The Estimation of IPO's Efficiency

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Abstract

The paper generalizes and structures conceptual aspects of financing sources of corporate capital using initial public offerings (IPO's). It reports on the dynamics of the number of IPO's and reveals its reasons in European Security Markets and specifically in NASDAQ OMX Baltic Stock Market. It also reports the empirical study findings on efficiency of IPO traded on OMX Baltic Stock Exchange. Taking into consideration the fact that after the completion of IPO transaction in Stock Exchange large companies can acquire significant equity proceeds, the paper analyzes the impact of IPO transactions on the changes of market value of specific companies.

Keywords: Initial Public Offering (IPO), Stock Market, NASDAQ OMX Baltic Stock Exchange, market capitalisation, IPO multiplier, company value.

Introduction

Research problem, novelty and relevance. Each economically developed country and most of emerging countries have security markets. Business firms can attract investment for business development there, can borrow funds or manage financial and operational risks. Accession of Lithuania, Latvia and Estonia to European Union and their joining OMX Stock Market Exchange in 2004 and the membership in NASDAQ OMX Stock Exchange in 2008 allowed the establishment of new quality economic environment. Integration of the Baltic States market into the European and world economy became more active. Large and medium size firms acquired more opportunities to fulfil their strategic goals. Going public to raise capital became popular in the last decade of the twentieth century. Successful initial public offering (hereafter IPO) in stock exchanges allows the issuers to acquire significant equity proceeds and to expect stable growth of stock prices, better lending conditions, signing of strategic contracts in international markets. The inclusion of firms into the list of Stock Exchange is very important moment that denotes qualitatively new stage of activity of a firm. The financial brokerage firms reported the great number of initia-

ted IPO's in 2006. Chinese companies were the most active among the other companies in the emerging markets that entered the worlds' stock exchanges. Foreign literature extensively documents research into efficiency of IPO (Weiss and Martin, 1988; Buck, 1990; Kim, Krinsky and Lee, 1995; Varaiya, Bergmark and Taylor, 1997; Moonchula and Ritter, 1999; Neuberg and Welch, 1999; Jenkinson and Ljungqvist, 2001; Kaneko and Pettway, 2001; Geddes, 2003; Draho, 2005; Jagannathan and Sherman, 2005; Ghosh, 2006; Kaustia, Knupfer, 2008). No research is reported in Lithuanian literature.

Research subject is defined as IPO transactions in NASDAQ OMX Baltic Stock Market Exchange in 2004–2008.

Research aim is to estimate the efficiency of IPO transactions in NASDAQ OMX Baltic Stock Market Exchange and their impact on the changes of market value of companies.

Research objectives are to generalize and structure the conceptual aspects of financing sources of corporate capital using initial public offerings; to analyze efficiency of IPO's in NASDAQ OMX Baltic Stock Market Exchange; to estimate IPO's impact on the changes of market value of companies.

Research methods. IPO transactions completed in NASDAQ OMX Baltic Stock Market Exchange in the period from 2004 to 2008 are analyzed by lawyers, auditors, investment banks, and economists. Literature mostly documents IPO transactions completed in the USA and the UK markets that are defined as the major IPO's markets that can offer a significant number of international investors. In the most of research IPO's completed in the US market are used and analyzed. IPO's processes are hardly analyzed in academic literature in Europe and the Baltic States. More data on European IPO statistics is available in the information provided by Stock Exchange of that region, and in statistical information provided by Federation of European Securities Exchanges. These data were used to analyze IPO transactions in NASDAQ OMX Baltic Stock Market Exchange. The ba-

sic methods used in the research paper include literature review, comparative analysis, financial ratio analysis and interpretation, and logical methods.

Corporate capital formation using IPO: theoretical approach

All companies aim to increase their income. Manufacturing companies attain that goal by implementing new technology lines and developing new products, whereas trading companies increase their commercial premises and etc. All these processes require funding. Thus, the further goal of companies is to fund investments at optimal capital costs. Company's managers can use internal and external capital.

The basic internal capital formation sources are earned and reinvested profit as well as shareholders' additional contributions (Friedlan, 1994; Benninga and Sarig, 1997). The external capital can be acquired by direct negotiations with banks or lease companies, and by distribution of equity or debt securities through public or private offering. External capital raising is closely related to financial markets. Financial markets aim to efficiently reallocate free funds to their users. Financial markets stimulate equity financing; some participants have a possibility to acquire funds they need there, whereas the others have a possibility to invest. In financial markets, stocks are issued and distributed by business companies or financial institutions that need funds to form equity capital. However, initial public offering (IPO) becomes more and more popular capital raising source. Weiss, Martin (1988), Neuberg and Welch (1999), Jenkinson and Ljungqvist (2001), Kaustia and Knupfer (2008) define initial public offering as a proper capital raising source. However, it has some disadvantages for investors who take an offer, and to the issuers themselves. Companies need capital for investment funding and business development. One of the ways to raise capital is to sell stocks or share of ownership in a company, which gives investors voting rights and share in profits. Equity issuance seems to be an easy way to raise capital for company managers, as it does not require returning the capital or rewarding the new investors. The only financial obligation is to treat new investors as the old ones when the dividends are paid or in the case of different profit distributions. After the new equity is issued, equity share of current shareholders decreases, whereas value of company assets increases. The new issue, capital value, and equity issue method will affect the way the market reacts to new equity issuance of the company. The further analysis of the problem implies distinguishing two types of equity issue: IPO, when the company sells its equity for the first time, and re-issue, when after initial equity distribution in stock market the company decides to issue again. IPO incorporates initial public offerings and secondary public offerings (SPOs) when current shareholders sell their stocks (Varaiya, Bergmark, and Taylor, 1997; Teoh, Welch, and Wong, 1998a).

Literature provides different definitions of initial public offerings:

- IPO is defined as the first public offering. There is always the case for IPO to offer stocks, however, it is not always the case for small, young companies to look for external equity capital and public market for their stocks (Ghosh, 2006);
- IPO is initial public offering to society. It is carried out by signing the contract with the intermediary that sets the stock price after the demand analysis and then distributes them to investors (Economic terms dictionary, 2005);
- It is also defined as the process when the company equity is offered to the wide number of investors for the first time and its listing on Stock Exchange starts (Draho, 2005);
- IPO is defined as the first time when the company issues stocks for initial offering. This process also indicates the change of the company from private limited company to public limited company. Investors who acquire stocks under initial public offering should be prepared to take higher risk for the opportunity to earn high profits (Kaustia, Knupfer, 2008);
- Public equity distribution is equity offering to society. The most frequently used method for raising additional funds for company development is equity issue, sometimes bonds issue or hybrid securities (convertible stocks) (Kancerevycius, 2004).

The analysts noted that companies initiate IPO when their business cycle achieves an expansion phase (see Figure 1), since then the company has got well-developed activity strategy, good management and personnel team. The company has gained profits, conquered a significant market share, formed the confidence of clientele and creditors (Teoh, Welch, and Wong, 1998b).

IPO opportunities and threats. During market expansion phase IPO is often considered as almost guaranteed opportunity to make high profits rapidly. Most of investors from the Baltic States remember the completed IPO of Olympic Entertainment Group, when stock prices increased by more than 50% in two weeks. Investors followed Croatian state-run oil company INA privatization by the means of initial public offering and its subsequent trading on Zagreb and London Stock Exchanges. Market price of INA stocks was 35% higher than the initial price. Where-

as the shareholders (including Finasta New Europe Fund) of the second biggest Georgian bank – Bank of Georgia – were more than satisfied with the results of IPO completed on London Stock Exchange: stocks were sold to international investors at the price higher by 37% than that on Tbilisi Stock Exchange. Furthermore, after a week it increased by almost 14%.
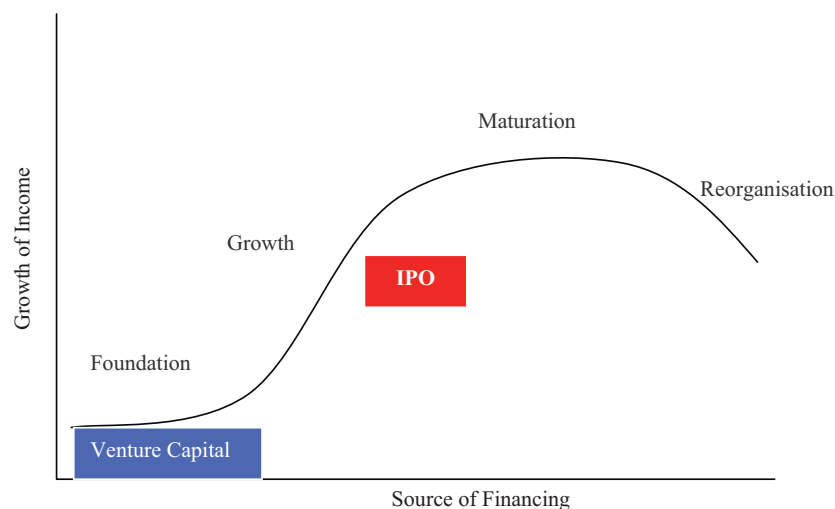

Figure 1. Company business cycles and their funding sources

Nevertheless, smart investors with a long-run investment horizon should be very careful in stock markets (Teoh, Welch, and Wong, 1998b). There are at least two reasons why investors should be careful when buying stocks during initial public offering. First, in case of successful issue distribution investment banks that organize IPO receive commissions that are much higher than usual trading commissions. Thus, investment banks make more efforts to distribute equity issue to investors. Therefore, the IPO price will be formed on the basis of very optimistic forecasts. Second, the vast majority of initial offerings are placed under "extremely favourable terms" that are favourable for sellers, but not for buyers, since the decision to place equity offerings is initiated by the seller. Naturally, such a decision is made at the moment when market conditions imply high company value. However, there are hundreds of IPO's as opposite to Microsoft, Google or Olympic, which are not successful. Optimism in the market implies a higher number of IPO's, since most of investors believe in continuation of the trend. However, market bubbles always result in subsequent significant losses. The valuable lesson to be learned is a dotcom-crisis in 1999–2000, when internet companies lost more than 90% of their stock value. Financial analysts do not recommend investors to give up buying stocks during IPO, but do recommend them to be careful when estimating the forecasts and to make an investment decision taking into consideration whether stocks are distributed for the first time in order to raise funds for business development or whether large companies just distribute their equity packages. They recommend investors to estimate company value by themselves and never invest blindly following the existent trend of magic and challenging IPO's.

Naturally, IPO ensures high profits both to equity issuers and investors. Investment not always ensures returns for investors who invested on the basis of information provided in company prospects. There is often the case when equity issue is successfully distributed, but the information provided in the prospects is wrong or fraudulent (Klein 1999). Then the stock price suddenly goes south and the investor realizes great losses.

IPO's are more effective when the country's economy experiences expansion phase, since more free funds circulate in the economy and there is a higher demand for investment. The expansion phase of the economy ensures higher price for equity issuer than the recession phase, when there is a great extent of uncertainty.

Impact of IPO on NASDAQ OMX Baltic Stock Market Performance

The dynamics of number of IPO's in 2004–2008. All World Stock Exchanges register all newly listed companies, analyze the quantity and market value of such transactions. This information is used not only by stock exchanges, but also by investors, issuers, financial analysts and experts. The paper analyzes NASDAQ OMX Nordic, NASDAQ OMX Baltic, NASDAQ OMX First North statistical data and the data provided in PricewaterhouseCoopers research papers. Structuring of PricewaterhouseCoopers research papers on the number of IPO's in the most important European Stock Exchanges allowed us to identify the dynamics of number of IPO's in Europe in 2004–2008 (see Figure 2).
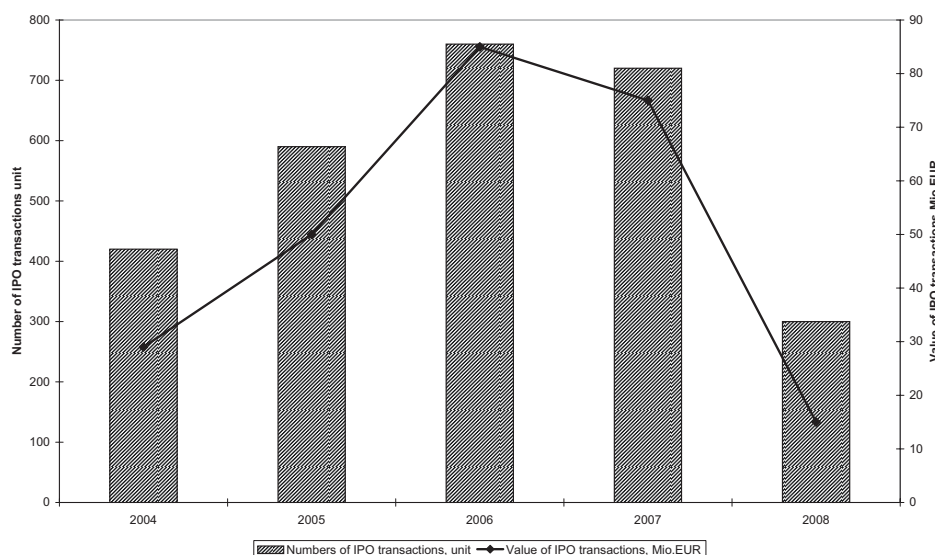
Figure 2. The Number of IPO's on European Stock Exchanges (excluding OMX)
Source: compiled by the authors with reference to the PricewaterhouseCoopers research papers (2009).

The large upswing of IPO's was identified in 2006, then 779 IPO's were registered and the value counted for 85001 Mio EUR. From 2004 to 2006 the average growth of the number of IPO's was 35%, whereas the value of IPO's increased from 27589 Mio EUR in 2004 to 49519 Mio EUR in 2005. Since 2006 one can observe a decrease of number of IPO's, it decreased by 6% in 2007 and by 60% in 2008 in comparison with 2006. There was also a significant decrease in the value of IPO's from 2006 to 2008. I the period from 2006 to 2007 it decreased to 77335 Mio EUR or by 9%, whereas in the period from 2007 to 2008 it decreased by 82% to the amount of 13749 Mio EUR. In the period from 2004 to 2006 the increase in the number of IPO's is related to the increase in the number of IPO's on European Stock Exchanges. The ongoing capital demand in the financial markets of Russia, China and India in 2006 increased the number of IPO's in 2007. However, world economy crisis decreased the number of IPO's almost twice in 2008. Growing uncertainty in financial markets undermined investors' confidence, therefore the world stock exchanges were overwhelmed with great pessimism.

The situation in NASDAQ OMX Stock Exchanges. The analysis of statistical data on the number of IPO's in NASDAQ OMX Stock Exchanges allowed us to define 287 IPO's in the period from 2004 to 2008 (see Figure 3). The least number of IPO's was identified in 2004; in the period from 2004 to 2005 the number of IPO's increased from 28 to 34. The greatest number of IPO's was identified in 2006: it amounted to 102. In 2007 there were 94 IPO's, in the period from 2007 to 2008 the number of IPO's decreased and amounted to 29. The analysis of NASDAQ OMX Baltic Stock Exchanges allowed us to define that the greatest number of completed IPO's was in Estonia, it amounted to 7 transactions or 64% of all transactions, 3 transactions or 27% of all transactions were completed in Lithuania, and the least number of completed transactions was in Latvia: only 1 transaction or 9% of the total number of transactions. The analysts of PricewaterhouseCoopers (2009) state that the number of IPO's is related to the level of country's economy. Gross domestic product (GDP) represents the level of certain country's economy. The possible correlation between economic growth and the number of IPO's is proved. Economic growth in Latvia, Lithuania and Estonia increased the number of IPO's from 1 in 2004 to 3 in 2005, 2006, and 2007. In the period from 2004 to 2008 there were completed 11 IPO transactions in NASDAQ OMX Baltic Stock Exchange. In the period from 2004 to 2006 the slower GDP growth increased the number of IPO's in Finland and Denmark more than in the Baltic States. Scandinavian countries have more developed industry; they operate under market economy conditions for a longer period, and have more open and developed stock exchanges with well-established relationships in capital markets.
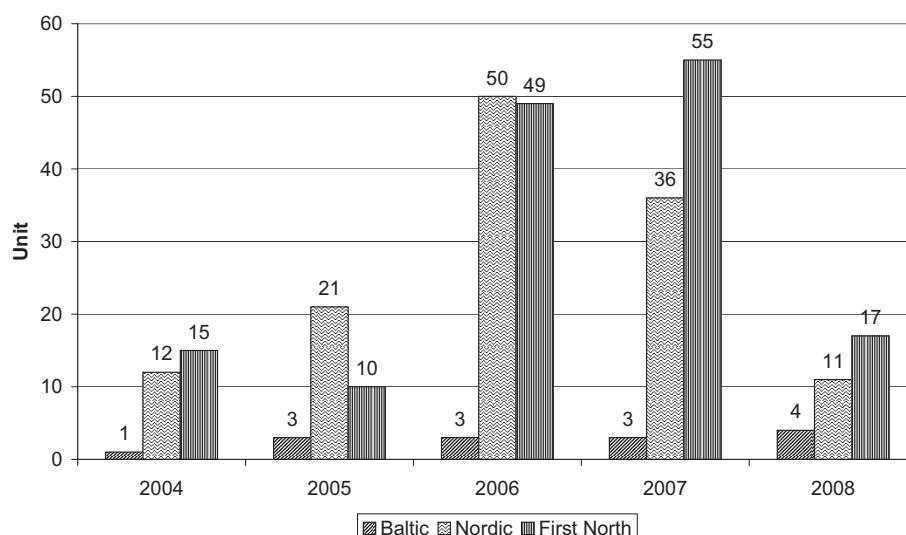
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Figure 3. The Number of IPO's in NASDAQ OMX Stock Exchanges
Source: compiled by the authors with reference to the statistical data of NASDAQ OMX Stock Exchanges.

IPO classification under GICS methodology.
Analyzing the number of IPO's in NASDAQ OMX Stock Exchanges, it is very important to identify a business activity sector where these transactions are the most popular. The biggest number of transactions was completed in financial sector each year: 8 transactions in 2005, 16 transactions in 2006, 17 transactions in 2007, and 4 transactions in 2008. Industrial sector is in the second position. There 25 IPO transactions were completed: 2 transactions in 2004, 2 tran-

sactions in 2005, 8 transactions in 2006, 10 transactions in 2007, and 2 transactions in 2008. In the same period there were completed 16 IPO's in information technology sector and 16 IPO's in consumer durables and services sector. A little bit lower number of completed IPO's was in health care sector. There 14 IPO's were completed. The least number of IPO's was registered in telecommunication services and energy sectors. Given situation in NASDAQ OMX Baltic Stock Exchange is presented in Figure 4.
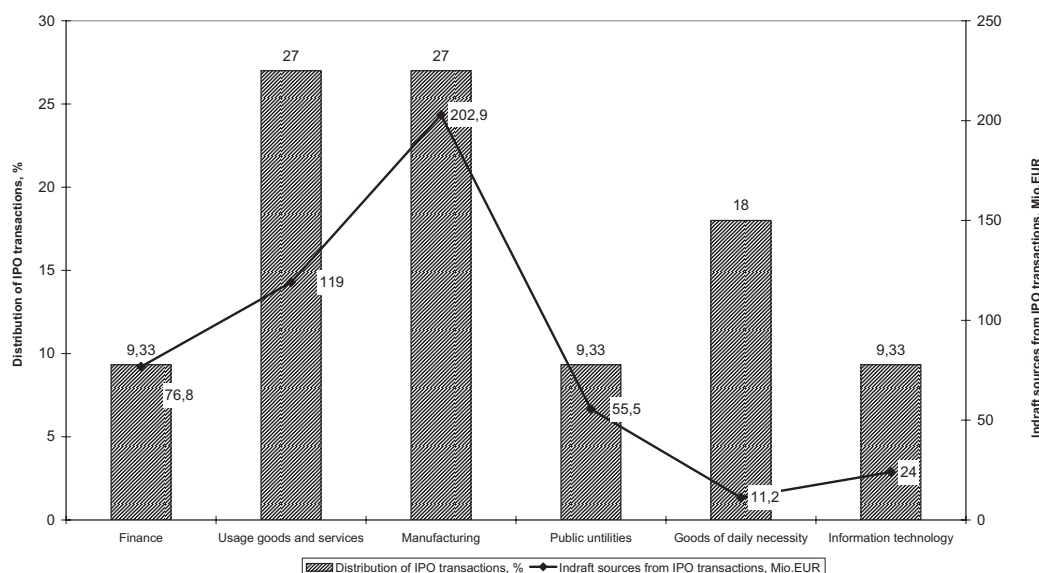

Figure 4. IPO's Average Percentage Distribution and Average Funds (in Mio EUR) Raised in Sectors Classified under GICS Methodology in NASDAQ OMX Baltic Stock Exchanges in 2004–2008
Source: compiled by the authors with reference to the statistical data of NASDAQ OMX Stock Exchanges.

Under conventional business activity classification methodology GICS, IPO's were distributed as follows: the largest number of completed IPO's was in consumer durables and services and industrial sectors – 27% or 3 transactions, 18% or 2 transactions in consumer goods and services sectors. The rest of

IPO's were distributed equally in information technology, financial and utilities sectors and amounted to 9.33% or 1 transaction in each of them. Consumer durables and services companies and industrial companies raised the highest amount of funds: industrial companies raised 202.9 Mio EUR, consumer du-

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rables and services companies raised 119 Mio EUR (see Figure 4). Financial institutions raised 76.8 Mio EUR, utilities companies raised 55.5 Mio EUR, information technology companies raised 24 Mio EUR, and consumer goods and services companies raised 11.2 Mio EUR. The production and industry development determines the GDP growth in most of countries, since products produced there are closely related to investments, oriented to future and aimed to generate the highest possible benefit to country economy. Therefore, the data represents that the highest amount of funds from IPO's was raised in the production companies, since their development requires more investment than other much smaller industries.

The influence of IPO transactions on the efficiency of OMX Baltic market. Each phenomenon of economics produces positive or negative effect on a certain economic activity. IPO transactions are issued in the initial market, however later these shares are traded in the secondary market. The task of each equity stock exchange is to increase the number of companies listed in it. The longer such a list, the bigger income from turnover transactions, from membership in the stock exchange such stock exchange receives. High numbers of the stock exchange members (issuers) are attractive to investors, whereas it is possible to better diversify the investment portfolio on a big stock exchange with a long list of issuers. Naturally, such a stock exchange has more buyers and the higher number of buyers increases the liquidity of securities. However, newcomer companies selling their sha-

res on the stock exchange have to be sufficiently attractive to investors, i.e. they should have a sufficient number of free shares in the market, work profitably, pay dividends. Only the price of shares of such companies has a greater tendency to increase thus increasing the general capitalisation of the stock market. Stock market capitalisation – or the so-called market value – is a frequently met term. It can be defined as the number of shares of companies listed in the turnover lists of a stock exchange multiplied by the market price.

On the left side of the Figure 5, there is presented information about the capitalisation rates of the companies that came to the OMX Tallinn stock exchange through IPO's, from the capitalisation of the entire stock exchange in 2007. Tallinnk Grupp having 19% of free shares in the market took sufficiently good positions on OMX Tallinn stock exchange after two years since IPO in 2007 holding 17.23% of the total capitalisation of the stock exchange. The company Arco Vara was also rather successful. In 2007 it constituted 12.87% of the total stock exchange capitalisation having 28% of free shares in the market. The company Tallinna Vesi took a twice smaller share in the market. Its capitalisation constituted 6.31% of the total stock exchange capitalisation and the number of free shares was 30%. Eesti Ehitus and Olympic Entertainment Group constituted almost 3% of the total stock exchange capitalisation each, and the smallest capitalisation was held by the company Ekspress Grupp – 2.16% with 13% of free shares.
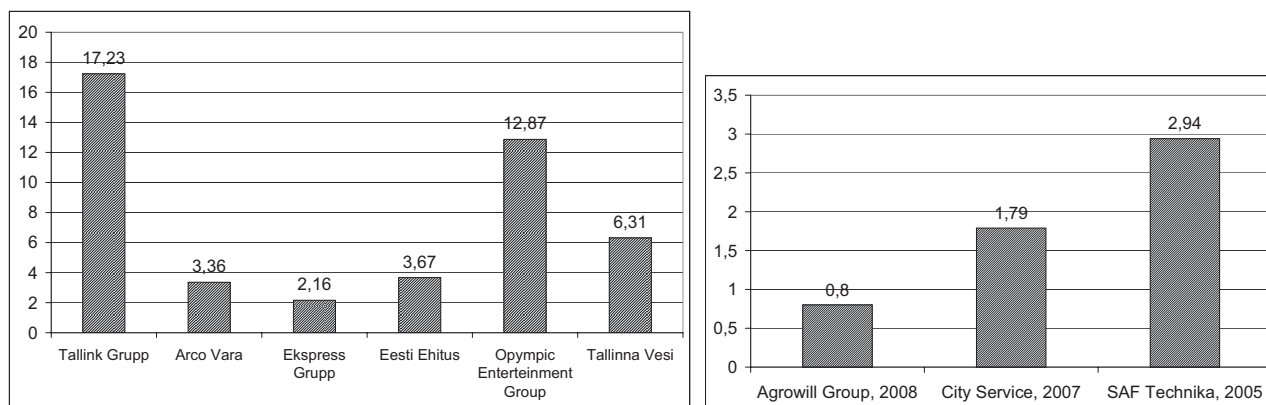

Figure 5. The number of companies that came through IPO's to the OMX Tallinn stock exchange in 2007 (left side of the figure), OMX Riga and OMX Vilnius stock exchanges in 2005–2008 (right side of the figure) from the capitalisation of all stock exchanges

The numbers in OMX Vilnius Stock Exchange were much lower. The level of their capitalisation in the respective market is presented by particular companies on the right side of Figure 5. The number of IPO's on OMX Vilnius Stock Exchange reached only two transactions within the period from 2004 to 2008: the IPO's were for Agrowill Group and City

Service. The capitalisation of both such transactions in the secondary market was low. Agrowill Group in 2008 constituted only 0.8% of the total stock exchange capitalisation with 23% of free shares. It is a rather low rate with such rather considerable amount of free shares. Decrease of the market value of a share from 5 to 3 Litas per year made impact on such situa-

ation. In 2008, 35% of all companies listed at OMX Vilnius Stock Exchange had the similar level of capitalisation. In 2007, City Service constituted almost 2 percent of the total capitalisation of stock exchange.

In the period from 2004 to 2008, only one IPO transaction was implemented on OMX Riga Stock Exchange. The capitalisation of this Saf Technika transaction in the secondary market in 2005 constituted almost 3% of the total stock exchange capitalisation and it was a rather good result in comparison with the fact that in 2005 12 companies were quoted on OMX Riga Stock Exchange, and 7 of them had about 3% capitalisation of the total stock exchange capitalisation.

Hereby, we can formulate the following conclusion: the effect of IPO transactions on the results of activities of the OMX market is positive. The positive effect is even more enhanced by the companies that entered the stock exchange through IPO's, reached there an average capitalisation level and even more. The companies of lower capitalisation only increased the number of listed companies and had the lower level of liquidity.

Analysis of the Effect of IPO Transactions on the Changes of the Value of Companies

Having considered the popularity, scopes and effect of IPO transactions on the results of the activities of the OMX Baltic market, it is purposeful to assess the influence of such transactions on the results of particular companies, specifically on the changes of the value of a company. The principle of selection of the companies for analysis was the following: one company from each NASDAQ OMX Baltic market and additional two from the OMX Tallinn market, in view of the fact that the most of IPO transactions within the analysed period were performed there. When selecting the companies in such a way, the quantity of IPO shares was also considered. The following companies were selected for the analysis: OMX Tallinn – Arco Vara (hereinafter referred to as AV), Olympic Entertainment Group (hereinafter referred to as OEG), Tallinnk Grupp (hereinafter referred to as TG); OMX Riga – Saf Technika (hereinafter referred to as ST); OMX Vilnius – City Service (hereinafter referred to as CS).

In order to make the analysis clear, data has been allocated in accordance with the periods in the following order: period 1 – it is the annual balance sheet before IPO, period 2 – it is the annual balance sheet in the year when IPO took place, period 3 – it is the first annual balance sheet after the period 2.

IPO multiplier. When assessing the efficiency of IPO transactions, the IPO multiplier developed by the authors of the paper is calculated (see Table 1). The essence of the IPO multiplier is to assess the effect of the change of the net capital attracted through the IPO on the change of the income of a company, i.e. how much income in additional monetary units was earned with the help of the net capital attracted by the IPO. The IPO multiplier is calculated as follows:

IPO multiplier = Change of income within a certain period / Change of the net capital attracted from IPO within a certain period (1)

The poorest result of the IPO multiplier was obtained in the company AV: one additional monetary unit of the net capital attracted 0.25 additional monetary units or 25% of additional income of the total amount of the additional capital. More additional income was attracted by the unit of the additional net capital in the company OEG: 0.83 of the unit. In the company TG, one additional unit of the net capital attracted 1.10 additional income units. More efficient results of the IPO multiplier were calculated in the companies CS and ST. Respectively, the results of the IPO multiplier were 3.74 and 5.18 (see Table 1).

Table 1

IPO multiplier of companies that used the IPO transaction

Company	Indicator	First period	Second period	Change in currency unit
AV	Income, in thousand EEK	*483586*	*727188*	243602
	Net capital attracted from IPO, in thousand EEK			987514
	IPO multiplier			*0.25*
OEG	Income, in thousand EEK	*874462*	*1658749*	784287
	Net capital attracted from IPO, in thousand EEK			943202
	IPO multiplier			*0.83*
TG	Income, in thousand EEK	*4062961*	*6330911*	2267950
	Net capital attracted from IPO, in thousand EEK			2053793
	IPO multiplier			*1.10*

CS	Income, in thousand LTL	*113607*	*209202*	95595
	Net capital attracted from IPO, in thousand LTL			25566
	IPO multiplier			***3.74***
ST	Income, in thousand LVL	*4881*	*12818*	7937
	Net capital attracted from IPO, in thousand LVL			1532
	IPO multiplier			***5.18***

Interaction between the market value of a company and IPO. The aim of each company is to increase its market value. One of the ways for the enterprises owners who have developed their businesses to realise the value created in the enterprises is an initial public offering. High income growth rates and profitability declared by companies would seem to be the guarantor of the long-term value for shareholders (DeAngelo, 1990; Kim, Krinsky, Lee, 1995; Zaptorius, 2006). The following two methods were selected to assess the value of a company: the method of an economic value added (*EVA*) and the method of return on invested capital (*ROIC*).

One of the widely used in the world methods of estimation of the value of a company is the EVA method. In scientific literature, EVA is named variously: economic value added, newly created value (Pratt, 1989; Janusas, 2001; Boguslauskas, Jagelavicius, 2002; Cibulskiene, 2007). The author of the EVA method Bennet-Stewart (1994) defines the economic value added as follows: from the economical point of view, the value (EVA) is created when an enterprise receives income that is higher than economic costs to earn such income. Continuous and harmonious growth of EVA would eventually have to increase the company's value. The digital value of EVA is not so significant, much more significant is how and how much it grows in time and how much it reflects the overall growth of such a company. EVA is calculated as follows:

$$EVA = EBIT - C* WACC, \quad\quad (2)$$

here: EVA – economic value added; EBIT – earnings before interests and taxes; C- capital; WACC – weighted average costs of capital.

The purpose of such calculation is to estimate the change of a company's EVA value having used an IPO transaction and to establish whether the IPO makes any significant effect on the EVA result.

By estimating a company's value by the second method – using the method of return on invested capital (*ROIC*) – it was always striven to establish whether the use of an IPO transaction made any effect on the change of the value (Eberhart, 1988; Zarowin, 1990; Alford, 1992). The ROIC method measures how much money is earned by each unit of the invested capital. The ROIC should exceed the costs of invested capital (WACC) and is estimated as follows:

$$ROIC = (NP - D) / (E + DL + DS), \quad\quad (3)$$

here: NP – net profit; D – dividends; E – equity; DL – long-term debts with payable interests; DS – short-term debts with payable interests.

When analysing the formula of calculation of ROIC, the direct effect of IPO on the result of ROIC is expressed through the change of the equity capital, and the indirect effect – through the change of the net profit, in case the funds attracted through IPO were intended to develop markets and sales, or through the debt exchange, in case the funds attracted through IPO were intended to refinance loans. None of five analysed enterprises reported in its IPO prospectuses that the attracted funds are assigned to refinancing of loans. Therefore, when analysing the effect of IPO on the company's value by calculating it using the ROIC method, the changes of the equity capital and net profit were emphasised. The calculated changes of EVA and ROIC in five companies that used the IPO transaction are presented in Table 2.

Table 2

The value of companies that used the IPO transaction calculated by using the EVA and ROIC methods

Company	Indicator	First period	Second period	Change, in %	Third period	Change, in %
AV	The part of IPO emission in the total invested capital, in %		39.92			
	The part of equity in the total invested capital, in %	20.15	8.36	-58.51		
	EVA, in thousand EEK	**178061**	**149947**	**-15.79**	**-1162821**	**-875.49**
	The weight of equity (with IPO) in the total invested capital, in %	20.15	48.28	139.6	40.49	-16.1
	ROIC (%) = (NP-D) / (E + DL + DS), %	10.8	6.4	-40.9	-68.1	-1164.4
	WACC, %.	5.4	5.9	8.9	5.7	-3.1
	ROIC - WACC, %.	**5.4**	**0.5**		**-73.8**	

OEG	The part of IPO emission in the total invested capital, in %		46.8			
	The part of equity in the total invested capital, in %	72	53	-26.42	99	85.73
	EVA, in thousand EEK	**-1604**	**207464**		**49961**	**-75.92**
	The weight of equity (with IPO) in the total invested capital, in %	72.26	99.95	38.3	86.92	-13.0
	ROIC (%) = (NP-D) / (E + DL + DS), %	25.0	18.5	-25.9	9.7	-47.5
	WACC, %.	27.2	11.9	-56.2	15.9	32.8
	ROIC - WACC, %.	**-2.2**	**6.6**		**-6.1**	
TG	The part of IPO emission in the total invested capital, in %		9.1			
	The part of equity in the total invested capital, in %	40.91	28.67	-29.92	40.59	41.58
	EVA, in thousand EEK	**53128**	**107738**	**102.79**	**199699**	**85.36**
	The weight of equity (with IPO) in the total invested capital, in %	40.91	37.77	-7.7	40.59	7.5
	ROIC (%) = (NP-D) / (E + DL + DS), %	7.3	6.2	-15.2	4.2	-32.0
	WACC, %.	9.0	7.0	-22.1	6.2	-10.8
	ROIC - WACC, %.	**-1.7**	**-0.8**		**-2.0**	
CS	The part of IPO emission in the total invested capital, in %		47.77			
	The part of equity in the total invested capital, in %	83.02	49.97	-39.81	82.34	64.78
	EVA, in thousand LTL	**1994**	**5630**	**182.31**	**1678**	**-70.19**
	The weight of equity (with IPO) in the total invested capital, in %	83.02	97.74	17.7	82.34	-15.8
	ROIC (%) = (NP-D) / (E + DL + DS), %	15.9	16.2	2.2	7.8	-51.9
	WACC, %.	20.6	13.2	-35.9	13.3	1.0
	ROIC - WACC, %.	**-4.7**	**3.1**		**-5.5**	
ST	The part of IPO emission in the total invested capital, in %		23.09			
	The part of equity in the total invested capital, in %	62.87	76.89	22.30	99.92	29.95
	EVA, in thousand LVL	**250257**	**1836449**	**633.83**	**398382**	**-78.31**
	The weight of equity (with IPO) in the total invested capital, in %	62.87	99.96	59.0	99.92	0.0
	ROIC (%) = (NP-D) / (E + DL + DS), %	31.8	54.4	71.1	7.6	-86.1
	WACC, %.	33.3	44.5	33.8	18.0	-59.6
	ROIC - WACC, %.	**-1.5**	**9.9**		**-10.4**	

Valuation of a company by using the EVA method. The negative EVA change of the company AV (-15.79%) in the period 2 was determined by increased capital costs, which were almost 80%. The growth of the capital costs to 197 189 thousand EEK was influenced by increased debts to financial institutions with interests increased by almost 1% point and the most negative impact on the EVA value was made by the IPO transaction. Such result was not mitigated even by the fact that the IPO emission cost rate was almost equal to the loan interest rate having assessed taxes. Increase of EBIT by 14.48% was too low to achieve at least null EVA. In case IPO emission interest rate was twice lower, the EVA would be zero. In the period 3, the EVA change was also negative: -875.49%. Unfortunately, in this period the most negative impact on the EVA rate was made by the negative EBIT result (-1103146 thousand EEK). Conclusion is that the increase of equity using IPO transactions decreases EVA only in the first year.

The EVA of the period 1 of the second company – OEG – was negative (-1604 thousand EEK). In the period 2, its EVA increased to 207464 thousand EEK. The most positive effect on the EVA change in the period 2 was made by EBIT, which increased by 104.13%. The costs of invested capital increased by 10% only. Notwithstanding that the IPO in the invested capital constituted almost 47%, the low rate of its costs (2.78%) did not impact the EVA value significantly, and the WACC rate on income level decreased by almost 42%. In the period 3, the company's EVA decreased by almost 76% due to the increase of costs of the invested capital to 51% after increase of the equity capital almost up to 86% in the total invested capital. The EBIT return rate decreased by almost 38%. Conclusion is that IPO emission did not

make any significant influence on the change of the EVA value.

Analysing the EVA change in the company TG, it was established that it increased by 103% in the period 2 in comparison with the period 1. In this company in the period 2 the EBIT increased by 181%, however the costs of the invested capital also increased by 188%. Notwithstanding that the company's debts to financial institutions increased by more than four times, the company managed to get these loans with the same interests as they were in the previous year. The issue of shares using the IPO did not make any significant effect on the EVA result, whereas the comparative weight of the IPO emission in the total invested capital constituted only 9.1%. The increase of the company's EBIT and not raised interests of new loans had the most positive effect on the EVA result. In the period 3, the company's EVA increased by 85% more in comparison with the period 2. When the costs of the invested capital decreased by 7.39% and EBIT decreased by 1.79%, the EVA increased by 85.73%. Conclusion is that the IPO emission did not make any significant effect on the change of the EVA value. More significant effect on the positive EVA change was made by the EBIT return, which was always higher than the WACC level on income rate.

The company's CS EVA value in the period 2 increased by 182% due to the decrease in capital costs almost by 47%. In this company, the equity capital constituted over 80% in the total invested capital within the analysed period. The IPO emission constituted 47.77% of the invested capital with the emission cost rate of 6.44%. The share of equity in the total invested capital decreased by almost 40% in the same period as the IPO emission, the invested capital costs in the period 2 decreased by 3.23%. The expected equity return rate also decreased. If the share of the equity capital remained the same, the IPO costs (1 759 thousand LTL) would decrease the EVA to 3 871 thousand LTL or 94.13% less than the initial change of 182%. In the period 3, the EVA decreased by 70% due to decrease of 32.22% in EBIT return rate. The WACC level on income rate remained almost on the same level. Conclusion is that the IPO emission did not make any significant effect on the EVA value change, whereas the share of equity capital decreased. Otherwise, it would be possible to say that the IPO decreased the EVA result.

The EVA value of the fifth company ST increased by almost 634% in the period 2. Such result was due to the EBIT return rate increase of 70.44%. Its weighty effect was reduced by the increase of the WACC level on income rate of 38.31%. Sufficiently low IPO emission costs (3.01%) and almost 35% decrease in share of debts to financial institutions in the

total share of the invested capital counterweighted the IPO costs. In the event the loans would not be repayed, the EVA value would decrease by about 2%. In the period 3, the EVA decreased by 78.31%; such a decrease was affected by the decrease of EBIT return rate by 54% in comparison with the period 2. Conclusion is that IPO transactions did not make any significant effect on the EVA value change.

General conclusion: a company's EVA increases during the year of IPO, however the IPO itself and its costs do not have any significant effect on the EVA change. Analysing the EVA change, it was noticed that the most negative impact on EVA is made by the increased share of equity capital in the invested capital, and positive effect on EVA is made by EBIT increase per one monetary unit of sales.

Valuation of a company by using the ROIC method. The value of the company AV decreased by almost 41% in the period 2 in comparison with the period 1. Such result was mostly influenced by the increase of the equity capital to 160%, payment of dividends increased by 117% and liabilities increased by 17%. In the period 3, the company incurred a huge net loss; therefore the ROIC of this period was equal to -68.1%. The value of the company OEG in the period 2 decreased by almost 26% in comparison with the period 1. Such a change was mostly influenced by the increase of the equity capital to 248% and dividend payment increase by 111%. Notwithstanding that the net profit increased by 87%, its increase level was lower than the level of returned debts. The value of the company TG decreased by almost 15 percent during the period 2 according to the ROIC method. Such decrease was mostly impacted by the increased liabilities of the company, which increased by 290%, and the increased equity capital, which increased by 242%. Increase of the net profit by 214% was too low to maintain the ROIC result of the period 1. The value of the company CS increased by 2.2% within the period 2 in comparison with the period 1. Such result was mostly influenced by the increase of 46.8% in the net profit, decrease in debts of 80%, and increase in equity capital of 78% did not push the ROIC result below the data of the period 1. The value of the company ST increased by 71.1% in the period 2. Such a result was mostly influenced by the increase in the net profit, which was 383%, decrease in debts by 100%, and the increase in the equity capital by 332% did not push the ROIC result below the value of the first period.

Conclusion is that the result of IPO transaction makes significant effect on the value of a company when it is valuated by using the method of return on invested capital (ROIC). The direct negative impact of IPO on the ROIC result is expressed through

the change of equity capital and its indirect positive effect – through the change of net profit, in case if funds attracted through IPO were assigned to development of markets and sales.

The generalised results on the effect of IPO transactions on the change of companies' value are presented in Table 3.

Table 3

The generalised results on the effect of IPO transactions on the change of companies' value

Rifkin's	TG		AV		OEG		CS		ST		Conclusion	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Did the value of the company increase when using the EVA method?	X			X	X		X		X		X	
The influence of IPO emission		X		X		X		X		X		X
If yes, by what percentage?	205				105		36		375			
Did the value of the company increase when using the ROIC method?		X	X			X	X		X			X
The influence of IPO emission	X		X		X		X		X		X	
If yes, by what percentage?							2		63			

Calculating the value of a company by using the EVA method, the value of a company after IPO increased; however, any direct effect of IPO on such an increase of the value was not found. Calculating the value of a company by using the method of return on invested capital, the effect of IPO is direct and negative, whereas the share of equity capital increases after the IPO, and this sort of capital is more expensive than the borrowed capital according to the performed economic researches. Hence, the increase in the share of the equity capital reduces the return on invested capital.

Generalising the economic analysis of the effect of IPO transactions on the results of a company's activities, the table of generalisation of the effect of IPO transaction on the results of a company's activities according to the calculated respective rates has been developed (see Table 4).

Table 4

Generalisation of the effect of IPO transaction on the results of a company's activities according to the calculated respective rates

Company	IPO multiplier	Change of EVA in second period, %	Change of ROIC in second period, %
ARCO VARA	0.25	-16	-41
OEG	0.83	2.3+03E *	-26
TALLINNK GRUPP	1.1	103	-15
CITY SERVICE	3.74	182	2.2
SAF TECHNIKA	5.18	634.	71

* In previous period there was negative result.

The data presented in Table 4 demonstrate that the positive changes of all four calculated rates emerged when the rate of the IPO multiplier was 3.74. Where the IPO multiplier was closer to 1, only one calculated rate – ROIC – was negative. Its negative impact was even more decreased when the IPO multiplier exceeded the value of 1. Therefore, the following conclusion was drawn – the direct positive effect of an IPO transaction on the results of a company's activities started to manifest when the IPO multiplier was higher than one.

Conclusions

Having performed the analysis of the efficiency of initial public offering transactions in NASDAQ OMX Stock Exchange and having estimated their effect on the change of the value of a company, we established that the IPO, as an economic phenomenon, is worth to be analysed, whereas the major IPO concept is related with attracting additional capital and includes the following essential features: a public offer to buy the shares of a private company in a stock exchange; a company issues new shares with intention of getting additional capital; it is the raise of capital and not the borrowing of funds; existing shareholders may secede partially or fully; so far the shares of such company have never been traded on a stock exchange; the idea of an IPO grows up in a company when it runs up and achieves the phase of growth.

Estimating the efficiency of IPO transactions, the IPO multiplier is calculated. The essence of this

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multiplier is to assess the effect of the change of the net capital attracted through the IPO on the change of income, i.e. how many additional monetary units of income were earned additionally with the help of the net capital attracted through the IPO. In all five analysed companies, the result of the IPO multiplier was very different.

IPO transactions make positive effect on the changes of a company's value. Where the value of a company was calculated by using the EVA method, the value of the company after IPO also increased. The established increase of the value covered the least increase by 102.79% and the highest increase by 633.83%. The EVA increase in one company was absolute, because the EVA value in the previous year was negative. Increase was established in four of five analysed companies. However no direct effect of IPOs on the increase of the value was established. Calculating the value of a company by using the method of return on invested capital (ROIC), the effect of an IPO transaction was direct but negative, whereas the share of equity increased after the IPO, and such sort of capital was more expensive than the borrowed capital according to the performed economic researches. Thus, the increase in the share of the equity capital reduced return on invested capital. Only in two of the analysed companies the ROIC had positive effect.

Comparing the obtained results of the EVA and ROIC changes of the IPO multiplier with each other, it was established that the positive changes of all four calculated rates emerged when the rate of the IPO multiplier was 3.74. When the IPO multiplier was closer to 1, only one calculated rate was negative: ROIC. Its negative impact was even more reduced when the IPO multiplier exceeded the value of 1. Hence, the direct positive effect of an IPO transaction on the results of a company's activities starts to manifest when the IPO multiplier is higher than one.

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Pirminio akcijų viešojo siūlymo sandorių efektyvumo analizė

Santrauka

Nuo XX a. 9-ojo dešimtmečio vis labiau populiarėjančiu kapitalo pritraukimo būdu tampa įmonių išėjimas į atvirą vertybinių popierių rinką. Sėkmingai įvykdytas pirminis akcijų viešas siūlymas (angl. *IPO – Initial Public Offering*) (toliau – IPO) vertybinių popierių biržose garantuoja emitentams dideles papildomo nuosavo kapitalo įplaukas, taip pat suteikia ir kai kuriuos kitus privalumus: įmonės gali tikėtis stabilaus jų akcijų kainų kilimo, geresnių kreditavimo sąlygų, strateginių sutarčių pasirašymo tarptautinėse rinkose. Tyrimo objektas – IPO sandoriai NASDAQ OMX Baltic vertybinių popierių biržoje 2004–2008 m. Tyrimo tikslas – atlikti pirminio akcijų viešo siūlymo sandorių efektyvumo NASDAQ OMX Baltic vertybinių popierių biržoje ekonominę analizę ir įvertinti šių sandorių poveikį įmonių vertės pokyčiui. Straipsnyje apibendrinti ir susisteminti įmonės kapitalo formavimo šaltinių, naudojant pirminių akcijų viešojo siūlymo (IPO) sandorius, teoriniai aspektai. Analizuojama IPO sandorių skaičiaus dinamika ir jos priežastys Europos VP rinkose – konkrečiai NASDAQ OMX Baltic VP rinkoje – ir atlikta OMX Baltic VP biržos IPO sandorių efektyvumo ekonominė analizė. Žinant, kad sėkmingai įvykdytas pirminis akcijų viešas siūlymas stambiose vertybinių popierių biržose garantuoja emitentams dideles papildomo nuosavo kapitalo įplaukas, atlikta IPO sandorių įtakos konkrečių įmonių vertės pokyčiams analizė.

Atlikus pirminio akcijų viešo siūlymo sandorių efektyvumo NASDAQ OMX vertybinių popierių biržoje ekonominę analizę ir įvertinus jų poveikį įmonių vertės pokyčiui, nustatyta, kad IPO kaip ekonominis reiškinys yra vertas analizės, nes pagrindinė IPO koncepcija susijusi su papildomo kapitalo pritraukimu ir apima šiuos pagrindinius požymius: viešas siūlymas privačios įmonės akcijas pirkti vertybinių popierių biržoje; įmonė išleidžia naujas akcijas, norėdama gauti papildomo kapitalo; tai kapitalo didinimas, o ne lėšų pasiskolinimas; esami akcijų savininkai gali pasitraukti iš dalies arba visiškai; iki tol įmonės akcijomis nebuvo prekiaujama vertybinių popierių biržoje; IPO siūlymo idėja įmonėje subręsta tuomet, kai ji jau būna įsibėgėjusi ir pasiekusi įmonės augimo fazę.

Tarpusavyje lyginant gautus IPO multiplikatoriaus, EVA ir ROIC pokyčių rezultatus, nustatyta, kad visų keturių skaičiuotų rodiklių teigiami pokyčiai atsirado tuomet, kai IPO multiplikatoriaus rodiklis buvo 3,74. Esant IPO multiplikatoriui arčiau 1, neigiamas tik vienas skaičiuotas rodiklis – ROIC. Jo neigiamas pokytis dar labiau sumažėja IPO multiplikatoriui perkopus reikšmę 1. Taigi IPO sandorio tiesioginis teigiamas poveikis įmonės veiklos rezultatams pradeda reikštis tuomet, kai IPO multiplikatorius yra didesnis už vienetą.

Pagrindiniai žodžiai: pirminio akcijų viešojo siūlymo (IPO) sandoriai, vertybinių popierių rinka, NASDAQ OMX Baltic vertybinių popierių birža, rinkos kapitalizacija, IPO multiplikatorius, įmonės vertė.