu and others, 2004). But when going abroad, businesses face a number of challenges that could outweigh the benefits of internationalisation and eventually reduce the performance of acquirers. Firms need to learn how to operate in new economic, legal, administrative and cultural environments. Also, they may encounter significant information asymmetries and are more likely to overestimate synergies and overpay for foreign targets than domestic bidders. By extending the boundaries of their firms across borders, they need to master increasing organisational complexity, integrating and coordinating activities among different countries. Emerging market firms, moreover, often have to deal with reputation and legitimacy problems when investing in more developed market economies. Therefore the potential for both synergy gains – due, for instance, to the rarity of some local resources in emerging countries (for example, skilled workforce) – and possible pitfalls is likely to be higher for emerging country acquirers than those from developed countries. Finally, market power implications are also mixed. On the one hand, international M&As could create weaker unilateral anticompetitive effects in the product market. The geographic distance between merging partners could reduce their pre-acquisition competitive rivalry, thereby market power motives and, consequently, have performance implications. On the other hand, cross-border M&As may be more conducive to collusion than domestic M&As. They might facilitate collusive pricing behaviour across markets by increasing multi-market contacts among firms (Bernheim and Whinston, 1990) and hence possibly help to raise firm profits.

Overall, theoretical considerations provide no clear indication on the direction in which domestic and cross-border acquisitions will affect a firm's profitability. However, as said before, firm and deal characteristics are of importance for deal performance. In this paper, we investigate whether the performance of M&As differs across various characteristics of the Russian acquiring firms and the industries they are embedded in. Firm heterogeneity may reflect differences in resources and capabilities that may influence the extent of gains as well

as the ability to exploit them (Laamanen and Keil, 2008). For example, firms that have larger resources that can be invested in the market for corporate control may possess a higher capability to select more appropriate target firms, to structure and implement sophisticated deals, as well as to find larger and less costly financing opportunities.[8]

Also, the distinction between serial acquirers and single acquirers appears to be important in the market for corporate control in not only developed but also emerging countries to explain firm heterogeneity, an aspect which is insufficiently explored in the empirical literature in economics. By carrying out several acquisitions, firms can learn and hence improve performance-related effects (Ismail, 2008). Kamien and Zang (1993) have demonstrated how sequential acquisitions make it easier to monopolise an industry and to reduce the issue related to stealing business effects. Serial acquisitions can enhance the level of synergy that is achieved, too. For instance, firms can learn from domestic deals and use the knowledge in the cross-border case or apply resources acquired in the domestic context to international acquisitions. Hence, domestic and international deals can complement each other in a firm's acquisition portfolio. On the other hand, serial acquirers face larger organisational challenges and financial constraints when absorbing and integrating multiple target firms. Returns can be expected to decline as the best opportunities are already taken, and, furthermore, managerial hubris and overconfidence can make subsequent deals perform worse than the first ones (Ismail, 2008).

Disparities in the performance of acquirers are also expected across industries. Acquisitions that take place in concentrated industries can help firms to raise significantly their market power. For instance, in more concentrated industries, M&As can facilitate collusion more easily (Roller and others, 2000). On the other hand, in more concentrated industries, firms may have less incentive to make acquisitions in order to increase their competitiveness (Porter, 1990). Also, based on transaction cost theory the need for internalising transactions within one firm could be larger in high-tech and knowledge-intensive industries due to higher asset specificity and the inability to carry out these transactions at arm's length (Morck and Yeung, 1992). Hence, in these industries there could be relatively larger potential to reduce transaction costs and therefore increase profitability.

[8] However, as already mentioned, the availability of larger resources does not necessarily lead to performance-increasing activities when agency conflicts exist between the managers and the shareholders of a firm. Excess resources can be used to maximise a manager's personal utility function instead of firm value (Amihud and Lev, 1981; Jensen, 1986; Shleifer and Vishny, 1989).

The Russian context, both in terms of institutions and output structure, is expected to moderate the performance effects of M&As. In general, the business climate in Russia is marked by weak institutions governing market transactions, in particular a poor rule of law. Corruption is widespread. The implications on the market of corporate control are manifold. First of all, it is less sophisticated and developed institutionally than in developed markets. Besides the problems related to law enforcement, the legal and regulatory regime is very often perceived by practitioners as complex, unclear, unpredictable and yet of rigid nature (Goltsblat, 2010). Also, the Russian market of corporate control is characterised by a low level of information transparency, especially concerning governance structures. This makes, for instance, the due diligence process more difficult. In addition, there is a lack of professional intermediaries for the execution of transactions or post-deal integration (Radygin, 2010).

Moreover, due to its history, state ownership still plays a prominent role in the Russian economy. Due to the possible intermingling of political and profit objectives as well as the, in general, lower internal efficiency incentives and stronger organisational rigidities that are associated with state ownership (Vickers and Yarrow, 1988; Megginson and Netter, 2001), state acquisitions could lead to a worse performance of acquirers.

Another legacy of the Soviet Union period is the similarity in institutions between Russia and other Commonwealth of Independent States (CIS) members. This could influence performance effects of cross-border deals: Russian is still widely spoken in these countries and formal and informal institutions are similar. Hence, the additional problems posed by cross-border deals in terms of larger information asymmetries and increased complexities as compared to domestic deals can be expected to be of lower relevance here. Nevertheless, firm complementarities might also be lower, making the total effect ambiguous – possibly moving deal effects closer to the effects of domestic M&As.

In terms of industry structure the Russian economy is characterised by its dependency on the natural resource sector. This industry is primarily based on the extraction of non-renewable and rare resources that generate large economic rents. Rent capture and allocation is highly influenced by governments since the state is the primary resource-holder and establishes the terms by which firms may have access to the resource (Bridge, 2008). In this context, rent-seeking motives could possibly modify the drivers of M&As and their effectiveness, especially in the presence of institutional hazards (Henisz, 2000). Acquirers could shift resources from economic to political ends – reducing the performance of acquisition. Hence,

firms could acquire targets to capture rents and not for efficiency improvements. Moreover, additional cost burdens arising from the necessity of gaining permits and government approval might make the acquisitions less likely to eventually improve the acquirer's profitability.

Overall, M&As can result either in an increase or a decrease in firm performance. Not only firm-level heterogeneity and industry structure, but also the Russian context in terms of institutional set-up and output structure can moderate the relationship between acquisition strategy and firm performance. The extent to which M&As influence the performance of acquirers can only be resolved empirically.

4. Empirical set-up

4.1 Sample

For the empirical analysis we use two main databases called Zephir and Ruslana that are both provided by Bureau Van Dijk. Zephir records M&As around the world. It relies on several different sources, including stock exchange commissions, trade publications, law firms, surveys of investment banks and so forth. Using Zephir, we identify Russian firms that have acquired target firms at home and abroad.

Ruslana contains information on the unconsolidated financial statements of the universe of firms located in Russia in the primary commodity, manufacturing and service industries. Thus, Ruslana provides us also with a group of non-acquiring firms to which we compare the performance of acquirers.

We select a sample of acquiring and non-acquiring medium- and large-sized firms from Ruslana. We observe their performance for the period 1999-2008. We omit micro- and small-sized firms due to problems in the reliability of accounting data and acquisition reporting.[9] Using the official EU definition we hence only include firms that have at least 10 million euros of turnover. For comparison purposes, we only include non-acquiring firms that are active in the industries where acquisition behaviour is observed. Our final sample that has exhaustive information on the explanatory variables available consists of 2,051 firms. Moreover, we omit acquisitions prior to 1997 due to data limitations. In general, prior to 2000 acquisitions have been relatively infrequent and of weak intensity. We limit our analysis to acquisitions where more than 50 per cent of the equity of a target firm is acquired in order to ensure that the acquirer could actually influence the target firm's strategic decisions. Mergers are excluded from the analysis since they induce an immediate positive change in the financial statements items of the legal entity into which the company is merged – even if no merger gains were realised. This would hence distort our results.[10] Note that the number of deals identified as mergers is low, as usually found. For instance, mergers represented less

[9] For instance, it is a well known fact that inter-regional acquisitions of small firms in Russia may occur for tax exemption purposes: an acquirer in a different region is paid for buying a firm which has run a large amount of transactions for its owner, with a minimum of taxes paid. Difficulties in the inter-regional exchange of tax documentation and the fact that Russian tax authorities focus on firms with a larger turnover when detecting tax evasion make this possible.

[10] If two companies merged into a new entity, the data for the old entity would be discontinued and analysis would no longer be possible. Adding the financial results for the years before the merger for the entities that merge in the dataset is also not feasible since we include cross-border targets for which the relevant information is missing or difficult to accumulate due to differences in accounting systems.

than 3 per cent of M&As (in number) during the wave of M&As in the 1990s (UNCTAD, 2000).

We traced the acquisition behaviour of more than 600 acquirers. Over time, in our final sample, the number of acquirers and acquisitions has grown. While there is an annual average of 18 deals over the period 2000-02 and of 108 from 2003-06, the total number of deals in our sample increased to 340 in 2007. In 2008 it decreased to 308 due to the advent of the Russian crisis in the second half of the year (see Appendix 1**)**. However, during that year deal conclusion did not fall to the same degree as economic growth declined. This can partially be explained by the fact that deals that were previously initiated still needed to be completed.[11] On average, 31 per cent of all acquisitions are of horizontal nature (at a 4-digit industry level; NACE Revision 1.1). Twelve per cent of all deals take place within high-tech manufacturing and high-tech, knowledge-intensive service industries – in these industries, research and development, post and telecommunications, as well as air transport transactions dominate over all years. Note that around 12 per cent of the deals involve acquirers from the natural resource industry.

Overall, multiple acquisitions are an important phenomenon on the Russian market for corporate control. In our final sample, of the 609 acquirers, 200 have acquired at least two firms, while 53 have acquired at least four firms. Some of the firms have up to 38, or in one case even 50 acquisitions (Gazprom) over the studied period. Also, within one year the share of multiple acquirers in the overall number of acquirers is substantial (see Appendix 1). This indicates that once a Russian firm decides to acquire, many of them decide to run acquisition programmes.

Cross-border acquisitions by Russian firms are still quite infrequent. In total, 120 cross-border acquisitions satisfy the selection criteria, carried out by 92 firms.[12] The share of cross-border acquisitions in the total number of acquisitions is hence on average 11 per cent. Of these, a substantial share of targets is located within countries that formerly were part of the Soviet Union. Over the period 2001-06 on average 61 per cent of the targets were based in these countries; in the period 2007-08 the share has decreased to an annual 27 per cent.

[11] There was a drop in GDP growth from 8.5 per cent in 2007 to 5.2 per cent in 2008, according to World Bank statistics.
[12] Deals with targets in offshore financial centres, such as Cyprus, were excluded.

4.2. Econometric methodology and model

Since a large share of Russian acquirers has carried out multiple acquisitions, some of them even within the same year, and since we only have yearly performance data, propensity matching combined with a difference-in-difference estimation is not feasible. Researchers often decide to drop serial acquirers to overcome this problem. But omitting these firms would lead to a substantial bias in the data analysis (for example, Ahuja and Katila, 2001) – especially in our case. We therefore select a panel design where industry, firm and acquisition characteristics are modelled as time-varying influences on performance. Since this research design includes both firms that are active in acquisitions and firms which are not, we can control for factors influencing both the performance of acquiring firms and non-acquiring firms and then isolate the effect of the acquisition strategy. Also, we thereby overcome the limits of, for instance, propensity matching, where the selection of an appropriate control group is based on observable characteristics only (the so-called assumption of conditional independence).

We apply GMM estimation when analysing M&As (such as Harris and Robinson, 2002; Gugler and Yurtoglu, 2004; Bertrand and Zuniga, 2006 or Hakkala and others, 2007). GMM techniques correct for simultaneity and firm effects biases. Also, profitability measures are at least partially persistent over time (for example, Mueller, 1990) which leads to the need for accounting for a lagged dependent variable. In the case of OLS this would give rise to a dynamic panel bias. To account for unobserved heterogeneity in GMM estimations Anderson and Hsiao (1982) introduced a GMM estimator for first-differenced data proposing twice-lagged differences or levels, while Arellano and Bond (1991) defined additional orthogonality conditions to increase the efficiency of the estimators. Arellano and Bover (1995) and Blundell and Bond (1998) developed a system estimator adding the dependent variables in levels to the transformed dataset, differencing the instruments to make them exogenous to fixed effects. Since our data fulfil the necessary conditions – a large number of firms and a relatively short time series (Roodman, 2006) – we apply the system GMM estimator in our analysis. We only instrument the lagged dependent variable and the M&A variables. Instrumenting the other explanatory variables is not possible since the use of internal lagged instruments has been shown to lead to the problem of instrument proliferation, which may easily lead to incorrect inference (Roodman, 2009). The standard errors are reported with the Windmeijer correction (Windmeijer, 2005), without which standard errors would be downward biased. Finally, we apply different standard tests to evaluate the

relevance of the GMM model. For each regression we compute the Hansen test for over-identifying restrictions, and the Arellano and Bond (1991) tests for first- and second-order serial autocorrelation. The Hansen test, the results of which are reported near the bottom of each table, validates the adequacy of our instruments in the system GMM estimation. As required, the Arellano and Bond test for first-order serial autocorrelation is significant; the test for second-order autocorrelation is rejected. Overall, these various tests confirm that the GMM method is the appropriate econometric specification. Note that in appendix 3, as robustness checks we present results using panel least squares regressions. Our major findings are confirmed.

As previously explained, in the emerging market context, collecting comprehensive data is difficult. Due to these data limitations, we restrict our performance analysis to an accounting profitability measure, return on assets. Return is measured as the earnings before interest and taxes (EBIT) normalised with the amount of total assets of a firm.[13] ROA is probably the most commonly used profitability measure in economics or management studies. The use of ROA also enables us to overcome the major limitation of using stock market-based performance evaluation of firms located in emerging countries: only few firms are listed; if listed, their stock is not necessarily liquidly traded. Note that excluding depreciation and amortisation leads to the problem of comparability across firms due to possible differences in the application of accounting methods. However, due to the unavailability of this information for a large sample of firms, we assume that all firms face similar incentives, and hence bias.

We assume that $\Pi_{it} = f\left(X_{it}, A_{it}, I_{jt}, T_t\right)$ where Π_{it} is the profitability of firm i at time t, X_{it} is a vector of firm determinants of performance, I_{jt} refers to the vector of variables for industry j, A_{it} represents a vector of count variables to measure the contemporaneous and lagged effects of the acquisition(s) of firm i in year t, and T_t corresponds to a vector of year dummies to control for macroeconomic shocks common to each time period. Note that all our monetary data are expressed in US dollars in constant value of 2000.

[13] We do not use sales-based measures since sales could be loosely related to value creation. An increase in sales does not necessarily reflect a rise in firm efficiency, nor is a decrease necessarily linked to a decline. For instance sales can be reduced for anti-competitive reasons. Sales can also reflect the maximisation of managers' rather than shareholders' utility.

As firm specific control variables (X_{it}) we first include the lagged dependent variable to account for dynamic effects in performance. A current realisation of the dependent variable could be influenced positively by previous ones.

We also use the following variables: the size of a firm – measured as the natural logarithm of the firm – is used as a proxy of a firm's resources and capabilities. We expect a positive relationship with the profitability variable. A firm's resources and capabilities include financial and non-financial resources such as knowledge, ties to business partners or political counterparts which should increase profitability. Larger firms can also benefit from larger scope and scale economies. On a cautionary note, larger firm size has also been argued to be detrimental to firm performance due to increased organisational complexities or for instance administrative and hierarchy costs (Hannan and Freeman, 1984).

The solvency ratio, measured as the ratio of the sum of current and non-current liabilities to a firm's total assets, measures the ability of a firm to meet its long-term obligations and to externally finance firm activities. A high solvency ratio can indicate missing free cash-flow to finance firm activities to improve firm performance and difficulty in attracting additional equity. Also, a rising debt ratio infers higher payments to service debt, which take away financial resources from other business activities and thereby reduce firm profitability. Hence, a high leverage of a firm (solvability ratio) should lead to less profitable operations.

In robustness checks we include a measure for the liquidity of the firm, constructed as the ratio of the difference between current assets and inventories to current liabilities. Due to outliers we trim the measure at both ends, cutting off the largest and smallest two per cent and transform it with a natural logarithm. It measures a firm's ability to meet its short-term obligations. Therefore, a positive sign is expected. Moreover, it is a proxy of a firm's free cash flows. The availability of free resources in the firm can indicate unused cash which can be spent on projects in favour of managers (such as empire building or risk reduction) instead of shareholders and firm performance. This would imply a negative relationship with performance.

Also, we include the market share of a firm (at a 4 industry digit; NACE Revision 1.1) in a robustness check. Due to the high correlation with industry concentration (see below) we do not include the measure in the base set-up. Market share could be associated with higher market power in the product market as well as higher bargaining power in the input market.

As previously mentioned, given the importance of the state in Russia, we control for state ownership. State ownership can lead to lower performance due to lower internal efficiency incentives, stronger organisational rigidities or non-profit maximising behaviour (see for example Vickers and Yarrow, 1988; Megginson and Netter, 2001). A company is considered as a state-owned company if more than 50 per cent of equity is held by state departments or agencies, federal and regional governments, or state-owned enterprises (such as Gazprom or Rosneft). A variable is assigned the value one if it is state-owned; otherwise it takes on the value zero. For the classification, we use Ruslana data in 2010 as a source of information. If the state's stake is close to 50 per cent, a target's ownership structure is checked with the help of Interfax Spark, which provides quarterly reports of Russian companies. In disputable cases, Spark is the preferred data source. Changes in ownership over time are identified using the information in Zephyr on privatisations and nationalisations. Moreover, we manually went through the deals included in the sample to identify those deals that led to a change in the ownership structure, which Zephyr missed to classify as such. Twenty-one per cent of sample firms are hence classified as state-owned, while this share amounts to 29 per cent for acquirers.

At the industry level (I_{jt}) we include a vector of industry (non-time varying) dummies for each industry j (at a 2 industry digit; NACE Revision 1.1) in order to control for permanent unobserved differences across industries (for example, industry regulation, technological spillovers). This includes, among others, a dummy for the natural resource industry. We also use the Herfindahl-Hirschmann index as a measure of industry concentration. The firms' market shares (at a 4 industry digit; NACE Revision 1.1) are squared and then summed up across industries. The relationship between profitability and concentration is, however, unclear. Larger industry concentration could be more conducive to anti-competitive behaviour (such as abuse of dominance or collusive practices) and thereby associated with higher profit. Higher profit in more concentrated industries could also result from the superior efficiency of incumbent firms in these industries, as explained by Demsetz's seminal work (1973). On the other hand, if concentration goes with less competition, firms could have less incentive to enhance their efficiency and upgrade their capabilities, thereby reducing their profitability in the long run (Porter, 1990).

We also take into account the nature of the industry. We include a dummy variable that takes the value one if the industry is classified as high-tech manufacturing or as high-tech knowledge intensive service, and zero otherwise. The high-tech nature of industries is based

on the sectoral classification of the European Statistical office (Eurostat) using the NACE Rev. 1.1 industry classification.[14] We apply this as a proxy for the idiosyncratic nature of a firm's assets. Firm level variables that would have measured this more accurately, such as R&D intensity, are not available.

Turning to the measurement of M&A activity, depending on the model, the vector A_{it} includes one or more count variables to capture the effects of M&A deals. Since the post-merger reorganisation process may take time and the impact on firm performance may be observed only a few years after the acquisition, each M&A count variable cumulates the number of acquisitions of a firm i in year t and the three preceding years. We do not include the size of the individual transactions in the measure as information on deal value is lacking for more than half of the total operations. In some model specifications A_{it} includes a variable that counts the number of deals in general, in others two count variables are included, separating the number of domestic and cross-border operations. Cross-border deals are further distinguished into those deals with targets in the former and non-former USSR countries. Following the same logic, we also separate M&As into horizontal and non-horizontal ones. Deals are classified as horizontal if they occur in the same four-digit industry (NACE Rev. 1.1).

Moreover, the deal variables are constructed to reflect the acquisition strategy of a firm. If a firm acquires only one target within the four-year period, it is considered as a single acquirer. In the opposite, if a firm takes possession of more than one target it is considered as a serial acquirer. We also analyse the distinction between single and serial acquirers using a higher threshold (more or less than/equal to three acquisitions; Laamanen and Keil, 2008). In a separate model all those domestic and cross-border deals that can be classified as internal transactions are omitted from the count variables. Internal restructurings are defined as those cases where subsidiaries of a firm take over other subsidiaries of the same firm (see for instance the case of the firm Gazprom; Victor, 2008) or the Russian state transfers ownership of one state-owned entity to another state-owned entity.

[14] According to Eurostat, NACE Rev. 1.1 (2008), high-tech, knowledge-intensive services include post and telecommunications, computer and related activities, and research and development. High-tech manufacturing industries are the manufacture of pharmaceuticals, aerospace, computers, office machinery, electronics-communications and scientific instruments. (http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/hrst_st_esms_an9.pdf)

5. Results and discussion

Appendix 2 provides descriptive statistics of the variables included in the regressions and cross-correlations. We have not found evidence of multicollinearity. Table 1 provides the main results.

Table 1: Main effects of acquisitions

	(1)	(2)	(3)	(4)	(5)	(6)
Return on asset t-1	0.491***	0.495***	0.502***	0.500***	0.501***	0.503***
	(0.022)	(0.0214)	(0.0213)	(0.0208)	(0.0209)	(0.0208)
Size, log	0.00975***	0.00932***	0.0102***	0.00978***	0.0103***	0.0107***
	(0.0009)	(0.0009)	(0.001)	(0.0011)	(0.0016)	(0.0014)
Solvency ratio	-0.119***	-0.121***	-0.100***	-0.110***	-0.103***	-0.110***
	(0.0185)	(0.0152)	(0.0222)	(0.0179)	(0.0205)	(0.0171)
Herfindahl-Hirschmann index	-0.0112	-0.014	-0.00241	-0.0209	-0.0148	-0.0263
	(0.0542)	(0.0381)	(0.0551)	(0.0378)	(0.0276)	(0.0202)
Number of M&As	-0.00452***		-0.00460***		-0.00442***	
	(0.0013)		(0.0014)		(0.0016)	
Number of domestic M&As		-0.00297***		-0.00261**		-0.00249**
		(0.0011)		(0.0012)		(0.0012)
Number of cross-border M&As		-0.00628*		-0.00870**		-0.00780**
		(0.0036)		(0.0037)		(0.0039)
Liquidity ratio, log			0.00701	0.00596	0.0069	0.0065
			(0.0044)	(0.0042)	(0.0043)	(0.0042)
State-owned company			-0.0237**	-0.0251**	-0.0243**	-0.0270***
			(0.0104)	(0.0102)	(0.0106)	(0.0102)
Market share					-0.00169	-0.0262
					(0.0459)	(0.0304)
Constant	0.0244	0.0276	0.0235	0.0122	0.00463	-0.0264
	(0.0736)	(0.0531)	(0.072)	(0.0522)	(0.0752)	(0.0516)
Observations	13815	13815	13331	13331	13331	13331
Number of firms	2051	2051	2045	2045	2045	2045
Number of instruments	142	178	144	180	145	181
p-value of Hansen statistic	0.457	0.793	0.449	0.811	0.451	0.831
p-value AR1	0	0	0	0	0	0
p-value AR2	0.979	0.956	0.983	0.991	0.994	0.994

Notes: The dependent variable is EBIT normalised with total assets. Results reported in this table have been obtained using system GMM estimations using the two-step estimation including the Windmeijer correction to the reported standard errors. The lagged dependent variable and the M&A variables are instrumented. Year and industry dummies are not reported. They are, however, jointly significant in all of the models. A group is defined as one firm over time. AR1 and AR2 report the p-values of the tests for first-order and second-order serial correlation in the first-differenced residuals. The hansen statistic reports the p-value of the Hansen test of over-identifying restrictions. Data are for 2000-2008. *,**,*** indicates significance at the 10%, 5%, and 1% level, respectively. Robust standard errors are in parentheses.

The control variables mostly follow the expectations: the lagged dependent variable and firm size increase the return on assets, while the solvency ratio and state ownership decrease profitability. Therefore, larger resources and capabilities of a firm increase performance

while a higher solvency ratio indicates financial problems and thereby a lower profitability. The negative impact of state control can be due to missing incentives or the fact that state-owned firms per se follow other objectives than profit maximisation. In terms of economic magnitude past profitability has by far the most significant impact: a one standard deviation increase leads to a rise of profitability by 0.06, while for firm size this only amounts to an increase by 0.015, the solvency ratio to -0.03 and state ownership to -0.01. All other control variables (liquidity, industry concentration and market share) are insignificant. Hence, for industry concentration and market share the positive and negative effects linked to increased market power seem to make the overall impact turn zero. In the case of liquidity the effects linked to the availability of extra-financial resources which can be used for both firm as well as managerial purposes cancel out. Note that the year dummies, which are included in all regressions but are not reported in the tables, suggest no specific pattern for the year of the financial crisis 2008.[15]

More importantly in our study, the count variables measuring the number of acquisitions that a firm has carried out in year t and the three preceding years are significant in all specifications and exert a negative impact. This is true when using the general measure or when separating all deals into domestic and cross-border operations. Completing one acquisition will decrease firm profitability by -0.005, a domestic deal by -0.003 and the international deal by -0.006. But the difference between domestic and cross-border deals is not statistically significant (Wald test). In terms of economic magnitude the effect is quite low: a rise by one standard deviation of M&A will decrease profitability by -0.006 – a much lower impact than all of the other significant control variables. However, a large part of our transactions take place during the years 2006-08. Hence, due to the set-up of our study and data availability we only capture the direct performance effect for the first year(s) of these deals, but not the long-run one over all four years. In a robustness check we therefore eliminate all acquirers from the sample that carried out acquisitions during the years 2006-08 and re-ran the estimations (Appendix 4). We still find a significantly negative impact of M&A transactions.

The negative influence of acquisitions can be the result of low firm-level acquisition experience and capability as well as the existence of a less sophisticated and developed

[15] We interacted the year dummy 2008 with the count variables measuring a firm's M&A activities to see if M&A effects differ in the crisis from the rest of the period. However, they are insignificant. Results are not reported, but are available on request.

market for corporate control in Russia leading to a failure to either acquire the right targets, or, when the right targets are acquired, to exploit and achieve synergy gains. It could also be explained by the fact that the major motivation of the deal is not to improve firm performance. This can be the case when acquisitions are driven by anti-competition and rent-seeking purposes when satisfying managerial objectives such as risk reduction or empire building.

The question arises if all deals are negative for firm performance or if there are certain deal, firm or industry characteristics that moderate the effect. Table 2 presents the results on deal characteristics. Column 1 distinguishes the findings of cross-border deals based on the target country. In particular, CIS targets are distinguished from non-CIS targets. Former Soviet-Union countries are expected to be closer to Russia in many dimensions – institutionally and geographically – making transactions less complex than cross-border deals into other parts of the world. However, due to the similarities between Russia and CIS countries in terms of factor endowment and institutions, they might also offer lower gains. The results show that cross-border deals in CIS countries exert indeed no longer a negative impact while the rest of the cross-border deals still do. Institutional knowledge as well as cultural and geographical proximity seem to help firms to overcome M&A deficiencies. However, these deals also do not increase performance possibly due to the absence of strong complementarities.

Table 2: The role of deal-level characteristics

	(1)	(2)	(3)	(4)	(5)
Return on asset t-1	0.499***	0.502***	0.499***	0.498***	0.500***
	(0.022)	(0.0224)	(0.0214)	(0.0219)	(0.0216)
Size, log	0.0095***	0.0099***	0.0098***	0.0095***	0.0092***
	(0.0009)	(0.0009)	(0.001)	(0.0009)	(0.001)
Solvency ratio	-0.112***	-0.118***	-0.118***	-0.115***	-0.120***
	(0.0173)	(0.0162)	(0.0158)	(0.0183)	(0.0155)
Herfindahl-Hirschmann index	-0.0193	-0.0479	-0.0427	-0.0123	-0.0152
	(0.0404)	(0.0345)	(0.0297)	(0.0536)	(0.0405)
Number of domestic M&As	-0.00260**				
	(0.0011)				
Number of cross-border M&As in non-former URSS countries	-0.0102**				
	(0.0042)				
Number of cross-border M&As in former URSS countries	-0.00388				
	(0.0045)				
Number of non-horizontal M&As		-0.0043***			
		(0.0013)			
Number of horizontal M&As		-0.00454**			
		(0.0023)			
Number of domestic non-horizontal M&As			-0.0040***		
			(0.0013)		
Number of domestic horizontal M&As			-0.00400*		
			(0.0024)		
Number of cross-border horizontal M&As			-0.000773		
			(0.0051)		
Number of cross-border non-horizontal M&As			-0.00860**		
			(0.0035)		
Number of M&As (no internal transaction)				-0.0053***	
				(0.0016)	
Number of domestic M&As (no internal transaction)					-0.00371**
					(0.0015)
Number of cross-border M&As (no internal transaction)					-0.00592*
					(0.0035)
Constant	0.014	-0.0343	-0.0304	0.029	0.0285
	(0.0546)	(0.0479)	(0.0421)	(0.0727)	(0.0558)
Observations	13815	13815	13815	13815	13815
Number of codefirm	2051	2051	2051	2051	2051
Number of instruments	212	178	235	142	178
p-value of Hansan statistic	0.987	0.206	0.854	0.417	0.769
p-value AR1	0	0	0	0	0
p-value AR2	0.924	0.914	0.932	0.943	0.935

Notes: See Table 1.

Columns 2 and 3 turn to the relevance of the industry relatedness between acquirers and targets distinguishing horizontal from non-horizontal deals for all acquisitions, and domestic and cross-border acquisitions separately. Using the M&A count variable including all acquisitions both horizontal and non-horizontal deals have a negative influence. However, when distinguishing domestic and cross-border deals, effects change. For cross-border deals,

horizontal acquisitions do not decrease performance, while they still have a negative effect for domestic transactions. The additional complexities in the international context seem to be less relevant if firms act within the same industry possibly due to better knowledge of targets and the industry environment. Cross-border deals, as opposed to domestic deals, can also offer higher synergy gains due to higher complementarities of resources and capabilities across countries and larger potential of redeployment within the same industry, making the overall negative effect for international transactions disappear. However, the effect is now only insignificant – hence, these deals also do not create value.

One Russian particularity is the relatively large number of acquisitions carried out for restructuring purposes, therefore raising the issue if negative results are driven by unsuccessful attempts to restructure. Columns 4 and 5 omit these transactions from the regressions. However, the negative effects persist. Hence, only the destination country and industry relatedness are deal-level moderating factors for deal performance.

Tables 3 and 4 display empirical findings related to firm specificities focusing on the role of the acquisition strategy of a firm and on general firm characteristics respectively. In terms of the acquisition strategy of a firm we distinguish single from serial acquirers using two approaches for determining the latter. First, we define those firms as multiple acquirers that have acquired more than one firm in year t and the preceding three years (columns 1 and 2). Then, we extend the threshold to three firms (columns 3 and 4). Also, we consider the possible complementarity effects between domestic and international deals (column 5).

Table 3: The role of firm-level characteristics (a)

	(1)	(2)	(3)	(4)	(5)
	Serial Acquiror (>=2)	Serial Acquiror (>=2)	Serial Acquiror (>=4)	Serial Acquiror (>=4)	
Return on assets t-1	0.504***	0.515***	0.491***	0.489***	0.507***
	(0.0217)	(0.0215)	(0.0211)	(0.0207)	(0.0204)
Size, log	0.0103***	0.0103***	0.00971***	0.0101***	0.00979***
	(0.0009)	(0.001)	(0.0009)	(0.0009)	(0.0009)
Solvency ratio	-0.104***	-0.0980***	-0.114***	-0.118***	-0.114***
	(0.014)	(0.0134)	(0.0148)	(0.0138)	(0.0137)
Herfindahl-Hirschmann index	0.000199	0.00433	0.0117	-0.0257	-0.0218
	(0.0273)	(0.0346)	(0.0293)	(0.0282)	(0.0261)
Serial acquiror (>=2 or >=4): number of M&As	-0.0049***		-0.0036***		
	(0.0011)		(0.0011)		
Single acquiror (=1 or <4): number of M&As	-0.0141**		-0.0113***		
	(0.0068)		(0.0038)		
Serial acquiror (>=2 or >=4): number of domestic M&As		-0.0038***		-0.0023***	
		(0.001)		(0.0009)	
Single acquiror (=1 or <4): number of domestic M&As		-0.0213***		-0.0100***	
		(0.007)		(0.0037)	
Serial acquiror (>=2 or >=4): number of cross-border M&As		-0.00478		-0.00759	
		(0.0045)		(0.0054)	
Single acquiror (=1 or <4): number of cross-border M&As		-0.0176***		-0.00838	
		(0.0051)		(0.0059)	
Number of domestic M&As					-0.00567***
					(0.0012)
Number of cross-border M&As					-0.0143***
					(0.0038)
Number of domestic M&As * number of cross-border M&As					0.00162***
					(0.0004)
Constant	0.0244	0.0248	0.0583	0.00636	0.0096
	(0.0398)	(0.051)	(0.04)	(0.0412)	(0.0395)
Observations	13815	13815	13815	13815	13815
Number of firms	2051	2051	2051	2051	2051
Number of instruments	178	238	171	208	208
p-value of Hansen statistic	0.719	0.997	0.738	0.91	0.973
p-value AR1	0	0	0	0	0
p-value AR2	0.901	0.836	0.979	0.976	0.898

Notes: See Table 1.

Table 4: The role of firm-level characteristics (b)

	(1)	(2)	(3)	(4)	(5)	(6)
Return on assets t-1	0.490***	0.508***	0.502***	0.507***	0.488***	0.500***
	(0.0213)	(0.0192)	(0.0198)	(0.0207)	(0.0218)	(0.0207)
Size, log	0.0098***	0.0105***	0.0104***	0.0097***	0.0105***	0.0102***
	(0.0009)	(0.0009)	(0.001)	(0.001)	(0.001)	(0.001)
Solvency ratio	-0.119***	-0.107***	-0.100***	-0.102***	-0.126***	-0.108***
	(0.0132)	(0.0104)	(0.0146)	(0.0142)	(0.0132)	(0.0112)
Herfindahl-Hirschmann index	-0.0148	-0.0171	-0.0479	-0.0369	-0.0589*	-0.0181
	(0.0221)	(0.0206)	(0.0294)	(0.0225)	(0.0338)	(0.0296)
Number of domestic M&As		-0.021***		-0.0027**		-0.004***
		(0.0061)		(0.0011)		(0.0014)
Number of cross-border M&As		-0.00169		-0.0090**		-0.0078**
		(0.0254)		(0.0045)		(0.0037)
Number of M&As	-0.020***		-0.004***		-0.005***	
	(0.0044)		(0.0009)		(0.0011)	
(Log) Size * Number of M&As	0.0011***					
	(0.0003)					
(Log) Size * Number of domestic M&As		0.0012***				
		(0.0004)				
(Log) Size * Number of cross-border M&As		-0.000411				
		(0.0018)				
(Log) Liquidity ratio			0.00801**	0.00777**		
			(0.004)	(0.0032)		
(Log) Liquidity ratio * Number of M&As			0.000796			
			(0.0009)			
(Log) Liquidity ratio * Number of domestic M&As				0.000612		
				(0.0011)		
(Log) Liquidity ratio * Number of cross-border M&As				-0.0017		
				(0.0058)		
State-owned company					-0.0143*	-0.0149*
					(0.008)	(0.0085)
State-owned company * Number of M&As					0.00173	
					(0.0016)	
State-owned company * Number of domestic M&As						0.000924
						(0.0021)
State-owned company * Number of cross-border M&As						0.00516
						(0.0123)
Constant	0.0211	-0.000188	-0.0385	-0.0151	-0.0534	-0.00116
	(0.0338)	(0.0298)	(0.0446)	(0.0327)	(0.0476)	(0.0443)
Observations	13815	13815	13331	13331	13815	13815
Number of firms	2051	2051	2045	2045	2051	2051
Number of instruments	178	250	179	251	179	238
p-value of Hansen statistic	0.624	0.956	0.578	0.992	0.329	0.89
p-value AR1	0	0	0	0	0	0
p-value AR2	0.973	0.873	0.969	0.947	0.983	0.945

Notes: See Table 1.

Overall, when serial acquirers are defined as those firms that made at least two transactions, the impact of deals carried out by single acquirers and serial acquirers is statistically not different from each other (column 1). However, when domestic and cross-border deals are

considered separately (column 2), value reduction is significantly lower for serial acquirers compared with single acquirers for both types of transactions.

When taking the more than three deals definition of serial acquisition, serial acquirers decrease statistically significantly less value when using the count variable including both domestic and cross-border transactions (column 3). In this case the effect is driven by domestic deals. In the case of cross-border deals, no significant difference can be identified. However, this non-significant difference may be caused by the very limited number of firms doing more than three deals abroad over the four-year period. Overall, the experience gained through acquisition programmes or the complementarities of resources and capabilities of the target firms that compose the acquisition portfolio make these transactions at least partially worth the effort: although the effect is not positive or even insignificant, the negative effect is at least reduced.

Considering the complementarities between domestic and international acquisitions (column 5), the two count variables of domestic and cross-border deals are interacted and included in the estimations. This term, the second derivative, is positive and statistically significant: hence, an additional domestic deal that a company has in its acquisition programme positively moderates the impact that a cross-border deal has on the firm performance (and reciprocally). Therefore, a serial acquirer that has both domestic and cross-border deals in its portfolio can positively influence the performance of a cross-border deal with its stock of domestic deals. This indicates that a firm's acquisition capability can be increased via some economies-of-scale and experience effects. The effect may also arise due to some complementarities of domestic and international resources and capabilities. However, this can also indicate a self-selection problem - firms with higher acquisition capability do both domestic and cross-border deals.

Table 4 summarises the results for general firm characteristics as moderating factors of deal performance. With increasing size of a firm, the profitability of a firm gained through an M&A deal increases (column 1). This effect is driven by domestic deals (column 2). The interaction with cross-border deals is not significant. Hence, resources and capabilities of Russian firms help to improve the performance of domestic deals, but do not achieve this in the international context. Possibly this indicates a lack of quality and quantity of resources and capabilities. One could also argue that firm size reflects a higher ability to exercise market power at the detriment of consumers in the domestic market or to obtain more favourable access to both private and political networks at home.

Liquidity does not moderate the effects of acquisitions (columns 3 and 4). Although the main effect is now significant, the interaction between liquidity and M&A is not, hence larger free cash flows are not linked to value destroying mergers. Although state ownership has a negative influence on firm performance per se, it does not seem to influence deal performance (columns 5 and 6). This indicates that nationalisation deals have been neither value generating nor value destroying. Hence, only a firm's resources and capabilities, in particular the acquisition capability, matter for deal performance.

Table 5 also provides evidence for the importance of the industry context. Here, industry concentration positively moderates profitability effects of acquisitions (columns 1 and 2). This shows that a rise in market power may be a major source of value creation for firms for both purely domestic and cross-border deals. But this could also indicate that the value that is created by acquirers in these industries can damage the welfare of the society or other stakeholders. However, if, for instance, in the input market, more power represents a form of countervailing power to already powerful incumbents, then the private benefits from acquirers may coincide with social gains (see Roller and others, 2000).

Furthermore, although profitability is not higher for firms in the high-tech manufacturing and high-tech knowledge-intensive service industries per se, the industry nature positively moderates the performance effects of cross-border deals (column 4). This is, however, not the case for domestic deals. Possibly due to the low level of competitiveness of firms in Russia, acquisitions within Russia do not help high-tech firms to improve their performance. On the other hand, international acquisitions can be used as springboards for further development. Russian high-tech firms appear to be able to leverage resources and capabilities from international targets or take advantage of new growth opportunities. Nevertheless, note that the effect is based on the cross-border activities of seven firms, of which six are active in telecommunications. Moreover, most of the targets acquired are located in the CIS countries, making it questionable that knowledge transfer from the target to the acquirer is responsible for the positive moderating effect on performance. It rather suggests that Russian acquirers have intangible asset advantages that they can exploit further abroad. Furthermore, the overall acquisition effect is still not positive for these firms, but is insignificant.

Deals in the natural resource intensive industry are not worse or better than deals in the other industries (columns 5 and 6). The significant negative sign in the case of the cross-border deals has to be considered with caution: there are only six cross-border deals in this industry type.

Table 5: The role of industry-level characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Return on assets t-1	0.491***	0.503***	0.496***	0.502***	0.496***	0.491***
	(0.02)	(0.0213)	(0.0208)	(0.0221)	(0.0222)	(0.0217)
Size, log	0.0102***	0.0105***	0.0099***	0.0093***	0.0101***	0.0097***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0009)
Solvency ratio	-0.114***	-0.102***	-0.113***	-0.117***	-0.112***	-0.121***
	(0.0135)	(0.0128)	(0.0166)	(0.0151)	(0.0183)	(0.0149)
Herfindahl-Hirschmann index	-0.0217*	-0.0179	0.00283	-0.0118	-0.0222	-0.0401
	(0.0123)	(0.0123)	(0.0534)	(0.0388)	(0.0702)	(0.0482)
Number of domestic M&As		-0.005***		-0.0027**		-0.003***
		(0.0016)		(0.0013)		(0.0012)
Number of cross-border M&As		-0.00121		-0.010***		-0.00478
		(0.0046)		(0.0034)		(0.0038)
Herfindahl-Hirschmann index * Number of domestic M&As		0.0065***				
		(0.0025)				
Herfindahl-Hirschmann index * Number of cross-border M&As		-0.0214*				
		(0.0123)				
Number of M&As	-0.005***		-0.005***		-0.005***	
	(0.0016)		(0.0015)		(0.0014)	
Herfindahl-Hirschmann index * Number of M&As	0.00373*					
	(0.0021)					
High-tech industry			-0.00215	-0.00429		
			(0.0116)	(0.0113)		
High-tech industry * Number of M&As			0.0018			
			(0.0024)			
High-tech industry * Number of domestic M&As				-0.00244		
				(0.0028)		
High-tech industry * Number of cross-border M&As				0.0151**		
				(0.0064)		
Natural resource industry					-0.0151	-0.0139
					(0.0306)	(0.0258)
Natural resource industry* Number of M&As					-0.000873	
					(0.0041)	
Natural resource industry* Number of domestic M&As						0.00251
						(0.0036)
Natural resource industry* Number of cross-border M&As						-0.044***
						(0.0168)
Constant	0.00617	0.00172	0.0392	0.0285	0.00413	-0.00476
	(0.0251)	(0.0255)	(0.0719)	(0.0534)	(0.0765)	(0.0546)
Observations	13815	13815	13815	13815	13726	13726
Number of firms	2051	2051	2051	2051	2036	2036
Number of instruments	178	250	172	228	179	223
p-value of Hansen statistic	0.34	0.985	0.449	0.947	0.704	0.987
p-value AR1	0	0	0	0	0	0
p-value AR2	0.946	0.884	0.941	0.914	0.875	0.914

Notes: See Table 1.

Overall, we find that the negative effect of domestic and international acquisitions is moderated by some deal, firm and industry characteristics. The negative deal performance does not seem to be driven by factors linked to agency problems in terms of free cash flow, but rather by a lack of experience or resources, and possibly other rent-seeking and anti-competition motives. Although different moderating factors have been identified, they are not strong enough to render deals performance-enhancing.

6. Conclusion

This paper adds new empirical evidence to the existing literature on M&As. We first examine whether M&As initiated by Russian firms on their home market or abroad affect their operating performance. We still know very little on M&A value generation for emerging market firms. We also contribute to the literature by distinguishing effects between serial acquirers and single acquirers – an area which remains largely unexplored in economics. Moreover, we compare the effect of domestic and international M&As, which is also seldom done, and examining the feedback effect of international acquisitions in the home market. Finally, we go a step further and explore the role of different moderating factors – some of them being more specific to the Russian context – at the deal, firm and industry level.

We find rather negative effects associated with acquisitions. However, we show that firm resources are of relevance and can be leveraged in domestic deals to improve the impact of acquisitions. Furthermore, our findings suggest that emerging market firms suffer from the inability to leverage value due to low M&A experience and capabilities, especially when making international acquisitions. Interestingly, we find a positive interaction between domestic and cross-border deals in acquisition programmes. Also, high-tech firms seem to be able to draw larger benefits from cross-border transactions than domestic ones, taking advantage of new market opportunities abroad.

Our study therefore provides new evidence that can help guide managers in their M&A strategy making, by highlighting the challenges but also opportunities brought by M&A deals. Our paper also has implications for policy-makers given the essential role of M&As as a restructuring mechanism of the economy (Geroski, 1992). Acquisitions facilitate adjustments within and between industries. We believe it to be of interest in the current debate on the diversification of the Russian economy which is highly dependent on oil and gas resources.[16] Do M&As enhance the competitiveness of Russian industries, leading in the long run to a more sustainable economic growth in Russia? While our current answer is rather negative, our findings tend to stress that Russian firms are still in the process of learning and gaining experience and one can expect that in the future, with the stock of the latter growing, deals can turn to become beneficial for firms. Also, the institutional Russian

[16] Understanding the impact of M&As in Russia could also be important when evaluating the possible consequence of the Russian accession to the WTO. Trade liberalisation could force Russian firms to exit the market or to merge. The impact of trade liberalisation on industrial restructuring has been confirmed by empirical analysis (for example, Head and Ries, 1999; Trefler, 2001) and theoretical analysis (Bertrand and Zitouna 2006; Breinlich, 2008).

market of corporate control is still under-developed and of a relatively poor level of sophistication. With policy reforms, a more mature market of corporate control, and more competitive pressure in product markets, the Russian economy could expect to benefit more greatly in terms of competitiveness, growth and wealth creation from M&As.

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Appendix 1

Table A1: Descriptive statistics

Panel a. Single vs. Multiple Acquirers

	Companies without ac	Single Acquirers	Serial Acquirers >=2	*No of deals*	Serial Acquirers >=4	*No of deals*
2000	1250	8	3	*6*	0	*0*
2001	1364	13	2	*6*	1	*4*
2002	1506	18	1	*4*	1	*4*
2003	1537	29	11	*39*	3	*20*
2004	1513	49	21	*54*	3	*14*
2005	1542	36	22	*73*	7	*36*
2006	1521	53	35	*101*	8	*38*
2007	1522	112	52	*228*	13	*136*
2008	1451	91	53	*217*	17	*135*

Panel b. Deal characteristics

	Total	omestic deal	Cross-border deals	n CIS outsid	Horizontal deals	ithout Internal Transactio	High-Tech Industry	Resources I
2000	14	13	1	0	3	13	1	4
2001	19	17	2	2	5	19	0	0
2002	22	16	6	3	11	22	4	5
2003	68	56	12	6	34	62	15	11
2004	103	94	9	6	27	84	21	11
2005	109	93	16	7	39	102	22	12
2006	154	123	31	18	51	148	26	14
2007	340	323	17	6	61	248	26	13
2008	308	282	26	5	46	188	18	25

Notes: Panel a shows the number of firms without acquisitions in the sample, the number of single acquiring firms, the number of serial acquiring firms with at least two (>=2) and four (>=4) deals, and the total number of deals these serial acquirers concluded. Panel b shows the total number of deals and the number of domestic and cross-border deals per year. The other columns enumerate the total number of deals with targets in the Commonwealth of Independent States (CIS - outside Russia), that take place within the same four digit industry (NACE classification), that are not part of corporate group or state ownership restructuring, where the acquirer is in a high-tech or knowledge intensive industry and where the acquirer is a natural resource firm

Appendix 2

Table A2: Summary statistics and correlations

		Mean	S.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	Number of M&As	0.209	1.259	0	49	1											
(2)	Number of domestic M&As	0.184	1.133	0	46	0.981	1										
(3)	Number of cross-border M&As	0.026	0.266	0	8	0.556	0.383	1									
(4)	Return on assets t-1	0.128	0.124	-0.081	0.589	0.016	0.011	0.028	1								
(5)	Size, log	10.38	1.476	-4.916	17.3	0.269	0.258	0.175	0.116	1							
(6)	Liquidity ratio, log	-0.126	0.639	-1.619	2.013	0.083	0.08	0.052	0.208	0.106	1						
(7)	Solvency ratio	0.597	0.281	0	1	-0.053	-0.053	-0.027	-0.366	-0.083	-0.434	1					
(8)	Market share	0.059	0.143	0	1	0.194	0.179	0.153	0.059	0.295	0.049	-0.089	1				
(9)	Herfindahl-Hirschmann index	0.092	0.166	0	1	0.132	0.127	0.084	0.056	0.165	0.079	-0.122	0.639	1			
(10)	State-owned company	0.219	0.414	0	1	0.021	0.026	-0.011	-0.089	0.097	0.031	-0.172	0.018	0.061	1		
(11)	High-tech knowledge-intensive service or high-tech manufacturing industry	0.069	0.253	0	1	0.054	0.051	0.036	0.066	-0.019	-0.005	-0.055	-0.04	-0.05	0.1	1	
(12)	Natural resource industry	0.061	0.238	0	1	0.019	0.021	-0.0004	0.116	0.175	0.074	-0.15	0.015	0.062	0.009	-0.069	1

Appendix 3

Table A3: Panel least squares regressions

	(1)	(2)	(3)	(4)	(5)	(6)
Return on assets t-1	0.270***	0.270***	0.252***	0.252***	0.251***	0.251***
	(0.0084)	(0.0084)	(0.0085)	(0.0085)	(0.0086)	(0.0086)
Size, log	0.0158***	0.0158***	0.0156***	0.0156***	0.0149***	0.0149***
	(0.0008)	(0.0008)	(0.0009)	(0.0009)	(0.001)	(0.001)
Solvency ratio	-0.137***	-0.137***	-0.136***	-0.136***	-0.136***	-0.136***
	(0.0054)	(0.0054)	(0.0062)	(0.0062)	(0.0062)	(0.0062)
Herfindahl-Hirschmann index	-0.0240**	-0.0242**	-0.0251**	-0.0253**	-0.0313**	-0.0316**
	(0.0121)	(0.0121)	(0.0124)	(0.0124)	(0.0129)	(0.0129)
Number of domestic M&As		-0.00173**		-0.00172**		-0.00172**
		(0.0009)		(0.0009)		(0.0009)
Number of cross-border M&As		-0.00731*		-0.00768*		-0.00771*
		(0.0042)		(0.0042)		(0.0042)
Number of M&As	-0.00220***		-0.00222***		-0.00222***	
	(0.0008)		(0.0008)		(0.0008)	
Liquidity ratio, log			0.00931***	0.00926***	0.00925***	0.00920***
			(0.0019)	(0.0019)	(0.0019)	(0.0019)
Market share					0.0427*	0.0428*
					(0.0224)	(0.0224)
Constant	0.00105	0.000947	0.0450***	0.0448***	0.0504***	0.0503***
	(0.0093)	(0.0093)	(0.0094)	(0.0094)	(0.0099)	(0.0099)
Observations	13815	13815	13331	13331	13331	13331
R-squared	0.194	0.194	0.192	0.192	0.192	0.193
Number of firms	2051	2051	2045	2045	2045	2045

Notes: The dependent variable is EBIT normalised with total assets. Results reported in this table have been obtained using panel least squares estimation including fixed effects. A group is defined as a firm over time. Serial correlation and heteroscedasticity is controlled for within each group using robust standard errors. Year dummies are not reported. They are, however, jointly significant in all of the models. A group is defined as one firm over time. Data are for 2000- 2008. *,**,*** indicates significance at the 10%, 5%, and 1% level, respectively. Robust standard errors are in parentheses.

Appendix 4

Table A4: Long-run effects

Return on assets t-1	0.492***	0.509***	0.488***	0.502***	0.489***	0.502***
	(0.0236)	(0.0256)	(0.0233)	(0.0237)	(0.0233)	(0.0236)
Size, log	0.0107***	0.0105***	0.0105***	0.0103***	0.0100***	0.0103***
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0018)	(0.0015)
Solvency ratio	-0.103***	-0.104***	-0.0986***	-0.101***	-0.101***	-0.102***
	(0.0108)	(0.0097)	(0.0129)	(0.0109)	(0.0108)	(0.0091)
Herfindahl-Hirschmann index	0.0476	-0.0393	0.0506	-0.0075	0.00472	-0.0215
	(0.124)	(0.0882)	(0.12)	(0.097)	(0.0629)	(0.051)
Number of domestic M&As		-0.0131***		-0.0142***		-0.0141***
		(0.0038)		(0.0042)		(0.0042)
Number of cross-border M&As		-0.0221***		-0.0207***		-0.0210***
		(0.0048)		(0.0072)		(0.0071)
Number of M&As	-0.0152***		-0.0157***		-0.0157***	
	(0.0047)		(0.0045)		(0.0046)	
Liquidity ratio, log			0.00659*	0.00571	0.00597	0.00552
			(0.0039)	(0.0036)	(0.0037)	(0.0035)
Market share					0.0298	0.00369
					(0.0669)	(0.0515)
Constant	0.0695	0.106	0.058	0.0516	0.053	0.046
	(0.125)	(0.125)	(0.0912)	(0.0837)	(0.09)	(0.0814)
Observations	11689	11689	11297	11297	11297	11297
Number of firms	1721	1721	1716	1716	1716	1716
Number of instruments	138	168	139	169	140	170
p-value of Hansen statistic	0.313	0.794	0.325	0.839	0.314	0.838
p-value AR1	0	0	0	0	0	0
p-value AR2	0.309	0.27	0.359	0.327	0.359	0.327

Notes: See Table 1.