SIZE EFFECT ON EMERGING MARKETS WHILE ESTIMATING THE SIZE PREMIUM
OF COMPANIES
STUDY OF THE RUSSIAN MARKET

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The study investigates the existence of size effect and size premium of Russian public companies. While most Russian companies facing the problem of proper evaluation of size premium of companies and then integrating it in required rate of return on equity, the study of size effect on the Russian market is actual and on the agenda for corporate finance research.

The first step of size effect investigation is the determination of size criteria of Russian public companies. Probably, market capitalization is not the only and the best size criterion for companies from riskier and less developed emerging market. Conducting regression analysis, three size criteria were found out.

Secondly, using chosen size criteria, the existence of size effect on the Russian market was examined and detected. On the whole, obtained results demonstrate the adequacy of chosen size criteria and inspire to further study.

Thirdly, according to size criteria, industry concentration was studied on the Russian market, which characterized by predominance of extractive industries. It was proved that big-sized Russian companies dominate in extractive industries such as oil and gas industry and basic materials, while small-sized companies dominate in public health industry and utilities’ industry.

Understanding the relation of industry concentration and size of companies as well as other results of the study will allow developing a complex approach in the sphere of size premium evaluation on emerging markets. As a result, financial experts could more accurately estimate the rate of return on equity of companies from emerging markets. Consequently, the further in-depth research with the extended sample of data from emerging market is needed.

Key words: size effect, size premium, size criteria of companies, industry concentration.
Over the last decades researchers (Fama and French, Gordon, Banz, Grabowski, King and others) have been pointed out the necessity of considering additional risk factors in the value of rate of return on equity of a company. Risks associated with the size of a company were among these factors. According to the famous researchers from developed markets (among which worth mentioning analysts of U.S. companies Ibbotson Associates and Duff &Phelps) size of company and so-called size effect have a significant impact on enterprise value. Size effect appears in the fact that yields of small companies are higher than the yields of large companies. Thereby, size premium is a quantitative measure of size effect for a specific company (individualized risk assessment of business scale) that should be integrated in rate of return on equity of a company.

With the development of theory and practice of corporate finance in Russia the decision on considering the risk in financial values, associated with company's size and scale of its business, and consequently the estimation of size premium have become on a special urgency on the emerging markets and especially in Russia.

In fact, the in-depth research has not been conducted in Russia. Unfortunately, in the absence of fundamental research in this area, Russian experts have to use values for size premiums of U.S. companies, which are much lower than estimated values of size premium of emerging market companies. For example, the most common practice of Russian analysts nowadays is to take the values of size premium from Ibbotson Associates Yearbook (calculated on a huge sample of U.S. public companies) for evaluating rate of return on equity of Russian companies. Thus, the specificity of Russian business is not taking into account at whole.

There are two key features of the Russian market as an emerging market:

- Russian economy has sectorial imbalances: generally, most of large companies are extractive companies (according to key size criteria used in this study);
- There is a little of available data on Russian public companies in comparison with data on companies from developed markets.

Considering above characteristics of Russian emerging market, it is important to conduct the analysis of size effect on the Russian market as a basis for further investigation of size premium of Russian public companies.

The data of Russian public companies for size effect analysis were taken from Bloomberg database and cover the period of 2006-2010. Size criteria (chosen set of companies’ performance indicators) were investigated on these data. Industry classification of small and big companies as well as research of existence of size effect as a whole was conducted on data of 2010 year. A 2010 year was a year of stabilization of the Russian market after the deep fall in 2008-2009. In fact, lots of Russian public companies’ yields fell much more than companies’ yields on developed market during financial and economic crisis.
Thus, for my analysis it was important to exclude potential financial distressed Russian companies.

The key prerequisites for selecting Russian public companies are following:

1. a public company quoted on the Russian RTS and MICEX, which demonstrate transactions on public market;
2. a company is legally registered in the territory of Russia;
3. companies that have shown positive performance during the last 5 years (this assumption allows us to consider companies that will continue to operate after the time of analysis);
4. Non-financial companies (financial industry of Russian companies is excluded from the analysis, as the business of the industry is very specific).

The final sample of analyzed Russian companies consists of a very small number of 70 companies:

— Industry of «Basic Materials» (20 companies);
— Industry of «Oil and gas» (10 companies);
— Industrial industry (10 companies);
— Industry of «Consumer goods» (8 companies);
— Industry of «Consumer Services» (2 companies);
— Industry of «Utilities» (11 companies);
— Industry of «Public health» (4 companies);
— Industry of «Telecommunications» (5 companies).

Situation with a small number of data in the sample is still typical of Russian studies. This is due to the low transparency of information and less developed financial market.

Before determining the existence of size effect and also industry concentration of companies, we should investigate size criteria upon which we could carry out the analysis. It should be mentioned that for determining the size criteria of Russian public companies it is important to examine absolute indicators (e.g., market capitalization of the companies.) of company’s performance. A key disadvantage of relative indicators (e.g., liquidity ratios, profitability ratios, etc.) is that they liquidate the size characteristic while comparing the performance of companies. Thus, these indicators allow us to value and compare the performance of companies regardless of size.

Probably, market capitalization is not the only and the best size criteria, especially for Russian undeveloped financial market. Obviously, balance indicators could be also very informative indicators, revealing the size of companies.

I use the logarithmic equation that shows the relation of absolute performance indicators (probable size criteria) of companies and actual yields of its stocks (i.e., returns on equity):
\[ y = a + b_1 \ln(x_1) + b_2 \ln(x_2) + b_3 \ln(x_3) + b_4 \ln(x_4) + b_5 \ln(x_5) + b_6 \ln(x_6) + b_7 \ln(x_7) + b_8 \ln(x_8) + b_9 \ln(x_9) + b_{10} \ln(x_{10}) + b_{11} \ln(x_{11}), \]

where \( y \) – actual stock returns of companies (%); \( x_1 \) – market value of common equity (mln. dollars); \( x_2 \) – book value of common equity (mln. dollars); \( x_3 \) – EBITDA (mln. dollars); \( x_4 \) – sales (mln. dollars); \( x_5 \) – net income (mln. dollars); \( x_6 \) – total assets (mln. dollars); \( x_7 \) – fixed net assets (mln. dollars); \( x_8 \) – net working capital (mln. dollars); \( x_9 \) – total debt (mln. dollars); \( x_{10} \) – invested capital (mln. dollars); \( x_{11} \) – number of employees; \( a \) – constant; \( b_i \) – numerical coefficients.

Based on regression model, I have got the following result. The model is significant as a whole (according to F-statistics) and the most significant parameters (based on t-statistics for the coefficients \( b_i \) of variables) were six out of the nine variables (Figure 1).

**Figure 1. The significance of the dependent variables in regression model**

Thus, according to the significance of the dependent variables in regression, I identified the size criteria (most significant variables) of Russian companies on the basis of analysis of annual performance of companies over a five year period of time (from 2006 to 2010):

- book value of common equity
- number of employees
- market value of common equity

Relying on investigated size criteria for analyzed Russian public companies, graphic analysis was conducted to identify the size effect on the Russian market. Charts 1-3 show ranked (from big-sized companies to small-sized companies - on the chart from the left to the right) seventy selected Russian public companies on the basis of actual annual returns on stocks in 2010 according to three size criteria. Charts 4-6 also show the same ranked companies but yet on the basis of actual average monthly returns on stocks in 2010 according to size criteria.
According to the general definition of size effect, yields of small-sized companies are constantly higher than the yields of large companies. Charts 1–3 slightly reflect this regularity.

Actually, we could not state, that size effect exists, based on these actual annual data. We even could not specify which size criterion best reflects the existence of size effect on the Russian market. Charts do not show steady or sharp increases of returns on stocks when we trace the yields from the left to the right (from big-sized companies to small-sized companies).

Contrary, Charts 4–6 explicitly proves the existence of size effect on the Russian market. All size criteria of companies show increase in actual average monthly returns on stocks of smaller companies. Minor exception makes the size criterion of book value of common equity: the increases in returns are shifted to the left on Chart 4 in comparison to other Charts 5–6.

One of possible reasons of this could be the biases due to small sample and non-stable time-period of analysis. Moreover, average monthly returns analysis smoothes out possible fluctuations of returns in comparison to the analysis of annual returns on stocks. Thus, it is possible to see more clearly the existence of size effect on the Russian market.
Chart 4. Actual average monthly returns of the analyzed ranked companies according to the size criterion of book value of common equity

Chart 5. Actual average monthly returns of the analyzed ranked companies according to the size criterion of number of employees

Chart 6. Actual average monthly returns of the analyzed ranked companies according to the size criterion of market value of common equity

In fact, the evidence of size effect existence on emerging markets is more difficult to obtain due to existing variable risk factors in contrast to developed market. These factors may be interlinked and intertwined, that is why it is harder to spot the size effect. Therefore it is important to understand the drivers and sources of size effect and purify it from of concomitant effects and other market effects anomalies. Therefore it is necessary to conduct further empirical research in this area, especially in emerging financial markets (particularly in Russia), as well as at different time intervals. This will allow making the output about qualitative and quantitative characteristics of size premium of companies from emerging markets and, consequently, better calculating the value of the required return on equity of companies.

While purifying size effect from possible industrial risks, it is important to conduct the analysis of industry concentration of companies and then to investigate size effect and size premium of companies from emerging markets within each industry group in future research.
Understanding an existence of sectorial peculiarities, it is reasonable to assume that the small-sized companies are likely to be concentrated in a relatively less profitable sectors where there are probably some lower barriers to market entry. Therefore a high competition does not allow companies to earn relatively large profits. In contrast, larger companies are concentrated in more profitable, stable and less risky industries (probably, with higher entry barriers) and thus in more oligopolistic industries. This assumption is generally consistent with the basic theoretical postulate, observable in practice: the greater the risk of a company (in our case, we mean that a company is operating in a high-risk industry), the higher company’s return on equity.

The analysis of industry concentration could help to identify the relationship between firm size (and, therefore, its risk and return) and firm’s belonging to a particular industries. Earlier this type of research has not been conducted on the Russian market that is why the results of this study will be of interest to specialists in the field of corporate finance.

Previously we have detected the existence of size effect on the Russian market in 2010. Industry concentration was studied on the Russian market based on the same sample and investigated size criteria of Russian public companies. Russian industries were grouped according to the Bloomberg industry classification: basic materials, oil and gas, industrials, consumer goods, consumer services, utilities, public health and telecommunications.

With the use of investigated size criteria, Russian companies were grouped in descending order by breaking into ten deciles: the first decile represents the largest companies, and the tenth - the smallest companies for each size criterion (are presented in Tables 1-3).

Table 1. Industry concentration according to the size criterion of book value of common equity

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Table 2. Industry concentration of Russian public companies according to the size criterion of market value of common equity

Table 3. Industry concentration of Russian public companies according to the size criterion of number of employees
According to three size criteria, companies of oil and gas industry as well as basic materials’ industry are the largest. Particularly interesting to note, that telecommunications industry is also represented by big companies.

With the size decrease, companies are generally concentrated in relatively less profitable industries with higher competition: consumer goods and consumer services, as well as industrial companies. Generally, public health and utilities are industries with small-sized firms.

However, the first exception is the basic materials industry: probably the explanation of it is biases in analysis due to small sample of analyzed companies and the unstable period of analysis. This fact requires further study. The second exception is the industrials companies. Apparently the dominance of extractive industries in Russia is inversely proportional to the level of development of manufacturing. Probably, performance of manufacturing enterprises confirms the current undeveloped condition of the Russian national manufacturing. On the other hand, perhaps it is also the bias of analysis that could be overcome in future studies with larger sample.

Thereby, despite the exceptions and biases of analysis, our general industry concentration assumption was confirmed in all investigated sized criteria of Russian public companies. In this

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case, the most profitable industries of the Russian economy (which are mainly extractive industries) are oil and gas industry and basic materials, and the least profitable are public health, utilities, consumer goods and consumer services. Thus, small-sized Russian companies are concentrated in the less profitable and relatively weak and more risky industries of the Russian economy, while larger companies are concentrated in the most profitable and less risky industries.

Summing everything up, research of size effect as well as investigation of size criteria of Russian companies and industry concentration of all-sized companies are the first steps on development of methodic of size premium estimation for the Russian market as well as for other certain emerging markets. Since the study was conducted on data of unstable period in 2010, the various risk factors could cause biases in results. Nevertheless, they do not contradict each other but, of course, require further comprehensive research.

Finally, future research of method of size premium estimation will accounts for obtained results of this study and will provide flexible to changes and modifications algorithm for companies from emerging markets. Considering risks associated with the size of a company, financial experts could estimate more accurately the rate of return on equity of companies from certain emerging markets.

Monographs


Periodicals


