

# Domestic M&As in Russia: Performance and Success Factors



Ivan Rodionov and Vitaly Mikhailchuk

**Abstract** This research develops an approach to synergy analysis in domestic Russian mergers and acquisitions (M&As), tests potential success factors, and evaluates two types of operating and three types of financial synergies. This chapter makes two primary contributions to the literature. First, this chapter is related to the recent research that investigates M&As in emerging markets. Our chapter is unique in that we study domestic Russian M&As based on long-term firm accounting data. This approach captures private companies and small deals that make up the majority of the Russian M&A market. The second contribution is to estimate the structure of operating and financial synergies for every deal and test the significance of potential success factors. The scope is limited to domestic Russian M&As closed between January 2006 and September 2015. The sample is based on the Mergermarket database and includes 171 deals. Our analysis shows that after M&As, firms achieve  $-0.1\%$  capital expenditure efficiency and  $-0.2\%$  operating margin compared to the industry benchmark. Deals lead to  $11.7\%$  abnormal reduction of capital expenditures and cause  $3.1\%$  cost of debt growth. Deals create small tax benefits: the median for the whole sample is 87.5 million rubles, or  $1.4\%$  of the median deal value.

**Keywords** Mergers and acquisitions · Synergy · Company valuation · Emerging markets · Strategy · Economies of scale

## 1 Introduction

Mergers and acquisitions (M&As) remain one of the main ways companies develop and sustain competitiveness in developed and emerging markets. Because of the economic instability in 2014–2015, Russian companies are motivated to find successful domestic M&As.

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Little research has been dedicated to studying domestic deals in developing countries mostly because there is no ready-to-use data available. Research about M&As in developing countries often focuses on deals made in BRICS countries. Existing research does not study different components of financial and operating synergies and the structure of synergies after M&As.

However, companies seek M&A opportunities for various reasons. Companies may be looking to reduce production costs, improve market position, buy new technologies, or lower cost of capital. Without analyzing the structure of synergies, many practical questions remain unanswered: Are some types of synergy easier to achieve than others? What success factors affect different types of synergy? Are operating and financial synergies correlated?

The second important aspect is industry analysis. Kenneth and Harford (2014) noted the significance of industry relations for the timing and incidence of merger waves. They found that merger activity in one industry leads to increased merger activity in other related industries. In this chapter, we analyze the synergies for M&As in Russian industries—manufacturing, telecoms, retail, and extraction of natural resources—merger timings, and the structure of synergies in these industries.

This research develops an approach to synergy analysis in domestic Russian M&As, tests potential success factors, and evaluates five types of operating and financial synergies. Operating synergies include economies of scale and market power. Financial synergies include tax benefits, new investment opportunities, and increased debt capacity. The scope is limited to deals between Russian companies.

The rest of this chapter is organized as follows. In Sect. 2 we derive a research hypothesis based on the existing literature on M&A synergies in developed and emerging markets. Section 3 presents a hypothesis for empirical tests. In Sect. 4 we develop a methodology for synergy valuation and an econometrical model for hypothesis tests. Section 5 describes industry and merger data. Section 6 presents a synergy valuation, and Sect. 7 presents the analysis of synergy structure. We test the hypothesis about M&A success factors in Sect. 8 and discuss major Russian mergers in Sect. 9. Section 10 concludes.

## 2 Derivation of Hypotheses for Russian Companies

### 2.1 Operating Synergies

Operating synergies are the synergies that allow companies to improve profitability, increase growth, or both. Recent research by Garzella and Fiorentino (2016) includes three main operating synergies:

- *Economies of scale* are usually created in mergers of companies in the same industry. They make the combined company more cost-efficient.

- Greater *market power* results in profitability growth from reduced competition and higher market share. This synergy is likely to arise in the concentrated industries or after large mergers.
- Synergistic combination of *functional strengths* after the M&As.

In this chapter we consider two types of operating synergies: economies of scale and market power.

Economies of scale are estimated with changes in capital expenditure (CAPEX) efficiency after M&As. This method is based on the assumption that the bidder will outperform the CAPEX efficiency benchmark. Applying this method, Maksimovic and Phillips (2001) and Kwoka and Pollitt (2010) concluded that M&As in the USA do not create economies of scale.

Nevertheless, scholars have recently provided some contrasting evidence. Zschille (2015) showed that the abnormal CAPEX efficiency improved after deals in Germany between 2006 and 2008. Agrell et al. (2015) reached the same conclusion for deals in Norway from 1995 to 2004.

There are several methods of estimating increased market power. The first method is based on market share analysis. It is assumed that the market structure has a direct effect on the financial results of competing companies. In concentrated markets, companies can earn more profits than companies in highly competitive markets.

Blonigen and Pierce (2016) used this method for M&As in the USA from 1997 to 2007 and Kyriazopoulos and Drumbetas (2015) for M&As in Europe between 1996 and 2010. Both chapters concluded that market share growth after M&As leads to an improvement in profitability for the bidder.

Some authors rely on the comparison of prices for the major goods and services of the bidder before and after the deal. If prices go up after the deal in a competitive market, the bidder has increased its market power. Similarly, abnormal growth of EBITDA, EBIT, or net income margins can be used as a proxy of increased market power.

Kim and Singal (1993) found abnormal growth of airplane ticket prices after large M&As in the industry. Sapienza (2002) found a reduction in deposit rates after M&As between commercial banks. On the other hand, several chapters (Berger et al. 1998; Eckbo 1983; Fee and Thomas 2004; Shahrur 2005; and others) did not find significant changes in prices after M&As.

In a perfect market, prices on goods and services would be one of the most precise proxy variables to estimate a change in market position. However, this method is hardly applicable for diversified companies in terms of products, services, or local markets.

Research of operating synergy with accounting methods in emerging markets has appeared since 2010. For M&As in the Philippines between 1994 and 2003, Cabanda and Pajara (2011) estimated 7.7% abnormal CAPEX efficiency reduction for the bidder after the deal closure. Pazarskis et al. (2006), Greece and Visic (2013), and Grigorieva and Petrunina (2015) looked at BRICS countries using profitability margins, and all concluded that M&As do not increase the bidder's market power.

## 2.2 *Financial Synergies*

The payoffs from financial synergies are either higher cash flows or a lower cost of capital. Damodaran (2005) includes the following financial synergies:

- *Tax benefits* from the net operating losses or faster amortization of the acquired company.
- *Investment opportunities* from the combination of the company with excess cash (and limited investment opportunities) and the company with high-return projects (and limited cash).
- *Lower cost of debt*, or increased debt capacity, if the combined company has more stable and predictable cash flows. This reduces the average cost of capital or allows the combined firm to borrow more, increasing its tax benefits.

Research of M&As on tax benefits is sparse even for developed countries. Hayn (1989), based on 640 deals in the USA in 1970–1985, showed that an abnormal return of the bidder's shares and accumulated deficit in the target company balance sheet have a strong positive correlation. Recent research (e.g., Chow et al. 2016) also used stock market data to analyze synergy from M&As driven by tax savings.

Devos et al. (2009) estimated the average tax benefit growth after M&As in the USA between 1980 and 2004 to be 1.6%. Elgemark (2014) on M&As in Denmark and Sweden estimated the average tax benefit growth to be 1.4%.

The most common approach to estimate investment opportunities for a company is *Tobin's q* coefficient, calculated as the ratio of its equity market value to equity book value. Recent chapters demonstrate that companies with low *Tobin's q* will seek M&A opportunities (Nguyen et al. 2012; Boyson et al. 2017). However, in emerging markets equity market value is often unavailable; therefore, *Tobin's q* can be applied to very few deals.

The method with abnormal CAPEX growth developed in Bruner (2002) and Rhodes-Kropf and Viswanathan (2004) is more suitable for emerging markets. This method assumes that the bidder had access to investment opportunities after the deal if its CAPEX growth is higher than the industry benchmark. Ovtchinnikov (2013), based on 7858 deals in the USA between 1980 and 2008, estimated this decline to be 0.2%. Agliardi et al. (2016) based on 1121 deals larger than \$100 million in the USA between 1980 and 2010 estimated this decline as 4.3%.

Debt capacity after M&As has been researched with the analysis of the correlation between bidder and target company free cash flows (Lewellen 1971) or with cost of debt estimation (Damodaran 2005).

Recent chapters based on Lewellen's approach (e.g., Mooney and Shim 2015) show that debt capacity will not increase if the correlation between cash flows is positive. M&As between companies with a negative correlation between cash flows have a significant positive effect on debt capacity. It is difficult to apply this method to emerging markets, because there is usually not enough financial data to calculate free cash flows for private companies.

Damodaran (2005) proposed using cost of debt as a proxy variable for debt capacity. Data about the cost of debt is taken from public or synthetic credit ratings. The latter is based on the interest coverage ratio that is available from profit and loss statements. With this method, Karampatsas et al. (2014) found that deals between companies with investment grade credit rating in the USA between 1998 and 2009 increased debt capacity.

The research of financial synergies is mostly based on data from China and India as the largest emerging M&A markets. Tao et al. (2017) found that companies with low leverage in China tend to adjust their leverage ratios and increase tax benefits with M&As. Bhagat et al. (2011) and Du and Boateng (2015) used the correlation of cash flows as a proxy variable for cost of debt and, similar to developed countries, found that companies with low correlation of cash flows create better financial synergy in emerging markets.

### 2.3 Synergy Success Factors

There is a vast amount of literature about factors and conditions of synergy creation in M&As. The majority study deals in developed countries, especially the USA as the largest market. Studies of developing markets in the last 10–15 years have mostly focused on Eastern Europe and BRICS countries.

Significant company-specific factors include industry (Lin and Chou 2016), size (Grigoryeva and Grinchenko 2014; Rogova and Luzina 2015), concentration of ownership (Bhaumik and Selarka 2012), type of ownership (Rani et al. 2012), and others. Significant deal-specific factors include deal value (Grigoryeva and Troitsky 2012), type of merger (Healy et al. 1992), and others. Macroeconomic factors, such as GDP and industry growth, are significant for synergy as well.

Overall, evidence on the impact of many factors in emerging markets is not consistent and depends on the features of particular countries.

## 3 Hypotheses

Our hypotheses are based on previous research for developed and emerging markets. We test nine hypotheses on each type of operating and financial synergy—economies of scale, market power, tax benefits, investment opportunities, and cost of debt.

We test the hypotheses on the whole sample of 171 deals and separately on 2 smaller samples: one for deals completed during Russian M&A market growth (2006–2007 and 2010–2012, 101 deals total) and one during crisis (2008–2009 and 2013–2015, 70 deals total). The growth and crisis split is based on the annual Russian M&A volume. In 2013 the Russian M&A market shrunk to \$115 billion from \$136 billion. In 2014 the market size reduced further to \$71 billion (KPMG 2015).

**Hypothesis 1** *Deals create higher synergies if both the target and the bidder operate in the same industry.*

Existing research has mixed results about testing this hypothesis. Moeller and Schlingemann (2005) showed that being part of the same industry helps in creating synergies, although this variable is not significant in all countries and industries. On the other hand, Chatterjee (2007) provides several well-known examples of unsuccessful M&As between companies in the same industry, notably, AOL/Time Warner and Hewlett-Packard/Compaq.

For Hypothesis 1 we test the significance of the dummy variable *industry*. Industry is taken from the SPARK database as the bidder's dominant activity according to the Russian National Classification of Economic Activities. If both the target and the bidder have the same dominant industry, the variable is equal to 1 and 0 otherwise.

**Hypothesis 2** *Vertical deals create higher synergies than horizontal deals.*

Eckbo (1983) and Grigoryeva and Grinchenko (2014) tested this hypothesis with a regression model based on cumulative average returns and Healy et al. (1992) with a regression model based on financial data.

For Hypothesis 2 we test the significance of the dummy variable *type*. The type of deal is equal to 1 if the deal is vertical and 0 if the deal is horizontal. Deal types are taken from the Mergermarket database. According to Mergermarket methodology, a deal is considered horizontal if the companies compete at least in one market. The deal is considered vertical, if companies operate on a different stage of production.<sup>1</sup>

**Hypothesis 3** *Smaller companies achieve higher synergies in M&As.*

In recent chapters, the effect of the bidder company size was studied in Johnston et al. (2014) using the number of employees as a proxy variable and in Dionne et al. (2015) using a natural logarithm of total assets. Both chapters showed that smaller companies integrate targets easier and achieve better results in the acquisitions.

In terms of economies of scale, small companies should achieve potentially greater synergy from M&As than the large ones. For Hypothesis 3 we test the significance of the variable *lnassets*—natural logarithm of bidder's assets 1 year before the deal closure (million rubles).

**Hypothesis 4** *Deals with public targets create higher synergies than deals with private targets.*

Asymmetric information between the bidder and the target has a significant impact on the decision to complete M&As (Myers and Majluf 1984). With more information available about public targets, bidders will be able to make better forecasts about the outcome of their M&As.

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<sup>1</sup>See methodology at <https://data.bvresources.com/pdf/CPS-FAQ.pdf>.

For Hypothesis 4 we test the significance of the dummy variable *tpublic*. It is equal to 1 for public targets and 0 for private targets.

**Hypothesis 5** *Deals initiated by private bidders create higher synergies than deals initiated by public bidders.*

The majority of chapters that research this hypothesis conclude that public bidders offer considerably higher premiums than private bidders. For example, Barger et al. (2008) in 1667 deals in the USA estimated the average premium by public bidders as 63%. This extra premium reduces potential synergy, and therefore public bidders have worse results than private bidders.

For Hypothesis 5 we test the significance of the dummy variable *bpublic*. It is equal to 1 for public bidders and 0 for private bidders.

**Hypothesis 6** *Larger deals create lower synergies than smaller deals.*

Following several recent chapters (e.g., Grigoryeva and Troitsky 2012), we assume that larger expenses for completing a deal (both absolute and relative to bidder's annual revenue) reduce potential synergy.

For Hypothesis 6 we test the significance of variables *lndealval* (natural logarithm of deal value in million dollars) and *prevenue* (ratio of deal value to bidder's annual revenue).

**Hypothesis 7** *Bidders with a higher concentration of ownership create lower synergies.*

Companies with a higher concentration of ownership have less developed corporate management and control systems (Yasser et al. 2017). In developed markets these companies have worse results in M&As than companies with a more diversified ownership structures (Rossi and Volpin 2004).

For Hypothesis 7 we test the significance of the variable *conc*, calculated as the sum of the top 3 shareholder shares in bidder's total equity capital (%).

**Hypothesis 8** *Bidders with better accounting performance create higher synergies.*

Recent academic (Madsen and Wu 2016) and practical (Bain & Company 2014) chapters suggest that bidders with better accounting performance (profitability, employee productivity, CAPEX efficiency, etc.) achieve better results in M&As. Bidders with poor performance usually cannot improve their position by buying another company.

For Hypothesis 8 we test the significance of several lagged variables related to the accounting measures of performance: CAPEX efficiency, EBIT margin, the cost of debt for economies of scale, market power, and debt capacity models, respectively. Hypothesis 8 is not tested for tax benefits and new investment opportunity models.

**Hypothesis 9** *Deals completed during economic and industry growth create higher synergies.*

GDP or industry growth is used very often in research as one of the explanatory variables. Normally M&As during economic or industry growth have significantly

better results. Recent research related to this problem includes Ray (2014) and Levine et al. (2015).

For Hypothesis 9 we test the significance of several macroeconomic variables, such as real Russian GDP growth, average CAPEX efficiency for the bidder's industry, average EBIT margin for the bidder's industry, and CAPEX growth rate for the bidder's industry.

## 4 Methodology

### 4.1 Economies of Scale

We analyze the effect of M&As on economies of scale with the abnormal growth of CAPEX efficiency as the main metric. By CAPEX efficiency we understand the sum of capital investments required to generate 1 dollar of revenue, or CAPEX-to-revenue ratio.

The model is stated as:

1. Calculate CAPEX efficiency for the bidder and its industry for the year before and the year after the deal closure using:

$$CAPEX\ efficiency = \frac{CAPEX}{Revenue}$$

2. Calculate the change in CAPEX efficiency for the bidder and industry.
3. Calculate the economies of scale as the difference between the bidder and the industry CAPEX efficiency performance:

$$Economy\ of\ scale = \Delta CAPEX\ efficiency_{bidder} - \Delta CAPEX\ efficiency_{industry}$$

4. Hypothesis testing is based on linear regression model (Eq. 1):

$$\begin{aligned} Wecapex_{i,t+1} = & \alpha_i + \beta_0 Wecapex_{i,t-1} + \beta_1 industry_{i,t} + \beta_2 type_{i,t} \\ & + \beta_3 lnassets_{i,t-1} + \beta_4 tpublic_{i,t} + \beta_5 bpublic_{i,t} + \beta_6 gdp_{i,t} \\ & + \beta_7 lndealval_{i,t} + \beta_8 prevenue_{i,t} + \beta_9 conc_{i,t} + \beta_{10} iecapex_{i,t} \\ & + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where *Wecapex* is the bidder's CAPEX efficiency (corrected for outliers with winsorizing, %); *industry* is a dummy variable, equal to 1 if both companies operate in the same industry and 0 otherwise; *type* is a dummy variable, equal to 1 for vertical deals and 0 for horizontal deals; *lnassets* is the natural logarithm of the bidder's assets the year before the deal closure (million rubles); *tpublic* is a dummy variable, equal to 1 for a public bidder and 0 otherwise; *bpublic* is a dummy variable, equal to 1 for a public target and 0 otherwise; *gdp* is real Russian GDP growth in 2008 prices according to the Russian Federal State Statistics Service (%); *lndealval* is the natural logarithm of the deal value (million USD); and *prvalue* is the relative deal value



calculated as the ratio of the deal value to the bidder's annual revenue for the year before the deal closure (%). If needed, the average annual exchange rate for the year before the deal closure is used for ruble to USD conversion; *conc* is the concentration of ownership for the bidder, calculated as the sum of the top three shareholder shares in total equity capital (%); *iecapex* is the industry CAPEX efficiency (%);  $\beta$  is a regression coefficient;  $\alpha$  is the intercept term;  $\varepsilon_i$  is an error term; *t* is the year of the deal closure; and *i* is the index of a deal in the sample.

## 4.2 Market Power

We estimate the effect of M&As on market power with the abnormal growth of EBIT margin as the main metric.

The model is stated as:

1. Calculate the EBIT margin for the bidder and its industry for the year before and the year after deal closure using:

$$EBIT\ margin = \frac{EBIT}{Revenue}$$

2. Calculate the change in the EBIT margin for the bidder and the industry.
3. Calculate the effect on the market power as the difference between the bidder and the industry EBIT margin performance:

$$Effect\ on\ market\ position = \Delta EBIT\ margin_{bidder} - \Delta EBIT\ margin_{industry}$$

4. Hypotheses testing is based on linear regression model (Eq. 2):

$$\begin{aligned} Webitm_{i,t+1} = & \alpha + \beta_0 Webitm_{i,t-1} + \beta_1 industry_{i,t} + \beta_2 type_{i,t} + \beta_3 lnassets_{i,t-1} \\ & + \beta_4 tpublic_{i,t} + \beta_5 bpublic_{i,t} + \beta_6 gdp_{i,t} + \beta_7 lndealval_{i,t} \\ & + \beta_8 prevenue_{i,t} + \beta_9 conc_{i,t} + \beta_{10} iebitm_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

where *Webitm* is the bidder's EBIT margin (corrected for outliers with winsorizing, %) and *iebitm* is the industry EBIT margin (%). Other explanatory variables are the same as in Eq. (1) for economies of scale.

## 4.3 Tax Benefits

The tax benefit is estimated with total debt, risk-free rate, and effective tax rate for the bidder. For the risk-free rate calculation, we use yield to maturity of 10-year Russian government bonds from [cbonds.ru](http://cbonds.ru).

The model is stated as:

1. Calculate the tax benefit for the bidder for the year before and the year after the deal closure using the formula:

$$\text{Tax shield} = \text{Total debt} \times \text{Effective tax rate} \\ \times \text{YTM of 10 years Russian government bonds}$$

2. Calculate the synergy from the tax benefit as the difference between the tax benefit after and before the deal:

$$\Delta \text{Tax shield} = \text{Tax shield}_{\text{after deal}} - \text{Tax shield}_{\text{before deal}}$$

3. Hypotheses testing is based on the linear regression model (Eq. 3):

$$\begin{aligned} Wtax_i = & \alpha_i + \beta_1 \text{industry}_{i,t} + \beta_2 \text{type}_{i,t} + \beta_3 \ln \text{assets}_{i,t-1} + \beta_4 \text{tpublic}_{i,t} \\ & + \beta_5 \text{bpublic}_{i,t} + \beta_6 \text{gdp}_{i,t} + \beta_7 \ln \text{dealval}_{i,t} + \beta_8 \text{prevenue}_{i,t} + \beta_9 \text{conc}_{i,t} \\ & + \varepsilon_{i,t} \end{aligned} \quad (3)$$

where  $Wtax$  is the change in tax benefit for the bidder between the year before and after the deal (corrected for outliers with winsorizing, mln rubles). Other explanatory variables are the same as in Eq. (1) for economies of scale.

#### 4.4 Investment Opportunities

We estimate the effect of M&As on investment opportunities with the abnormal CAPEX growth as the main metric.

The model is stated as:

1. Calculate the CAPEX growth rate for the bidder and its industry between the year before and the year after the deal closure using:

$$\text{CAPEX growth} = \frac{\text{CAPEX}_{t+1}}{\text{CAPEX}_{t-1}} - 1$$

2. Calculate the effect on investment opportunities as the difference between the bidder and the industry CAPEX growth performance:

$$\begin{aligned} \text{Effect on investment opportunities} = & \Delta \text{CAPEX growth}_{\text{bidder}} \\ & - \Delta \text{CAPEX growth}_{\text{industry}} \end{aligned}$$

3. Hypotheses testing is based on the linear regression model (Eq. 4):

$$\begin{aligned}
Wecapexg_i = & \alpha_i + \beta_1 industry_{i,t} + \beta_2 type_{i,t} + \beta_3 lnassets_{i,t-1} + \beta_4 tpublic_{i,t} \\
& + \beta_5 bpublic_{i,t} + \beta_6 gdp_{i,t} + \beta_7 lndealval_{i,t} + \beta_8 prevenue_{i,t} \\
& + \beta_9 conc_{i,t} + \beta_{10} icapexg + \varepsilon_{i,t}
\end{aligned} \tag{4}$$

where *Wecapexg* is the bidder's CAPEX growth rate between the year before and after the deal (corrected for outliers with winsorizing, %) and *icapexg* is the industry CAPEX growth rate between the year before and after the deal (%). Other explanatory variables are the same as in Eq. (1) for economies of scale.

#### 4.5 Debt Capacity

We estimate the effect of M&As on debt capacity using Damodaran's (2005) approach based on the cost of debt as the main metric. The cost of debt is estimated with credit ratings. If the credit rating for the bidder is unavailable, a synthetic credit rating is assigned according to its interest coverage ratio.

The model is stated as:

1. Calculate the interest coverage ratio for the bidder for the year before and the year after the deal closure using the formula:

$$ICR = \frac{EBIT}{Interest\ expenses}$$

2. Assign a synthetic credit rating to the interest coverage ratio according to Damodaran's data (Tables 1 and 2). Steps 1 and 2 are redundant if the bidder already has a credit rating by one of the international rating agencies.
3. Calculate the cost of debt for the bidder 1 year before and 1 year after the deal closure as the sum of YTM of 10-year Russian government bonds and the default spread.

$$Cost\ of\ debt = YTM\ of\ 10\ years\ Russian\ government\ bonds + Default\ spread$$

4. Calculate the effect on debt capacity as the difference between the bidder's cost of debt after and before the deal.

$$Effect\ on\ debt\ capacity = Cost\ of\ debt_{after\ deal} - Cost\ of\ debt_{before\ deal}$$

5. Hypotheses testing is based on the linear regression model (Eq. 5):

**Table 1** Ratings, interest coverage ratios, and default spread for large companies with market cap > \$5 billion

Interest coverage ratio	Rating	Default spread, %
>8.5	Aaa/AAA	0.75
6.5–8.5	Aa2/AA	1.00
5.5–6.5	A1/A+	1.10
4.5–5.5	A2/A	1.25
3.0–4.25	A3/A–	1.75
2.5–3.0	Baa2/BBB	2.25
2.25–2.5	Ba1/BB+	3.25
2–2.25	Ba2/BB	4.25
1.75–2.0	B1/B+	5.50
1.5–1.75	B2/B	6.50
1.25–1.5	B3/B–	7.50
0.8–1.25	Caa/CCC	9.00
0.65–0.8	Ca2/CC	12.00
0.2–0.65	C2/C	16.00
<0.2	D2/D	20.00

Source: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/ratings.htm](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm)

**Table 2** Ratings, interest coverage ratios, and default spread for smaller companies with market cap < \$5 billion

Interest coverage ratio	Rating	Default spread, %
>12.5	Aaa/AAA	0.75
9.5–12.5	Aa2/AA	1.00
7.5–9.5	A1/A+	1.10
6.0–7.5	A2/A	1.25
4.5–6.0	A3/A–	1.75
4.0–4.5	Baa2/BBB	2.25
3.5–4.0	Ba1/BB+	3.25
3.0–3.5	Ba2/BB	4.25
2.5–3.0	B1/B+	5.50
2.0–2.5	B2/B	6.50
1.5–2.0	B3/B–	7.50
1.25–1.5	Caa/CCC	9.00
0.8–1.25	Ca2/CC	12.00
0.5–0.8	C2/C	16.00
<0.5	D2/D	20.00

Source: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/ratings.htm](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm)

$$\begin{aligned}
 Debt_{i,t+1} = & \alpha_i + \beta_0 Debt_{i,t-1} + \beta_1 indindustry_{i,t} + \beta_2 type_{i,t} + \beta_3 lnassets_{i,t-1} \\
 & + \beta_4 tpublic_{i,t} + \beta_5 bpublic_{i,t} + \beta_6 gdp_{i,t} + \beta_7 lndealval_{i,t} \\
 & + \beta_8 prevenue_{i,t} + \beta_9 conc_{i,t} + \varepsilon_{i,t}
 \end{aligned} \tag{5}$$

where *Debt* is the bidder's cost of debt (%). Other explanatory variables are the same as in Eq. (1) for economies of scale.

## 5 Sample

We used the Mergermarket M&A database with several restrictions:

- Deal type: acquisition or merger.
- Deal was completed between 1 January 2006 and 16 September 2015.
- Dominant geography of operations for target and bidder: Russia.
- Type of ownership for target and bidder: public and/or private.
- Type of payment: shares and/or cash.
- Type of deal: vertical or horizontal.
- Database has information about all deal-specific characteristics (deal value, date, type of deal, etc.).

The following deals were excluded from the sample:

- Bidder has no public financial statements for the year before and the year after deal closure.
- Bidder ceased operations 2 years or less after the deal (because of acquisition, bankruptcy, etc.). These deals do not provide enough financial data to estimate synergy with our approach.
- Deal value is less than 5% of bidder's revenue.
- Target and bidder operate in utilities or financial industries.

There are 171 deals in the final sample. Financial data was collected from SPARK Interfax database, Bloomberg, and official company websites. Macroeconomic and industry data was collected from the Russian Federal State Statistics Service and the Central Bank of Russia.

The description of the variables and their descriptive statistics are provided in Table 3.

## 6 Synergy Valuation

Table 4 summarizes the valuation of the five synergy components during Russian M&A market growth (2006–2007 and 2010–2012) and crisis (2008–2009 and 2013–2015) and over the whole period from 2006 to 2015. All numbers are medians to overcome the asymmetric distribution of data.

Domestic deals in Russia do not create operating synergies: bidders achieve –0.1% CAPEX efficiency and –0.2% EBIT margin compared to the industry benchmark. In every period the deals lead to significant reduction of CAPEX after the deal—from 9.1% for “growth deals” up to 20.3% for “crisis deals.” Similarly,

Table 3 Descriptive statistics

Variable	Description	Units	N	Max.	Min.	Mean	25%	50%	75%	Std. deviation
Wcapex (t+1)	CAPEX efficiency for the bidder 1 year after the deal closure	%	171	0.330	0.000	0.095	0.004	0.054	0.165	0.102
Wcapex (t-1)	CAPEX efficiency for the bidder 1 year before the deal closure	%	171	0.320	0.000	0.093	0.005	0.065	0.156	0.096
Webitm (t+1)	EBIT margin for the bidder 1 year after the deal closure	%	171	0.434	-0.033	0.175	0.054	0.160	0.272	0.138
Webitm (t-1)	EBIT margin for the bidder 1 year before the deal closure	%	171	0.523	-0.015	0.195	0.065	0.157	0.313	0.153
Wtax	Change in tax benefit after the deal closure	mln rubles	171	3,517,576	-263,147	515,184	3488	87,547	497,894	976,779
Wcapexg	Growth of CAPEX for the bidder after the deal closure	%	171	3.717	-0.991	0.456	-0.296	0.036	0.759	1.222
Debt(t+1)	Cost of debt for the bidder 1 year after the deal closure	%	171	0.270	0.073	0.154	0.108	0.138	0.203	0.056
Debt (t-1)	Cost of debt for the bidder 1 year before the deal closure	%	171	0.249	0.073	0.125	0.085	0.103	0.174	0.051
Industry	1, if both the target and the bidder operate in the same industry; 0 otherwise	Dummy	171	1	0	0.497	0	0	1	0.501
Type	1 for vertical deals, 0 for horizontal deals	Dummy	171	1	0	0.345	0	0	1	0.477
Inassets	Natural logarithm of assets (bidder company) at the end of the year of deal closure	mln rubles	171	23	10	17	15	17	19	2.303
tpublic	1 for the public target companies; 0 for the private target companies	Dummy	171	1	0	0.298	0	0	1	0.459
bpublic	1 for the public bidder companies; 0 for the private bidder companies	Dummy	171	1	0	0.719	0	1	1	0.451
Indealval	Natural logarithm of deal value	mln USD.	171	10.240	1.609	5.203	3.761	5.081	6.633	1.842

Prevenue	Ratio of deal value to the bidder's annual revenue	%	171	132	0.046	2.994	0.126	0.272	0.837	14
conc	Concentration of ownership for the bidder (sum of shares for top 3 shareholders)	%	171	1.000	0.240	0.832	0.675	0.980	1.000	0.214
gdp	Annual real Russian GDP growth (2008 prices)	%	171	0.085	-0.078	0.036	0.013	0.043	0.052	0.039
iecapex	CAPEX efficiency for the bidder's industry	%	171	0.732	0.004	0.184	0.065	0.170	0.223	0.149
iebitm	EBIT margin for the bidder's industry	%	171	0.482	-0.010	0.190	0.092	0.145	0.289	0.113
icapexg	Growth of CAPEX for the bidder's industry	%	171	1.245	-0.255	0.317	0.085	0.293	0.469	0.296

Source: authors' analysis

**Table 4** Synergy valuation by components during growth and crisis

Period (number of deals)	Median abnormal CAPEX efficiency growth, %	Median EBIT margin growth, %	Median abnormal CAPEX growth, %	Median tax benefits growth, million rubles	Median reduction (–) or growth (+) of cost of debt, %
Growth (101)	–1.3	–0.5	–9.1	87.8	0.6
Crisis (70)	0.5	0.1	–20.3	80.2	4.5
Total (171)	–0.1	–0.2	–11.7	87.5	3.1

Source: authors' calculations

**Table 5** Synergy valuation by components in different industries

Industry (number of deals)	Median abnormal CAPEX efficiency growth, %	Median EBIT margin growth, %	Median abnormal CAPEX growth, %	Median tax benefits growth, million rubles	Median reduction (–) or growth (+) of cost of debt, %
Manufacturing (45)	–1.4	3.5	–19.1	153.6	2.9
Telecoms (32)	0.9	–0.4	5.7	124.0	3.3
Extraction of natural resources (31)	–1.0	–0.1	30.6	470.9	3.0
Retail (25)	0.1	1.7	–29.3	57.2	2.2
Total (171)	–0.1	–0.2	–11.7	87.5	3.1

Source: authors' calculations

deals cause growth of the cost of debt for bidder companies, and this effect is more severe for “crisis deals.” Deals create tax benefits; however, they are small—only 87.5 million rubles for the whole sample (about 1.4% of median deal value).

Table 5 summarizes the valuation of the five synergy components for manufacturing, telecoms, extraction of natural resources, and retail industries.

In the manufacturing industry deals are relatively more successful in increasing market power compared to other industries. Only 40% of the deals in the manufacturing industry create investment opportunities, and bidders experience 19.1% abnormal CAPEX decline after the deal.

In contrast, deals in telecoms are more successful in creating investment opportunities. The search for new investments is one the major motives for M&As in this industry because of the quickly developing technologies and large R&D spending. A significant portion of deals in telecoms are motivated by getting access to new technologies by competitors.

Deals in the extraction of natural resources (mining, oil, and gas) are the most successful in Russia. Bidders in this industry outperform, or at least match, both the



industry benchmark and bidders in other industries. A lot of deals in mining and oil and gas are aimed at large mining or extraction assets and lead to abnormal growth of CAPEX. Deals in this industry are also larger on average (2643 million USD vs 558 million USD for other industries) and create bigger tax benefits.

In retail deals often aimed at direct competitors and increase bidder's market power. Deals in this industry lead to significant abnormal decline of CAPEX ( $-29.3\%$ ) and moderate growth of cost of debt ( $2.2\%$ ).

## 7 Analysis of Synergy Structure

To get a better picture of operating and financial synergies we introduce ranking for deals in the sample. The ranking goes as follows:

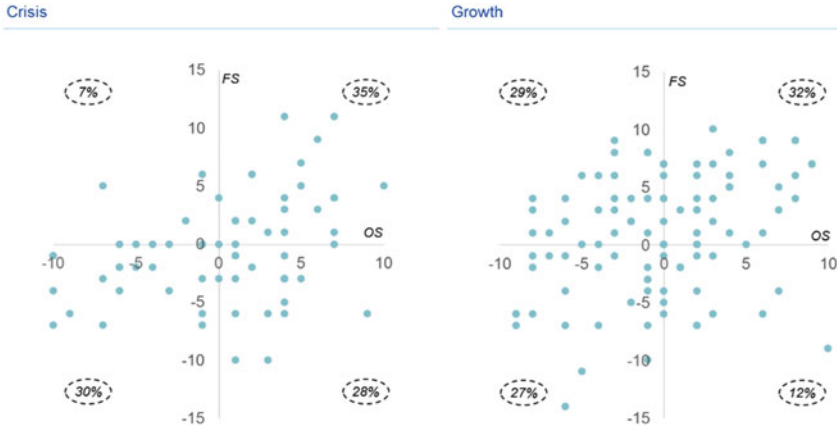
- For every deal, we estimate the value of operating and financial synergy components according to the approach described in the "Methodology" section. The next two steps apply to every synergy component.
- Deals with positive synergy are split into five equal 20-percentile groups. Deals in the top 20 percentile get a score of "5," deals in second 20-percentile group get a score of "4," and so forth until score "1" for deals in the bottom 20-percentile group.
- Deals with negative synergy are also split into five equal 20-percentile groups. Deals in the bottom 20 percentile get a score of " $-5$ ," deals in the second 20-percentile group get a score of " $-4$ ," and so forth until score " $-1$ " for deals in the top 20-percentile group.
- For operating synergies, the maximum score for the deal is 10 (two components with a maximum score of 5 each).
- For financial synergies, the maximum score for the deal is 15 (three components with a maximum score of 5 each).
- The total score for each deal is  $-25$  to  $25$ , inclusive.

Operational synergy is plotted on  $x$ -axis and financial synergy is plotted on  $y$ -axis. Deals that create both types of synergy are located in quadrant I; deals that create financial synergy and destroy operational synergy are located in quadrant II; deals that destroy both types of synergy are located in quadrant III; deals that create operational synergy and destroy financial synergy are located in quadrant IV.

The structure of synergies in domestic Russian M&As during growth and crisis is illustrated in Fig. 1.

During crisis operating synergies prevail: 63% of the deals create operating synergy and only 42% create financial synergies. During growth the picture is almost the opposite: only 44% of the deals create operating synergies, and 61% create financial synergies.

It is also interesting that during crisis very few deals lead to the exchange of operating synergies for financial synergies (only 7%, quadrant II) and during growth



**Fig. 1** Synergy structure in domestic Russian M&As during growth and crisis

very few deals lead to the exchange of financial synergies for operating synergies (12%, quadrant IV).

The structure of synergies in domestic Russian M&As for major industries is illustrated in Fig. 2.

The extraction of natural resources industry has the highest percentage of deals with an exchange between financial and operating synergies (54% of the total number of deals). In telecoms, on the other hand, only 28% of deals feature this exchange between synergies. The majority of deals either create both types of synergy (45%) or none (27%).

In manufacturing, 62% of the deals create financial synergies. Very few deals have positive operating synergies and negative financial synergies (quadrant IV). In retail, the majority of deals are clustered around (0,0) score. There are only a few particularly successful deals in the first quadrant.

## 8 Synergy Success Factors

### 8.1 Economies of Scale

Equation (2) for economies of scale has a good fit with the data (minimal  $R^2 = 0.54$ ). For the entire period (Table 6), several factors significantly affect economies of scale: favorable macroeconomic conditions (both GDP and industry), the bidder's CAPEX efficiency before the deal, and the type of ownership for both the bidder and the target.

During M&A market growth, bidders overpay for deals as the coefficient for relative deal value is negative and strongly significant. During crisis, vertical M&As are more successful.

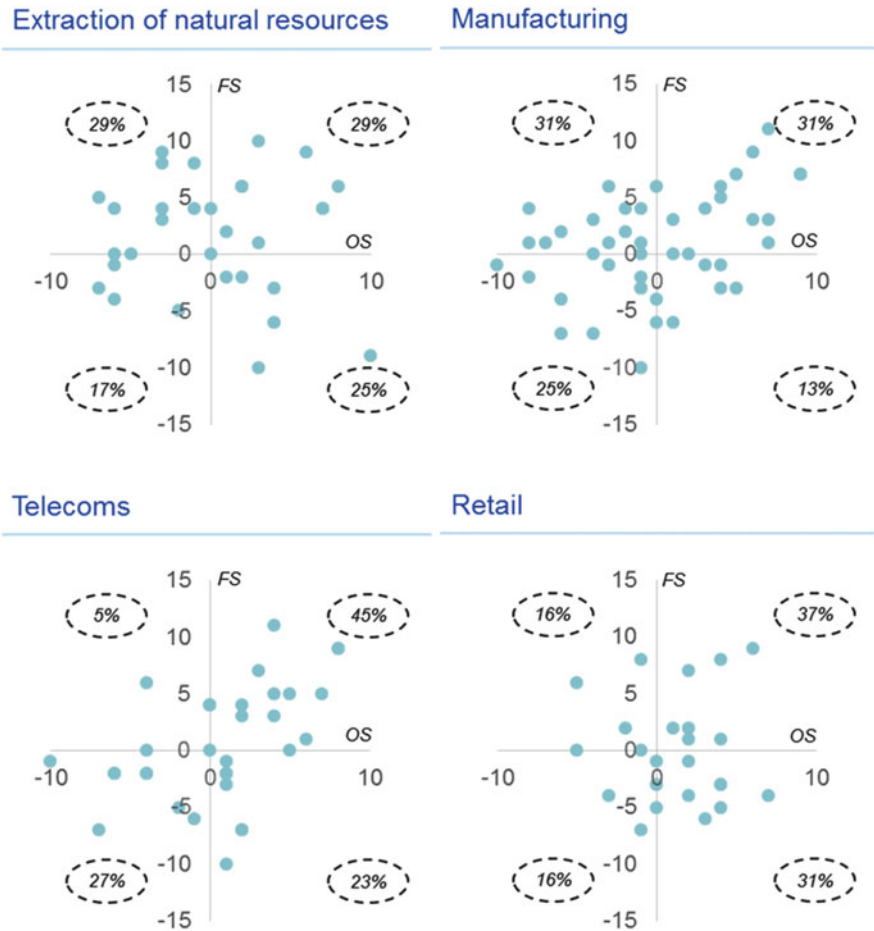


Fig. 2 Synergy structure in domestic Russian M&As for major industries

## 8.2 Market Power

Applying Eq. (2) to the data shows that the lagged EBIT margin is consistently significant for increasing market power during all periods (Table 7).

During growth and crisis, significant factors are quite different. During growth, possible successful deal profiles are large companies involved in horizontal deals or smaller companies involved in relatively large deals for their size. During crisis, the deal size and the concentration of ownership in the bidder’s capital have a negative effect on synergy. The latter means that bidders with more diversified ownership structure can estimate potential synergy better.

**Table 6** Economies of scale model

Variable	Whole sample (2006–2014)	Growth (2006–2007, 2010–2012)	Crisis (2008–2009, 2013–2014)
Wecapex (t–1)	0.762*** (0.063)	0.895*** (0.074)	0.698*** (0.085)
Industry	–0.011 (0.011)	–0.024 (0.016)	0.013 (0.012)
Type	0.003 (0.012)	–0.002 (0.018)	0.035*** (0.012)
lnassets	0.000 (0.004)	0.004 (0.005)	0.004 (0.005)
tpublic	0.035*** (0.012)	0.023 (0.016)	0.030* (0.016)
bpublic	–0.044** (0.018)	–0.056* (0.030)	–0.026 (0.017)
lndealval	–0.002 (0.005)	–0.006 (0.006)	–0.007 (0.005)
Prevenue	–0.001 (0.001)	–0.003*** (0.000)	0.000 (0.000)
conc	–0.048 (0.032)	–0.025 (0.050)	–0.031 (0.029)
gdp	0.213* (0.129)	0.104 (0.400)	–0.228 (0.158)
iecapexg	0.240** (0.110)	0.261 (0.187)	0.079 (0.091)
_cons	0.091 (0.062)	0.050 (0.083)	–0.017 (0.072)
R <sup>2</sup>	0.54	0.54	0.75
N	171	101	70

The standard deviation of coefficients is in the brackets

\*\*\*Significant at the 1% level

\*\*Significant at the 5% level

\*Significant at the 10% level

### 8.3 Tax Benefits

Larger deals consistently generate larger tax benefits, according to Eq. (3). These deals significantly affect financial statements of bidders, their tax benefit, in particular.

A second interesting observation is that deals closed during economic growth generate larger tax benefits (Table 8). This is likely because during crisis target companies accumulate a balance sheet deficit that bidders convert into tax synergy after the deal.

**Table 7** Market power model

Variable	Whole sample (2006–2014)	Growth (2006–2007, 2010–2012)	Crisis (2008–2009, 2013–2014)
Webitm (t-1)	0.555*** (0.061)	0.545*** (0.096)	0.640*** (0.068)
Industry	0.007 (0.017)	0.030 (0.024)	–0.016 (0.026)
Type	–0.008 (0.017)	–0.039* (0.022)	0.036 (0.026)
lnassets	0.009 (0.007)	0.019** (0.008)	–0.016* (0.009)
tpublic	0.010 (0.021)	0.021 (0.028)	–0.003 (0.030)
bpublic	0.001 (0.023)	–0.013 (0.033)	0.023 (0.027)
lndealval	–0.009 (0.009)	–0.019* (0.011)	0.009 (0.012)
Prevenue	0.001 (0.001)	0.003*** (0.001)	–0.001*** (0.000)
conc	–0.041 (0.041)	–0.006 (0.054)	–0.113* (0.061)
gdp	0.217 (0.206)	0.673 (0.556)	–0.176 (0.242)
iebitm	–0.036 (0.085)	–0.040 (0.128)	0.058 (0.126)
_cons	–0.013 (0.098)	–0.164 (0.111)	0.329** (0.125)
R <sup>2</sup>	0.40	0.37	0.64
N	171	101	70

The standard deviation of coefficients is in the brackets

\*\*\*Significant at the 1% level

\*\*Significant at the 5% level

\*Significant at the 10% level

## 8.4 Investment Opportunities

Deals capture more investment opportunities during economic growth (Table 9), according to Eq. (4). Public bidders show worse results during crisis compared to private bidders. This indicates that private companies can more precisely estimate investment opportunities from the deal. Larger deals between companies in one industry also achieve good results in crisis.

**Table 8** Tax benefits model

Variable	Whole sample (2006–2014)	Growth (2006–2007, 2010–2012)	Crisis (2008–2009, 2013–2014)
Industry	–74,917 (122,881)	–8756 (148,263)	–204,918 (199,051)
Type	41,506 (133,722)	1616 (163,298)	482 (232,245)
lnassets	93,965** (45,785)	83,210 (54,465)	115,091 (114,761)
tpublic	28,481 (171,242)	50,994 (192,161)	–79,211 (338,466)
bpublic	–32,026 (118,677)	–165,986 (133,850)	145,141 (266,832)
Prevenue	–2441 (5212)	–3681 (2525)	1154 (8335)
lndealval	226,767*** (47,647)	227,113*** (52,341)	249,056** (103,466)
conc	171,425 (310,743)	53,258 (283,643)	199,051 (662,793)
gdp	2,344,081 (1,669,787)	12,637,119*** (3,963,289)	2,509,139 (2,791,884)
_cons	–2441,010*** (734,857)	–2,770,070*** (1,026,086)	–2,792,845* (1,589,569)
R <sup>2</sup>	0,37	0,46	0,39
N	171	101	70

The standard deviation of coefficients is in the brackets

\*\*\*Significant at the 1% level

\*\*Significant at the 5% level

\*Significant at the 10% level

## 8.5 Debt Capacity

Applying Eq. (5) to the data shows that the lagged cost of debt is consistently significant for increasing the debt capacity after the deal during all periods (Table 10). GDP growth is also a positive and significant coefficient in the model in all periods. Deals initiated by a large private bidder for the target in the same industry are the most successful in increasing debt capacity during crisis.

The results of econometric analysis for Eqs. (1–5) are consolidated in Table 11.

The first important result of hypothesis testing is significant differences between synergy creation factors for different types of synergies. This suggests that top management should focus on one main source of synergy before and after the deal to achieve maximum value for the company.

However, there are two factors with positive effect on synergies: economic growth and the bidder's financial performance. The latter may suggest that attempts to improve financial performance with M&As are not feasible. Besides, M&As during economic crisis should be planned and valued with extra caution.

**Table 9** Investment opportunities model

Variable	Whole sample (2006–2014)	Growth (2006–2007, 2010–2012)	Crisis (2008–2009, 2013–2014)
Industry	–0.039 (0.202)	0.148 (0.297)	–0.047 (0.204)
Type	0.133 (0.196)	0.074 (0.289)	0.485** (0.198)
lnassets	–0.094 (0.071)	–0.194* (0.106)	0.208** (0.091)
tpublic	0.339 (0.225)	0.308 (0.311)	0.115 (0.269)
bpublic	0.099 (0.240)	0.398 (0.350)	–0.455* (0.268)
Prevenue	–0.001 (0.007)	–0.011* (0.006)	0.016 (0.012)
lndealval	0.112 (0.094)	0.203 (0.139)	–0.155 (0.108)
conc	–0.446 (0.515)	–0.707 (0.730)	–0.104 (0.542)
gdp	5.997** (2.436)	21.151** (8.632)	–1.111 (2.224)
icapexg	0.316 (0.377)	–1.190 (0.750)	0.731 (0.467)
_cons	1.335 (1.073)	2.424 (1.649)	–2.623* (1.441)
R <sup>2</sup>	0.11	0.16	0.26
N	171	101	70

The standard deviation of coefficients is in the brackets

\*\*\*Significant at the 1% level

\*\*Significant at the 5% level

\*Significant at the 10% level

Secondly, hypothesis testing shows that the concentration of ownership in Russian bidders does not affect synergy in M&As. In other emerging markets, such as China and India, deals initiated by the bidders with one large owner (holding company or government) achieve higher abnormal stock returns than the deals initiated by the bidders with diversified ownership structure (e.g., Bhaumik and Selarka 2012).

Thirdly, larger deals create more tax benefits and increase the bidder's market power during economic growth. On the other hand, during crisis deals aimed at smaller companies achieve better results because bidders have difficulties with integrating larger targets into their normal operations.

**Table 10** Debt capacity model

Variable	Whole sample (2006–2014)	Growth (2006–2007, 2010–2012)	Crisis (2008–2009, 2013–2014)
Debt (t–1)	0.663*** (0.099)	0.663*** (0.099)	0.775*** (0.102)
Industry	–0.002 (0.007)	–0.002 (0.007)	0.020** (0.010)
Type	–0.000 (0.008)	–0.000 (0.008)	0.002 (0.011)
lnassets	0.000 (0.003)	0.000 (0.003)	0.001 (0.004)
tpublic	–0.005 (0.009)	–0.005 (0.009)	0.006 (0.011)
bpublic	–0.006 (0.011)	–0.006 (0.011)	–0.024* (0.012)
Prevenue	–0.000 (0.000)	–0.000 (0.000)	0.001*** (0.000)
lndealval	0.001 (0.005)	0.001 (0.005)	0.002 (0.004)
conc	0.024 (0.017)	0.024 (0.017)	0.087*** (0.026)
gdp	0.624*** (0.200)	0.624*** (0.200)	0.563*** (0.127)
_cons	0.001 (0.047)	0.001 (0.047)	–0.025 (0.045)
R <sup>2</sup>	0.46	0.46	0.65
N	101	101	70

The standard deviation of coefficients is in the brackets

\*\*\*Significant at the 1% level

\*\*Significant at the 5% level

\*Significant at the 10% level

## 9 Application of the Methodology to the Major Domestic Russian Deals

To check how the model captures practical M&A results, we analyze in more detail four major domestic deals in different industries: manufacturing, telecoms, oil and gas, and IT.

### 9.1 MMK and Belon Group (October 2009)

Magnitogorsk Iron and Steel Works OJSC (MMK) is engaged in steel and iron production and Belon Group OJSC is engaged in production of metallurgical and



**Table 11** Consolidated results of econometric analysis

Hypothesis	Economies of scale	Market power	Tax benefits	Investment opportunities	Debt capacity
1. Deals create higher synergies if both the target and the bidder operate in the same industry					Accepted during crisis
2. Vertical deals create higher synergies than horizontal deals	Accepted during crisis			Accepted	
3. Smaller companies achieve higher synergies		Depends on economic growth	Rejected	Depends on economic growth	
4. Deals with public targets create higher synergies than deals with private targets	Accepted				
5. Deals initiated by private bidders create higher synergies than deals initiated by public bidders	Accepted			Accepted during crisis	Accepted during crisis
6. Larger deals create lower synergies than smaller deals		Depends on economic growth	Rejected		Depends on economic growth
7. Bidders with a higher concentration of ownership create lower synergies		Accepted during crisis			Rejected during crisis
8. Bidders with better accounting performance create higher synergies	Accepted	Accepted	Not tested	Not tested	Accepted
9. Deals completed during economic and industry growth create higher synergies	Accepted		Accepted	Accepted	Accepted

Note: The hypothesis is “accepted” if the corresponding coefficient has expected sign and is significant at 10% significance level or better. Hypothesis is “rejected” if the corresponding coefficient has the opposite sign and is significant at 10% significance level or better. Empty cells indicate insignificant coefficients (significance level is worse than 10%)

steam coals. MMK acquired a 41.3% stake in Belon Group for an undisclosed consideration, estimated to be around 10.45 billion rubles (586 million USD).

The results of the deal according to the model are consolidated in Table 12.

As a result of this deal, MMK secured stable coking coal supplies for its steel smelting operations, including supplies of deficit coal grades. The share of long-term coal supply contracts increased from 14% at the beginning of 2008 to 50% at the end of 2010. This, in turn, protected MMK’s margins from changes in coal prices: the cost of debt reduced by 2.4% (down to 9.2%) and the EBIT margin outperformed the industry by 7.0%.

**Table 12** Results of Belon Group acquisition by MMK

Type of synergy	Proxy variable	Change in proxy variable after the deal
Economies of scale	Abnormal CAPEX efficiency growth, %	+9.9
Market power	Abnormal EBIT margin growth, %	+7.0
Tax benefits	Change in tax benefit, million rubles	+270.4
Investment opportunities	Abnormal CAPEX growth, %	+75.3
Debt capacity	Change in cost of debt, %	-2.4

Source: authors' analysis

The transaction also allowed MMK to take part in Belon's investment program aimed at increasing the production of coking coal. MMK's CAPEX increased by 50% the following year (in the non-ferrous metal industry they fell by about 25%), and they generated more revenue than the industry average.

## 9.2 *Megafon and Scartel (October 2013)*

Megafon is a telecommunications services operator covering all regions in Russia. Scartel is a Russian provider of Internet 4G services operating under the brand name Yota and is the only company with a multicity 4G network covering 27% of the Russian population. Megafon acquired Scartel for a cash consideration of 1180 million USD.

The results of the deal according to the model are consolidated in Table 13.

The acquisition was in line with Megafon's strategy to increase 4G network capacity and quality. The transaction allowed Megafon to reduce the costs of data transmission and expand 4G network development. The number of 4G stations owned by Megafon in Russia grew by 84%, from 10,100 in 2013 to 18,600 in 2014, and 4G network coverage increased from 36% of Russian population in 2013 to 51% in 2014.

The most noticeable impact was on Megafon CAPEX growth due to investments in 4G network development. The deal also led to significant growth of the cost of debt and additional tax benefits after Megafon consolidated 600 million USD net debt owned by Scartel.

## 9.3 *Independent Petroleum Company and Alliance Oil (April 2014)*

Independent Petroleum Company (IPC) is a Russian private oil and gas company owned by ex-Rosneft president Eduard Khudainatov. IPC grew mostly via

**Table 13** Results of Scartel acquisition by Megafon

Type of synergy	Proxy variable	Change in proxy variable after the deal
Economies of scale	Abnormal CAPEX efficiency growth, %	+2.2
Market power	Abnormal EBIT margin growth, %	+1.2
Tax benefits	Change in tax benefit, million rubles	+3.35
Investment opportunities	Abnormal CAPEX growth, %	+24.1
Debt capacity	Change in cost of debt, %	+6.5

Source: authors' analysis

acquisitions of smaller oil companies operating near Eastern Siberia-Pacific Ocean (ESPO) oil pipeline. IPC had oil and gas extraction assets in the Saratov Region and the Taymyr Peninsula. Alliance Oil is a small Russian oil company with Khabarovsk refinery in the Far East region, at that time not connected to the ESPO pipeline.

The acquisition consideration was estimated to be around 2.4 billion USD. The goal was to integrate Alliance Oil refinery in Khabarovsk with IPC oil extraction assets and build more efficient vertically integrated oil company.

The results of the deal according to the model are consolidated in Table 14.

The deal achieved no operating synergies in 2014. IPC assets were located more than 3000 km from Khabarovsk refinery, which was supplied with crude oil via expensive railroad. IPC connected Khabarovsk refinery to the ESPO pipeline only in August 2015.

IPC raised significant debt to finance this deal. Total IPC debt grew from 53 billion rubles (about 1.7 billion USD) in 2013 to 86.3 billion rubles (2.7 billion USD) in 2014 with 8.6 billion rubles (270 million USD) operating profit. The cost of debt increased by 12.3% (up to 24.9%).

The acquisition of Alliance Oil was the last large deal of IPC (as of December 2016), despite announced plans to participate in the privatization of Bashneft in 2016.

#### **9.4 Mail.ru and VKontakte (September 2014)**

Mail.ru Group Limited (Mail.ru) is a Russian Internet company engaged in providing communication tools and Internet value-added services. VKontakte Ltd. (VK) is an operator of a popular Russian social networking website. Mail.ru paid 1.47 billion USD in cash for the acquisition of the remaining 48.01% stake in VK. Including payment for the initial 51.99% stake, the total acquisition cost for VK was 2.07 billion USD.

**Table 14** Results of Alliance Oil acquisition by IPC

Type of synergy	Proxy variable	Change in proxy variable after the deal
Economies of scale	Abnormal CAPEX efficiency growth, %	-6.0
Market power	Abnormal EBIT margin growth, %	-9.2
Tax benefits	Change in tax benefit, million rubles	+1.23
Investment opportunities	Abnormal CAPEX growth, %	-97.8
Debt capacity	Change in cost of debt, %	+12.3

Source: authors' analysis

**Table 15** Results of VKontakte acquisition by Mail.ru

Type of synergy	Proxy variable	Change in proxy variable after the deal
Economies of scale	Abnormal CAPEX efficiency growth, %	-0.4
Market power	Abnormal EBIT margin growth, %	-15.7
Tax benefits	Change in tax benefit, million rubles	+417.5
Investment opportunities	Abnormal CAPEX growth, %	-38.6
Debt capacity	Change in cost of debt, %	+5.8

Source: authors' analysis

Mail.ru already controlled several other popular Russian social networks, including Odnoklassniki, and this acquisition increased Mail.ru domination in the Russian social network space.

The results of the deal according to the model are consolidated in Table 15.

Despite further consolidation of Russian social networks, the EBIT margin of Mail.ru actually dropped by 15.7% compared to the industry average. This deal had a negative effect on financials, as Mail.ru was unable to apply existing online advertising and integrated value-added services products due to the differences in user behavior. In fact, VK with the largest number of users generated three times less revenue than other Mail.ru social networks.

Low VK margins (for instance, Mail.ru ended 2014 with 53% EBITDA margin and VK with 37% EBITDA margin) required new monetization and cost efficiency programs from Mail.ru. The effect of these programs will be reflected in Mail.ru financial statements no earlier than in 2017.

New 585 million USD debt (raised to finance this deal) increased Mail.ru leverage and the cost of debt by 5.8%.

To sum up these examples, the model correctly captures important short-term M&A results, such as new investment opportunities, changes in debt capacity, tax benefits, and operating synergies. However, it does not reflect specific industry features (Mail.ru and VK case) and long-term M&A perspectives (IPC and Alliance Oil case).

## 10 Conclusion

We estimate separate synergy components and find significant factors of synergy creation in 171 domestic Russian M&As in 2006–2015. The analysis is based on the financial data of involved companies, macroeconomic data for Russian economy and separate industries, and qualitative and quantitative features of M&As.

There are restrictions on this analysis. First, it depends on the features of Russian accounting standards, as many Russian companies do not use GAAP or IFRS. Second, not every Russian company discloses beneficiaries or owners, so some deals may be a way of rearranging the portfolio of assets and not market deals. Third, this method is not applicable if actual profit center is outside of the bidder's legal entity. We corrected the sample for these issues where possible.

Our analysis and results develop existing research of M&As in emerging markets in several ways. First, this approach to synergy valuation can be applied to private companies and small deals that make up the majority of M&As in emerging markets. Splitting synergy into five operating and financial types helps to better understand the structure of synergy and significant factors affecting it.

Second, we estimated the structure of synergy for every deal and found features of synergies in major Russian industries. Third, we tested the significance of potential synergy creation factors and found similarities and features of domestic Russian M&As compared to developed and emerging markets.

This research can be expanded with the analysis of other industries, addition of potentially better explanatory success factors, and the application of this method to other emerging M&A markets.

## References

- Agliardi, E., Amel-Zadeh, A., & Koussis, N. (2016). Leverage changes and growth options in mergers and acquisitions. *Journal of Empirical Finance*, 37, 37–58.
- Agrell, J., Bogetoft, P. & Grammelvedt, T. (2015). The efficiency of the regulation for horizontal mergers among electricity distribution operators in Norway. *12th International Conference on the European Energy Market*, [online] pp. 1–5. Retrieved May 08, 2017, from [https://www.researchgate.net/profile/Per\\_Agrell/publication/281645825\\_The\\_Efficiency\\_of\\_the\\_Regulation\\_for\\_Horizontal\\_Mergers\\_among\\_Electricity\\_Distribution\\_Operators\\_in\\_Norway/links/55f2a09308ae0af8ee1f9097.pdf](https://www.researchgate.net/profile/Per_Agrell/publication/281645825_The_Efficiency_of_the_Regulation_for_Horizontal_Mergers_among_Electricity_Distribution_Operators_in_Norway/links/55f2a09308ae0af8ee1f9097.pdf)
- Bargeron, L., Schlingemann, P., Stulz, M., & Zutter, J. (2008). Why do private acquirers pay so little compared to public acquirers? *Journal of Financial Economics*, 89(3), 375–390.

- Berger, N., Saunders, A., Scalise, M., & Udell, F. (1998). The effects of bank mergers and acquisitions on small business lending. *Journal of Financial Economics*, 50(2), 187–229.
- Bhagat, S., Malhotra, S., & Zhu, P. (2011). Emerging country cross-border acquisitions: Characteristics, acquirer returns and cross-sectional determinants. *Emerging Markets Review*, 12(3), 250–271.
- Bhaumik, K., & Selarka, E. (2012). Does ownership concentration improve M&A outcomes in emerging markets? Evidence from India. *Journal of Corporate Finance*, 18(4), 717–726.
- Blonigen, A. & Pierce, R. (2016). Evidence for the effects of mergers on market power and efficiency. *National Bureau of Economic Research* [online] pp. 1–36. Retrieved May 08, 2017, from [https://www.researchgate.net/profile/Justin\\_Pierce2/publication/309163412\\_Evidence\\_for\\_the\\_Effects\\_of\\_Mergers\\_on\\_Market\\_Power\\_and\\_Efficiency/links/5812aecca08ae1f5510c2b46e.pdf](https://www.researchgate.net/profile/Justin_Pierce2/publication/309163412_Evidence_for_the_Effects_of_Mergers_on_Market_Power_and_Efficiency/links/5812aecca08ae1f5510c2b46e.pdf)
- Boyson, N., Ganchev, N., & Shivdasani, A. (2017). Activism mergers. *Journal of Financial Economics*, 126, 54–73 [online]. Retrieved May 08, 2017, [https://www.activistsinsight.com/research/Activism%20mergers%20-%20Nicole%20Boyson,%20Nickolay%20Ganchev,%20Anil%20Shivdasani\\_021116031253.pdf](https://www.activistsinsight.com/research/Activism%20mergers%20-%20Nicole%20Boyson,%20Nickolay%20Ganchev,%20Anil%20Shivdasani_021116031253.pdf)
- Bruner, R. (2002). Does M&A pay? A survey of evidence for the decision-maker. *Journal of Applied Finance*, 12, 48–68.
- Cabanda, E., & Pajara, M. (2011). Merger in the Philippines: Evidence in the corporate performance of shipping companies. *Journal of Business Case Studies*, 3(4), 87–100.
- Chatterjee, S. (2007). Why is synergy so difficult in mergers of related businesses? *Strategy & Leadership*, 35(2), 46–52.
- Chow, T., Klassen, K., & Liu, Y. (2016). Targets' tax shelter participation and takeover premiums. *Contemporary Accounting Research*, 33(4), 1440–1472.
- Damodaran, A. (2005). The value of synergy [online]. SSRN. Retrieved May 08, 2017, from [https://chapters.ssrn.com/sol3/chapters.cfm?abstract\\_id=841486](https://chapters.ssrn.com/sol3/chapters.cfm?abstract_id=841486)
- Devos, E., Kadapakkam, P., & Krishnamurthy, S. (2009). How do mergers create value? A comparison of taxes, market power, and efficiency improvements as explanations for synergies. *Review of Financial Studies*, 22, 1179–1211.
- Dionne, G., La Haye, M., & Bergeres, A. (2015). Does asymmetric information affect the premium in mergers and acquisitions? *Canadian Journal of Economics*, 48(3), 819–852.
- Du, M., & Boateng, A. (2015). State ownership, institutional effects and value creation in cross-border M&A by Chinese firms. *International Business Review*, 24(3), 430–442.
- Eckbo, E. (1983). Horizontal mergers, collusion, and stockholder wealth. *Journal of Financial Economics*, 11(1), 241–273.
- Elgemark, A. (2014). Estimating merger synergies and the impact on corporate performance. *Journal of Copenhagen Business School* [online], 1–98. Retrieved May 08, 2017, from [http://studenttheses.cbs.dk/bitstream/handle/10417/5470/anders\\_elgemark.pdf?sequence=1](http://studenttheses.cbs.dk/bitstream/handle/10417/5470/anders_elgemark.pdf?sequence=1)
- Fee, E., & Thomas, S. (2004). Sources of gains in horizontal mergers: Evidence from customer, supplier, and rival firms. *Journal of Financial Economics*, 74(3), 423–460.
- Garzella, S., & Fiorentino, R. (2016). *Synergy value and strategic management: Inside the black box of mergers and acquisitions* (Contributions to Management Science Series). Switzerland: Springer.
- Grigorieva, S., & Petrunina, T. (2015). The performance of mergers and acquisitions in emerging capital markets: New angle. *Journal of Management Control*, 26(4), 377–403.
- Hayn, C. (1989). Tax attributes as determinants of shareholder gains in corporate acquisitions. *Journal of Financial Economics*, 23(1), 121–153.
- Healy, P., Palepu, K., & Ruback, R. (1992). Does corporate performance improve after mergers? *Journal of Financial Economics*, 31(2), 135–175.
- Johnston, W., Oh, J., & Peters, D. (2014). Who's acquiring whom?—Experimental evidence of firm size effect on B2B mergers and marketing/sales tasks. *Industrial Marketing Management*, 43(6), 1035–1044.
- Karampatsas, N., Petmezias, D., & Travlos, N. (2014). Credit ratings and the choice of payment method in mergers and acquisitions. *Journal of Corporate Finance*, 25, 474–493.

- Kenneth, A., & Harford, J. (2014). The importance of industry links in merger waves. *The Journal of Finance*, 69(2), 527–576.
- Kim, E., & Singal, V. (1993). Mergers and market power: Evidence from the airline industry. *The American Economic Review*, 83(3), 549–569.
- Kpmg.com. (2015). Russian M&A Review 2015. *KPMG Official Website* [online], pp. 1–32. Retrieved May 08, 2017, from <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/03/ru-en-russian-ma-review-2015.pdf>
- Kwoka, J., & Pollitt, M. (2010). Do mergers improve efficiency? Evidence from restructuring the US electric power sector. *International Journal of Industrial Organization*, 28(6), 645–656.
- Kyriazopoulos, G., & Drymbetas, E. (2015). Do domestic banks mergers and acquisitions still create value? Recent evidence from Europe. *Journal of Finance*, 3(1), 100–116.
- Lewellen, W. (1971). A pure financial rationale for the conglomerate merger. *The Journal of Finance*, 26(2), 521–537.
- Levine, R., Lin, C. & Shen, B. (2015). Cross-border acquisitions and labor regulations. *National Bureau of Economic Research* [online] (pp. 1–60). Retrieved May 08, 2017, from [http://www.hertig.ethz.ch/content/dam/ethz/special-interest/gess/law-n-economics/professor-of-law-hertig-dam/documents/W%26L%20Series/Fall%202015/Levine\\_Labor\\_Regulations\\_2015.pdf](http://www.hertig.ethz.ch/content/dam/ethz/special-interest/gess/law-n-economics/professor-of-law-hertig-dam/documents/W%26L%20Series/Fall%202015/Levine_Labor_Regulations_2015.pdf)
- Lin, H., & Chou, Y. (2016). The impact of industry commonality on post-merger performance. *Advances in Economics and Business*, 4(6), 297–305.
- Madsen, S., & Wu, Y. (2016). Marketing and globalization of the brewing industry. In I. Cabras, D. Higgins, & D. Preece (Eds.), *Brewing, beer and pubs: A global perspective* (1st ed., pp. 34–53). New York: Springer.
- Maksimovic, V., & Phillips, G. (2001). The market for corporate assets: Who engages in mergers and asset sales and are there efficiency gains? *Journal of Finance*, 56(6), 2019–2065.
- Moeller, B., & Schlingemann, P. (2005). Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. *The Journal of Finance*, 60(2), 757–782.
- Mooney, T., & Shim, H. (2015). Does financial synergy provide a rationale for conglomerate mergers? *Asia-Pacific Journal of Financial Studies*, 44(4), 537–586.
- Myers, C., & Majluf, S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
- Nguyen, H., Yung, K., & Sun, Q. (2012). Motives for mergers and acquisitions: Ex-post market evidence from the US. *Journal of Business Finance & Accounting*, 39(9–10), 1357–1375.
- Ovtchinnikov, A. (2013). Merger waves following industry deregulation. *Journal of Corporate Finance*, 21, 51–76.
- Pazariskis, M., Vogiatzoglou, M., Christodoulou, P., & Drogalas, G. (2006). Exploring the improvement of corporate performance after mergers – The case of Greece. *International Research Journal of Finance and Economics*, 6(22), 184–192.
- Rani, N., Surendra, Y., & Jain, P. (2012). Impact of mergers and acquisition on returns to shareholders of acquiring firms: Indian economy in perspective. *Journal of Financial Management and Analysis*, 25(1), 1–24.
- Ray, G. (2014). Cross-border mergers and acquisitions: Modelling synergy for value creation. *Advances in Mergers and Acquisitions*, 12, 113–134.
- Rhodes-Kropf, M., & Viswanathan, S. (2004). Market valuation and merger waves. *The Journal of Finance*, 59, 2685–2718.
- Rossi, S., & Volpin, P. (2004). Cross-country determinants of mergers and acquisitions. *Journal of Financial Economics*, 74(2), 277–304.
- Sapienza, P. (2002). The effects of banking mergers on loan contracts. *The Journal of Finance*, 57(1), 329–367.
- Shahrur, H. (2005). Industry structure and horizontal takeovers: Analysis of wealth effects on rivals, suppliers, and corporate customers. *Journal of Financial Economics*, 76(1), 61–98.
- Tao, Q., Sun, W., Zhu, Y., & Zhang, T. (2017). Do firms have leverage targets? New evidence from mergers and acquisitions in China. *The North American Journal of Economics and Finance*, 40, 41–54.
- Višić, J. (2013). Impact of takeovers on profitability of target companies: Evidence from Croatian companies. *Communist and Post-Communist Studies*, 46(4), 455–461.

- Yasser, Q., Mamun, A., & Hook, M. (2017). The impact of ownership structure on financial reporting quality in the east. *International Journal of Organizational Analysis*, 25(2), 178.
- Zschille, M. (2015). Consolidating the water industry: An analysis of the potential gains from horizontal integration in a conditional efficiency framework. *Journal of Productivity Analysis*, 44(1), 97–114.

### ***Translation of References in Russian into English***

- Grigoryeva, S., & Grinchenko, A. (2014). Impact of mergers and acquisitions in financial sector on bidder's returns in emerging capital markets. *Journal of Corporate Finance Research*, 7(4), 53–71.
- Grigoryeva, S., & Troitsky, P. (2012). The impact of mergers and acquisitions on company performance in emerging capital markets. *Journal of Corporate Finance Research*, 6(3), 31–43.
- Rogova, E., & Luzina, D. (2015). The effect of mergers and acquisitions on companies' fundamental values in emerging capital markets (the case of BRICS). *Journal of Corporate Finance Research*, 9(3), 27–50.