ANALYSIS OF THE ATTRACTIVENESS AND COMPETITIVENESS OF THE SECURITIES MARKET IN LITHUANIA

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Abstract. *The importance of attractiveness and competitiveness of the Lithuanian stock market has significantly increased in the recent years due to its influence on the capital market as well as on its participants and the economy of the whole country. This article aims to evaluate the attractiveness and competitiveness of Lithuania's securities market by using a quantitative analysis. It has aimed to define the statistically significant relationship between market attractiveness and competitiveness and the number of listed companies, cross listing, liquidity and trade volumes. The quantitative analysis has provided arguments to conclude that securities market in Lithuania currently is not attractive either from the point of capital supply or from the point of capital demand. In addition, the securities market in Lithuania lacks competitiveness among other markets.*

Key words: *attractiveness, competitiveness, security market, stock exchange*

Introduction

Due to the globalization, the circumstances to invest or raise capital in any securities market in the world emerge and increase the competition among these markets. Consequently, currently the attractiveness and competiveness of the securities market in Lithuania has become a particularly relevant problem influencing not only market members, but the country's capital market and the whole economy as well. The Lithuanian securities market constitutes part of the financial market which involves long-term and medium-term investments in stock and debt securities. The attractiveness of the securities market – the profit potential – is analyzed in accordance with both capital demand and capital supply. The competiveness of the securities market is perceived as the capability to effectively compete in the world while securing most beneficial circumstances for investors and issuers.

The **aim** of this paper is to identify, analyze, and evaluate the main factors influencing the attractiveness and competiveness of the securities market in Lithuania.

In order to achieve the aim, the following **objectives** have been put forward:

- to conceptualize the attractiveness and competiveness of the securities market;

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- to identify and analyze the main factors influencing the attractiveness and competiveness of the securities market;
- to evaluate the main factors influencing the attractiveness and competiveness of the securities market in Lithuania;
- to construct a model and to evaluate the attractiveness and competiveness of the securities market in Lithuania.

In order to implement the objectives, an asystemic and comparative analysis of the scientific literature, covering the attractiveness and competiveness of securities, has been accomplished in the first chapter of the paper. The second chapter deals with the methodology of a quantitative research. The third chapter presents and discusses the results of the statistical data quantitative analysis and the evaluation of the main factors influencing the attractiveness and competiveness of the securities market in Lithuania. The developed model helps to estimate the attractiveness and competiveness of the securities market in Lithuania. The paper is completed with the conclusions based on the generalization of the research results concerning the attractiveness and competiveness of the Lithuanian securities market.

THE CONCEPT AND FACTORS OF MARKET ATTRACTIVENESS

The concept of market attractiveness

One of the most inherent developmental features of the present economy, social politics and culture is the process of globalization based on the objective nature principle of causality, i.e. how certain activities in certain circumstances always create respective consequences. Globalization processes are seen as a result of the world states' development which opened up their economies and liberalized economic relations among the countries thus motivating the involvement and participation of national companies in the global economic system (Pryhara, 2006). Upon joining the European Union in 2004, the Lithuanian market has become much more accessible to foreign investors; this made it possible to attract internal as well as the foreign investors. First of all, foreign investors thoroughly analyze an unknown market in order to determine whether such investment will be benefitial, i.e. they determine the market attractiveness level.

When analysing the definitions of market attractiveness presented by different authors, one should notice that even though they are quite distinct, the key factors determining the market attractiveness remain quite similar. According to Y. Azarian (1998), the market attractiveness concept and the criteria of international markets is typically used when it comes to companies' objective to evaluate and choose new markets for business and are related to the analysis of external market environmental factors for business activity. Most business and marketing dictionaries define the market attractiveness assessment from the position of a customer, a company, or an investor, i.e. as a profit or benefit opportunity in a particular market or industry. The higher the potential gain or benefit, the more attractive a market is considered to be.

The attractiveness of the market in other literary sources is very closely related, to or even identified with, the market competitiveness. According to the American Marketing Association dictionary, the market attractiveness defines the degree of market opportunities provided by a market segment and a company's ability to meet the segment's needs considering the competitive environment. Meanwhile, the market attractiveness by M. E. Porter (1980) is considered to be closely related to the competitive situation in the market, i.e. economy competitiveness of companies and the country. M. E. Porter (1980), based on the five-forces model, argues that an attractive market is the one in which you can get the maximum profit or benefit, in other words, the more relevant market participants getting on for ideal competition, the less attractive it becomes. In the matrix of market attractiveness prepared by McKinsey & Company (1970), each business unit or product is classified in accordance with market attractiveness and the strength of its competitive position. Also, these two factors are dependent on each other, i.e. the high market attractiveness directly determines the high market competitiveness (Fig. 1).

		Business unit strength		
		High	Medium	Low
Market attractiveness	High			
	Medium			
	Low			

FIG. 1. The McKinsey market attractiveness–competitiveness matrix

Source: Amatulli C., Caputo T., Guido G., 2011, p. 62.

Baaken (1989) has developed a comprehensive criteria model for evaluating the new technology-oriented companies according to three main appropriate dimensions: the entrepreneur, technologies, and the market. The market dimension in this model is widely developed and consists of two main categories: market attractiveness and competitiveness. The Baaken model is based on the fact that market attractiveness and competitiveness are interdependent and laboriously separable characteristics (see Fig. 1).

The summary could conclude that market attractiveness, although approached differently by various authors, has the general feature – usually related to the company's entering into a new and unknown market and closely associated with the market competiveness (see Table 1).

TABLE 1. **Interpretation of the market attractiveness concept by different authors**

Author	Year	The main characteristics of market attractiveness
Y. Azarian	1998	Measured on the basis of the effect of the external market environment factors on business.
J.X. Hammond, G. B. Allan H.J. Pleitner	1975 1983	Market growth – the only external factor affecting the attractiveness of a market.
Marketing dictionary	1995	A measure of the profit potential inherent in the structure of a market or industry.
Business dictionary	2011	Market possibilities provided for the enterprise to meet the needs of the customer according to the competitive environment.
M. E. Porter	1980	Attractiveness is related to the general profitability of the sector. An uncompetitive market is an unattractive market.
McKinsey & Company	1970	Market attractiveness depends directly on market competitiveness
T. Baaken	1989	Market attractiveness and competitiveness are interdependent and inseparable.

Source: compiled by the authors.

Factors influencing market attractiveness

Companies or investors considering their opportunities and feasibility of entering a new market perform the analysis of market attractiveness in order to determine whether the entrance into a particular market is profitable and how much it could make (Porter, 1980). However, for assessing the market attractiveness, it is necessary to identify the main factors influencing it.

According to the marketing term dictionary, the main factors of market attractiveness are composed of four dimensions: market factors such as marketing growth rate, market size, and lifetime stage; economic-technological factors such as the intensity of investment, industry profitability, barriers to enter or leave the market, and the access to raw materials; competitive factors such as the types of direct competitors, competition structure, substitute risk, the power of negotiation between suppliers and buyers; environmental factors such as legal climate or regulation, the degree of social acceptance, and the human factor.

The M. W. Peng (2009) factors influencing the market attractiveness are also divided into four groups: market size and growth rates, institutional contexts, the competitive environment, and the cultural, administrative, geographical, and economic distance (Fig. 2). Most important are the market size and growth rates.

Khanna, Palepu and Sinha (2005) have developed a five-dimensional system which allows the attractiveness evaluation of a particular country or region according to the institutional context. They state that a country's political and social system, market openness, labour market, product market, and capital market influence the company's ability to successfully enter a particular country and compete in it. From their point of view, the most important aspect is the political system of the country: an open country gives a

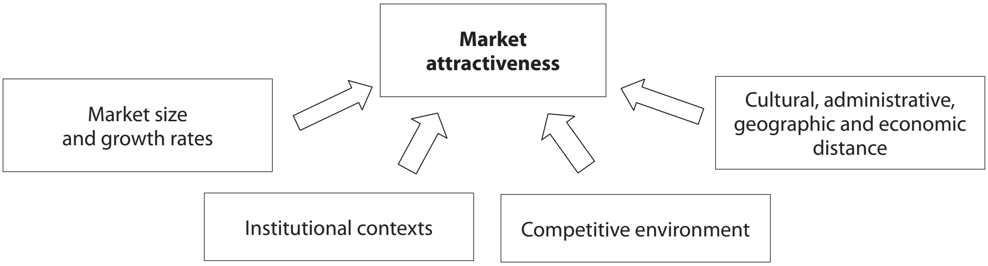

FIG. 2. **Factors influencing the market attractiveness**

Source: compiled by the authors according to Peng, 2009, p. 51.

possibility for market participants to develop their business freely and effectively. The second place according to the importance is the competitive environment: the number of competitors, the market size and quality.

M.W. Peng (2009) states that the country's cultural, administrative, geographical and economic distances are very important and broadly interpreted. Differences among religious, races, social norms and languages can make the cultural distance. These differences can quickly become the barriers for entering the market. Meanwhile, the administrative or political distance is created by differences among valid laws, politics, and institutional rules including international relations among the countries, contracts and membership in international organizations. Geographical distance can be defined as the simplest, i.e. it is the distance in kilometres in which the countries are away from each other. The other features attributed to the geographical distance are the physical size of the country, the average distances to the country's borders, access to the sea or the ocean, topography, the country's transport and communication infrastructure. Economic distance is determined by a disposable income which creates the largest distance among the countries.

R. J. Best (2005) has divided all the factors influencing the market attractiveness into three groups: market factors, the intensity of competition, and entrance in the market (Fig. 3). Market size, growth rate, and the power of the buyer are attributed to the market factors as very important as they are the initial data which are being analyzed before entering a new market and have a significant influence on the final decision. Meanwhile, the competition intensity is calculated in terms of price rivalry, the substitute, and the simplicity of entering the market, i.e. the existing market barriers, legal regulation, etc. The third factor – the entrance to the market – consists of knowing the customers, strategies of products and prices, and access to the channels, i.e. access to suppliers, raw material, capacity and potential of sales (Best, 2005).

The Kotler's (1997) approach is similar because market attractiveness is defined as the weighted arithmetical average of factors. The most important is the total size of the

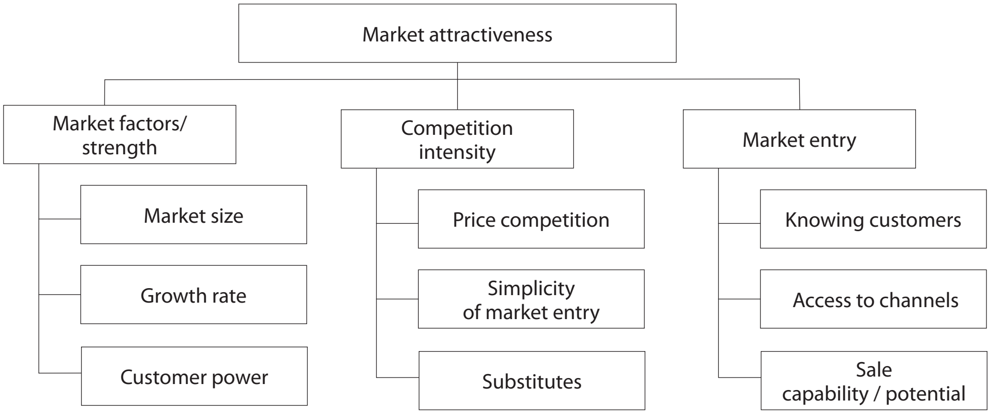

FIG. 3. **Factors influencing market attractiveness**

Source: compiled by the authors according to Best R. J., 2005.

market, the market growth rate, profit margins, and competition intensity. The choice of the factors' list and especially their weights are a strategic decision of the company and varies depending on the internal policy of the company. For example, a big weight attributed to the market growth factor is usually selected by the companies which focus on innovative markets. On the other hand, considerable attention to the past profit margins can be a disadvantage to the company focused on the innovation of products or technology that may turn out to be necessary for a successful future activity (Kotler, 1997).

Although the factors influencing market attractiveness by various authors are categorized differently, the principles remain the same. Also, the attractiveness of the market according to the authors analysed are almost inseparable from the market competitiveness.

STOCK MARKET COMPETITIVENESS

The economic glossary defines competitiveness as "the capability of person, product, company or branch to compete in the market". The English dictionary proposes another definition – "efforts of two or more independent parties to assure the best conditions for the third party." Academic debates regarding stock market competitiveness started more than half an age ago. The discussions were about whether the competition among the market makers or the monopoly of services could maximize the profitability. Coffee (2002) states that the number of stock exchanges will undoubtedly decrease radically in the nearest future due to the globalization and technologies. As the number of stock exchanges decreases, the competition among those remaining will increase. In this section, the factors defined as most important for stock market competitiveness will be analyzed.

Technologies and globalization provide access to foreign stock markets. More and more often companies and stock markets use cross listing. Most of the factors affecting the choice of the market are identical to the criteria of the stock market competitiveness and attractiveness.

The analysis of literature (see Table 2 which presents the most used criteria of competitiveness) shows that stock market liquidity, market size, listings, cross listing, transaction fees and legal regulation are the most important criteria measuring the stock market competitiveness. A full-scale analysis is presented in Appendix 1.

TABLE 2. **Stock market competitiveness criteria in the corresponding literature**

Author \ Criterion	Liquidity	Market size	Number of listed comp.	New listings	Trade volume	Market makers	Cross listing	IPOs	Product differentiation	Listing fees	Transaction fees	Annual fee	Transparency	Industry importance	Accounting standards	Legal regulation	Raise of capital	Price discovery	Dividends	Access to the market	Shareholders' protection	Macroeconomic factors
Pagano et al. (2001)	+	+					+							+	+	+						
Coffee (2001, 2002)		+		+			+	+								+						
Kennedy (2004)	+	+	+					+			+					+						
Carpentier et al. (2004)		+	+		+		+	+														
Klein (2005)	+									+	+			+	+	+		+		+		
Briger et al., (2007)		+					+	+														
Cantillon Pai-ling Yi (2008)			+		+				+	+	+	+							+			
Carpentier, et al. (2008)		+	+		+	+																
Sharma, Bodla (2011)	+	+	+				+			+			+									+
Shih-Fang Lo (2013)	+	+	+	+					+		+					+	+	+	+	+	+	

Source: compiled by the authors according to Best R. J., 2005, p. 506.

Some authors analyzing the stock market (Shih-Fang Lo, 2013) divide participants into two groups: those who form capital supply and those who form capital demand (see Fig. 4). Analyzing stock market competitiveness from the perspective of the **capital supply side** (competition for listing), the important criteria are the ones that are important for financial market participants with capital shortage, in particular, the criteria which are important for joint-stock companies, government companies, and other issuers which are desirable in the listings. Analyzing stock market competitiveness from the perspective of the **capital demand side** (competition for trading), the important criteria are the ones that are important for financial market participants with capital excess – physical and institutional investors.

Stock market competitiveness factors

According to the corresponding literature, 12 factors with the biggest impact on the stock market competitiveness from the perspective of both capital demand and supply sides are presented in Fig. 4:

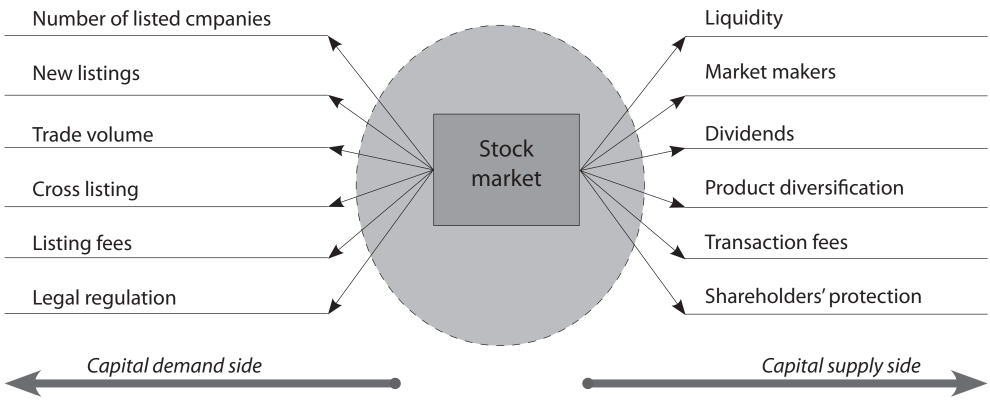

FIG. 4. **Model of competition for listing and trade in the stock market**
Source: Compiled by the authors, on the basis of Shih-Fang Lo, 2013.

The market size as one of the fundamental factors of stock market competitiveness has been present in 8 out of 12 researches shown in Table 2. While talking about market size, some authors (Coffee, 2002; Sharma, Bodla, 2011) include smaller factors such as listings, market capitalization, capitalization share in the gross domestic product, and IPOs. Others name those factors separately as the criteria of stock market competitiveness (Kennedy, 2004; Carpentier, 2004; Shih-Fang Lo, 2013). To define market size stock market capitalization, listings and trade volume will be used in this paper (see Fig. 5).

Market size can be directly related to the market competitiveness. The larger the market, the more attractive it is, because it provides access to the bigger investor base. Additionally, a larger market can offer a better visibility of the company as well as the reputation (Pagano et al., 2001).

According to Shih-Fang Lo (2013), the number of listed companies (**listings**) is one of the main stock market competitiveness criteria as listings show not only the market size, but also indicate the market attractiveness to other companies.

New listings show the attractiveness of a stock market for newly listed companies (Shih-Fang Lo, 2013). The World Federation of Exchanges states this factor to be one

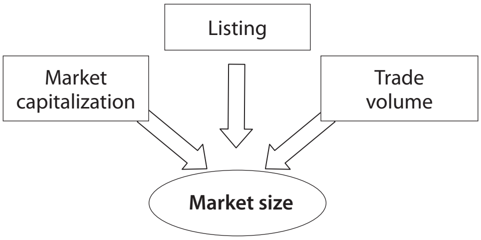

FIG. 5. **The stock market competitiveness factor "Market size"**

Source: compiled by the authors.

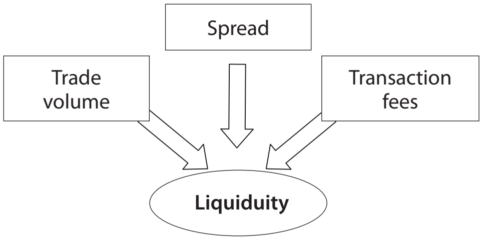

FIG. 6. **The scheme of stock market competitiveness factor "Liquidity"**

Source: compiled by the authors.

of the most important, because the bigger the listing, the more reliable, developed and liquid is the stock exchange.

While analyzing the stock market **liquidity,** authors tend to analyze stock market turnover, relative spread, and transaction fees (Carpentier, 2004; Kennedy, 2004; Zingales, 2006; Shih-Fang Lo, 2013; Degryse et al., 2013) (Fig. 6).

The trade volume (turnover) shows the amount of securities traded over the period of time in terms of money (Carpentier, 2008; Chang et al., 2000). When the trade volume is bigger, a market is more liquid as the issuers can attract the capital faster *ceteris paribus*. "A liquid market is one in which large amounts of securities can be traded in a minimum number of transactions and with a little impact on prices" (Kennedy, Governor, 2004, p. 36). According to Pagano (2001), a higher liquidity may have an impact on a lower price of the capital due to the higher appreciation of liquid stocks by investors. Noia (1998) states that liquidity attracts liquidity. When the market, liquidity is growing, more participants are being attracted to the market, and the liquidity grows. Pagano (2001) and Klein (2005) state that a higher liquidity increases the satisfaction for both market parties. According to these authors, liquidity should be perceived from two different perspectives as the speed (possibility of the market to perform transaction outright) and the depth (possibility to close transactions without a big impact on market prices). Therefore, the liquid market assures a fast stock transfer with a minimal number of transactions and a small impact on the price. The Stable stock price during transactions shows market stability and increases market attractiveness. The market depth as well as liquidity are measured by the Amivest liquidity ratio defined by Cooper, Groth, and Avera in 1985.

Coffee (2002), who has analyzed stock market competitiveness, states that **cross listing** is the major competitiveness indicator. Cross listing is calculated as the number of foreign companies listed in the local stock exchange as well as the number of local companies listed in the foreign stock exchange. Pagano et al. (2001) state that companies tend to list their stock in larger, more liquid markets. Therefore, a relatively big number of foreign companies listed in the local stock exchange shows market attractiveness. A relatively big number of foreign issuers in the local stock market indicates that the market has advantages as compared with the other foreign markets.

Zingales (2007), Klein (2005) consider **listing fees** to be among the most significant factors of stock market competition. Klein (2005) in his researches states that transaction fees (fees that are paid to intermediaries and exchange as commissions, also other fees for transactions, including fees to the government) reduces market liquidity as well as attractiveness and competitiveness. Even though these fees are not critical for choosing the stock exchange, they are an additional cost to the company. When fees in one particular stock exchange are very high as compared with others, issuers may prefer those others because the cost of capital rises significantly. Analogically, when the fees are low, the stock market (exchange) becomes attractive to a bigger number of issues. This leads to a higher market liquidity, as well as to its attractiveness and competitiveness.

The legal regulation is mentioned as one of the key factors of stock market competitiveness in more than half of the analyzed research papers (Table 2). The majority of them integrate legal regulations of market transparency, accounting standards, enforcement of contracts, efficiency of the bureaucracy, and access to information (Shih-Fang Lo, 2013; Kennedy, 2004; Klein, 2005; Bancel and Mittoo, 2001, Pagano et al., 2001). While analyzing the legal regulations of the stock market, Shih-Fang Lo (2013) as the criteria of stock market attractiveness additionally analyzes accounting standards, enforcement of contracts, and the efficiency of the bureaucracy. Pagano et al. (2001) have added to that the degree of shareholders' protection, the index of contract enforcement, and the index of bureaucracy delay to the analysis of the legal regulation of the stock market. According to him, a stricter legal regulation creates a better reputation of the capital market which may lead to a lower price of the capital to issuers. Kennedy (2004) joins stock market transparency with publicity and access to the relevant information. Klein (2005) states that a better protection of shareholder rights and enforcement of trading laws are related with lower spreads. The more effective bureaucracy is, the more attractive is the stock market because of lower listing fees.

It is believed that higher legal standards attract new companies to the stock exchange (Coffee, 2002). According to Klein (2005), a strong **protection for minority shareholders** is related with a higher listing, because better shareholders' rights and enforcement of contracts have an impact on a lower spread. The lower risk of contract nonfulfilment leads to a higher activity of investors. A bigger trade volume increases market liquidity as well as its attractiveness and competitiveness. The legal regulation is considered to be an important factor of stock market attractiveness and competitiveness; therefore, according to the corresponding researches, it should be analyzed by five components: transparency, enforcement of contracts, efficiency of bureaucracy, access to the information, and accounting standards (Fig. 7).

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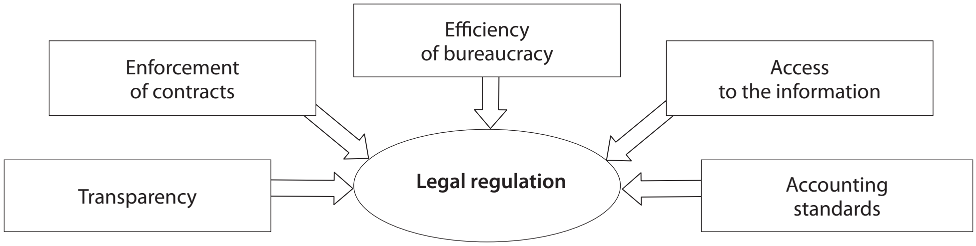

FIG. 7. **Scheme of the stock market competitiveness factor "legal regulation"**
Source: compiled by the authors.

Kim and Mehrotra (2007) as well as the NASDAQ stock exchange define **market makers** as the most important group of financial intermediaries. According to the NASDAQ OMX, market makers "provide an extra assurance to investors, as their task is to maintain the bid and offer orders in certain size in the defined price spread on continuous basis." Competition among market makers assures the best prices of stocks for investors. Therefore, the bigger number of market makers leads to a bigger competition which may result in best prices for investors.

Besides capital gains, investors also expect **dividends** (Shih-Fang Lo, 2013). Dividends are included in the 29 factors of stock market competitiveness measure by the World Stock Exchanges Federation.

According to Shih-Fang Lo (2013), in addition to the traditional stock share trading, markets offer derivatives, investment funds, exchange trade funds, etc. Shey et al., (2006) propose that investors prefer a stock market with a wide **assortment of financial products**. This allows to allocate the risk considering individual possibilities. A higher diversification of products indicates the innovation of the market (Shih-Fang Lo, 2013).

It may be concluded that market competitiveness and attractiveness are concurrent. A market attractive for investors and issuers will be competitive among other markets, and the competitive market will be attractive for both capital supply and demand. Thus, based on an assumption that these two charecteristics are almost inseparable, the further assumption of this paper is that the factors analysed will affect the competitiveness as well as the attractiveness of the securities market.

THE RESEARCH METHODOLOGY OF THE ATTRACTIVENESS AND COMPETITIVENESS OF THE SECURITIES MARKET IN LITHUANIA

With reference to the already accomplished systematic analysis, the following six stock market competitiveness and attractivenes indicators were chosen for the evaluationof the competitiveness and attractiveness of the Lithuanian stock market: the number of listed companies, the number of new listed companies, the trading scope (turnover), cross-listing, liquidity, and dividend payment. In the beginning, the time series analysis covering a period of 11 years of each indicator is presented.

Their strength of correlation with the attractiveness and competitiveness of the Lithuanian securities market is verified and, by selecting correlating variables, the model of the attractiveness and competitiveness of the Lithuanian securities market is formed using the regression equation (1):

The attractiveness and competitiveness of securities market =
= f (the number of listed companies, the number of new listed companies, trading extent, cross-listing, and liquidity) (1)

The Buffett (2001) index is selected to measure the **attractiveness** and **competitiveness.** It is estimated as the ratio of capitalization of the securities market to the gross national product (2):

$$\textit{Buffet index of stock market attractiveness and competitiveness} = \frac{\textit{Market capitalization}}{\textit{GNP}} \tag{2}$$

The **number of listed companies** is the number of the companies included in the NASAQ OMX Vilnius stock exchange list at the end of 2003–2013. In order to evaluate whether this index is a significant factor of the securities market competitiveness and attractiveness, the following hypothesis is verified:

H1: The attractiveness and competitiveness of the Lithuanian securities market is directly dependent on the number of listed companies.

The number of **newly listed companies** is analyzed in order to evaluate the net change of listed issuers: if the market is attractive and competitive, this index is positive, if not – negative (formula 3).

The number of new listed companies = the number of newly listed companies –
– the number of companies withdrawn from listing. (3)

Hypothesis H2: The attractiveness and competitiveness of the Lithuanian securities market is directly dependent on the net number of newly listed companies.

The trading volume is measured by the annual turnover of the securities market in terms of monetary value (Shih-Fang Lo, 2013; 2013; Kennedy and Governor, 2004; Chang et al., 2000). In order to evaluate the Vilnius Stock Exchange attractiveness and competitiveness on the basis of the turnover indicator, the average annual turnover of 2003–2013 was compared with the stock exchange turnover of Riga and Tallinn.

Hypothesis H3: The attractiveness and competitiveness of the Lithuanian securities market is directly dependent on the trade volume (turnover).

The ratio of **cross listing** is the number of companies in which the majority of the capital is owned by foreign investors and which are included in the lists of the Lithuanian stock exchange in 2003–2013.

Hypothesis H4: The attractiveness and competitiveness of the Lithuanian securities market is directly dependent on the number of foreign listed companies.

The **liquidity** of the securities market is measured using the Amivest liquidity ratio which measures the market depth – the possibility to complete transactions without major changes in market prices (formula 4):

$$\frac{\sum_{t=1}^{\mathrm{T}} V_{i,T}}{\sum_{t=1}^{T} \left| R_{i,T} \right|} \tag{4}$$

V = trade turnover in LTL,
R = absolute rate of return: $R = \frac{p_1 - p_0}{p_0}$,
where p_1 is the closing price of security on a day 1, and p_0 is the closing price of security on a previous trading day.

The Amivest liquidity ratio shows how well a stock or investment is able to absorb trading volumes without a significant move in its price. It is based on the intuition that in a liquid market a large trading volume may be realized with a small change in price and profitability.The higher is the Amivest liquidity ratio, the lower is the impact on the price, i.e. large amounts of stock can be traded with a little effect on prices, which indicates the greater securities market liquidity.

H5: the attractiveness and competitiveness of the Lithuanian securities market are directly dependent on liquidity.

Dividends are a ratio which is calculated as the number of those paying dividends to all listed companies.

Data. The number of listed companies, the number of new listed companies, turnover, liquidity, cross listing are analyzed using the data of the Vilnius Stock Exchange official and additional lists at the end of the quarter (n = 44). The indicator "dividends" is analyzed by using annual data. Data of 2003–2013 (except the indicator "dividends" which due to the lack of data covers a shorter period of 2005–2012) is used. Data source – the website of the NASDAQ QMX Baltic http://www.nasdaqomxbaltic.com. The research is performed using the SPSS data analysis package.

THE RESEARCH OF THE ATTRACTIVENESS AND COMPETITIVENESS OF THE LITHUANIAN SECURITIES MARKET

The influence of the number of listed companies

The analysis of the number change of listed companies in the Vilnius Stock Exchange during 2003–2013 (Fig. 10) shows that starting from the second half of 2003, the total number of listed companies was gradually declining. The more pronounced decrease in the number of listed companies has been observed since the I quarter of 2011 until the I quarter of 2012 when it droped by 8 issuers (from 41 to 33). Since this ratio is considered to be one of the main market criteria of attractiveness and competitiveness, it can be said that since 2003 until 2013 the Lithuanian securities market attractiveness and competitiveness gradually declined considering both aspects – capital demand and supply. The decreasing number of listed companies shows that the market is neither attractive nor competitive for companies regarding other markets. The decline of this ratio means that the market itself alongside the diversification possibilities has decreased.

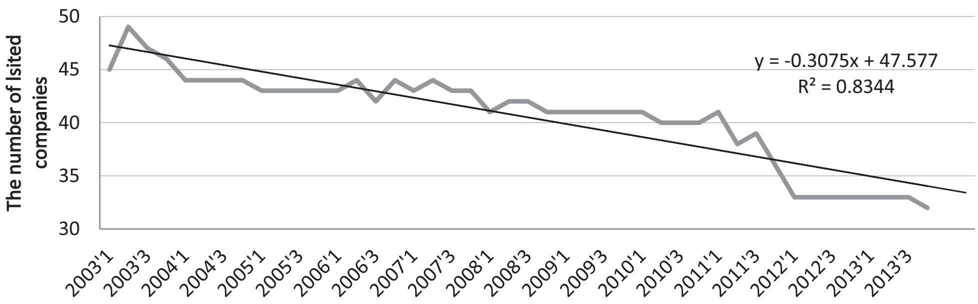

FIG. 8. **The number of listed companies in the Vilnius Stock Exchange (2003–2013)**

Source: compiled by the authors according to data of NASDAQOMX Vilnius.

The results of the correlation analysis show that there is a positive moderate strength relation (Pearson's correlation coefficient is 0.555, Table 3) between the number of listed companies and the securities market attractiveness and competitiveness. The hypothesis that the attractiveness and competitiveness of the Lithuanian securities market is associated with the number of listed companies is not rejected (the null hypothesis that there is no relation between the market attractiveness / competitiveness and the number of listed companies was rejected at the 99% significance level (Table 3).

TABLE 3. **The correlation analysis results of the relation between independent variables and the Buffett index representing the securities market attractiveness and competitiveness**

Index	Pearson's correlation coefficient	p value
The number of listed companies	0.555	0.000
The number of new companies	0.095	0.540
Liquidity	0.396	0.008
Turnover	0.424	0.004
Cross listing	0.515	0.000

Source: compiled by the authors based on data of NASDAQ OMX Vilnius and SPSS calculations.

This suggests that there is a significant correlation between the attractiveness / competitiveness and the number of listed companies. As the number of listed companies in 2003–2013 decreased, we can conclude that the attractiveness and competitiveness of the Lithuanian securities market during this analyzed period has also decreased.

The influence of the number of newly listed companies

The number of newly listed companies during the period 2003–2013 fluctuated in the interval from -3 to + 4.

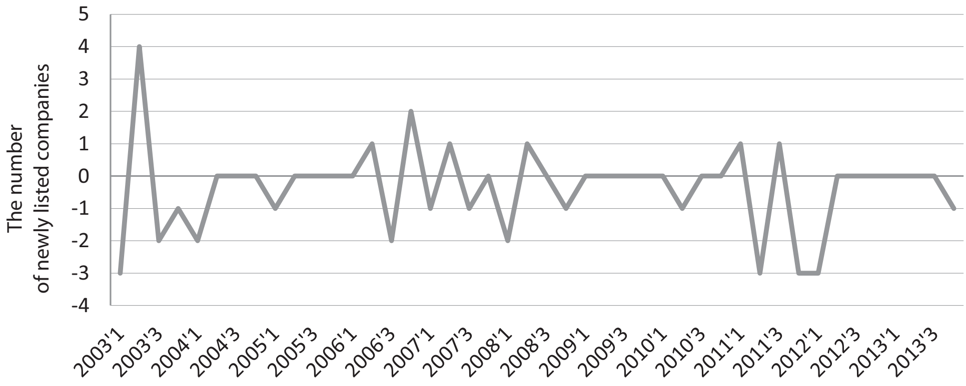

FIG. 9. **Change of the number of newly listed companies in 2003–2013**

Source: compiled by the authors according to data of NASDAQOMX Vilnius.

However, the correlation analysis has showen that there is no relation between the number of newly listed companies and the securities market attractiveness and competitiveness (Table 3). This leads to the conclusion that not the number of newly listed and withdrawn companies but the total number of listed companies is important to the market.

Trade volume impact

Having compared the average annual turnover of 2003–2013 in Lithuania with the stock exchange turnover of Riga and Tallinn, we can see that the Lithuanian market is more attractive than the Latvian market but much less attractive than the market in Estonia (Fig. 10).

During the period analysed, the turnover has been quite volatile (s = 661875288), particularly in the fourth quarter of 2006 when "Mažeikių Nafta" was sold for nearly 4 billion litas (Fig. 11), but it shows no clear trend. A correlation between the stock turnover in the Vilnius Stock Exchange and the attractiveness and competitiveness of

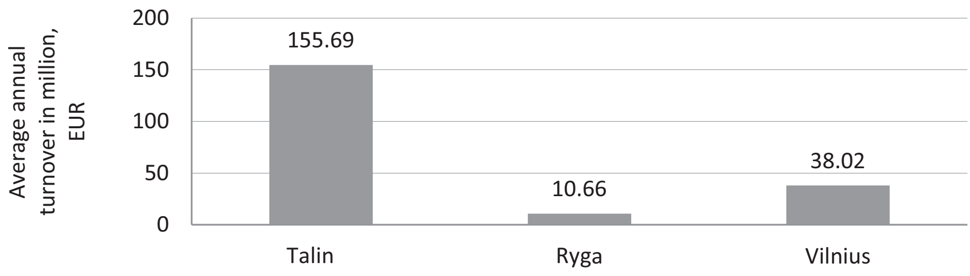

FIG. 10. **The annual average turnover of the Nasdaq OMX Baltic stock exchanges in 2003–2013**

Source: compiled by the authors according to NASDAQ OMX Vilnius data.

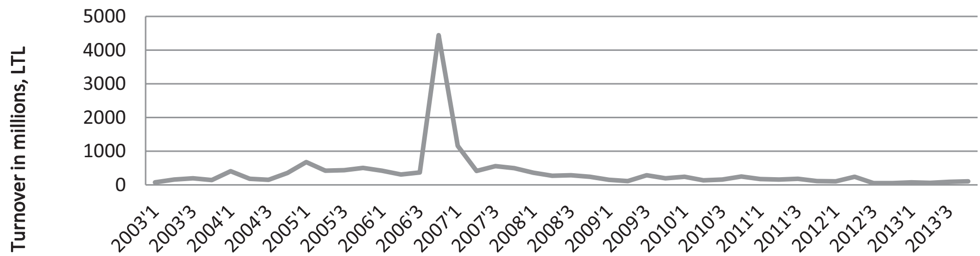

FIG. 11. Change of turnover of the Vilnius Stock Exchange in 2003–2013 (quarterly data)

Source: prepared by the authors according to data of NASDAQOMX Vilnius.

this market has shown a positive moderate relation between those two criteria (Pearson's correlation coefficient is 0.424, Table 3). This shows a direct relation between the stock turnover and the market attractiveness and competitiveness.

The influence of cross-listing

During the period 2003–2013, the number of companies included in the trade list as well as the number of foreign capital companies were declining (see Fig. 12). It systematically decreased from 16 foreign capital companies in 2004 to 8 companies in 2012.

The correlation analysis has revealed that the stock market attractiveness and competitiveness are positively correlated with cross-listing (Pearson's coefficient is equal to 0.515, see Table 3).

Therefore, we may say that the more of cross-listed firms are included, the more attractive and competitive the Lithuanian stock market is. The decreasing number of cross-listed companies in the Vilnius stock exchange in the period 2003–2013 shows the decline of the Lithuanian stock market attractiveness and competitiveness with the assumption that companies with foreign capital have chosen other stock markets to list in.

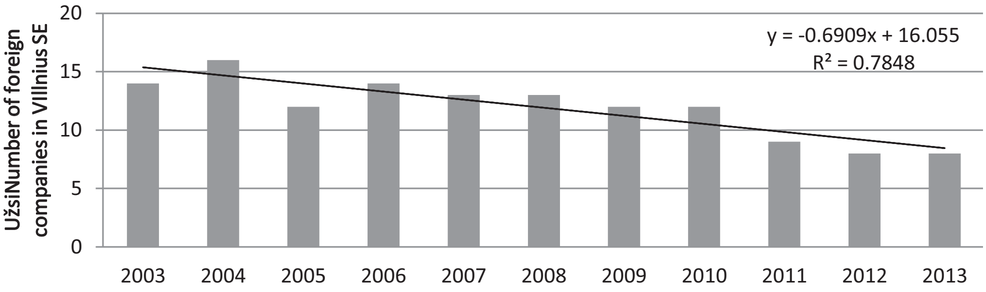

FIG. 12. **Change in the number of foreign companies listed in the Vilnius stock exchange during the period 2003–2013**

Source: compiled by the authors according to data of NASDAQOMX Vilnius.

The Lithuanian stock market liquidity

The Amivest liquidity ratio shows that the liquidity of the Lithuanian stock market is very volatile (s = 25471165). This is the result of a high turnover fluctuation as well as the volatility of prices. Since the Amivest liquidity ratio contains a turnover, there are outliers in the 4th quarter of the year 2006 because of the sale of "Mažeikių nafta" mentioned above (see Fig. 13). Another significant fluctuation of the stock market liquidity was observed in the 2nd quarter of 2012 when the turnover of "TEO" shares increased more than 4 times. This was related to the takeover of "TEO" shares by the Swedish company "Telia Sonera".

The unstable liquidity diminishes the Lithuanian stock market attractiveness and competitiveness because the stock market liquidity is highly related to the satisfaction of supply and demand sides (Klein, 2005). The dissatisfaction of market participants indicated the unattractiveness of the market itself.

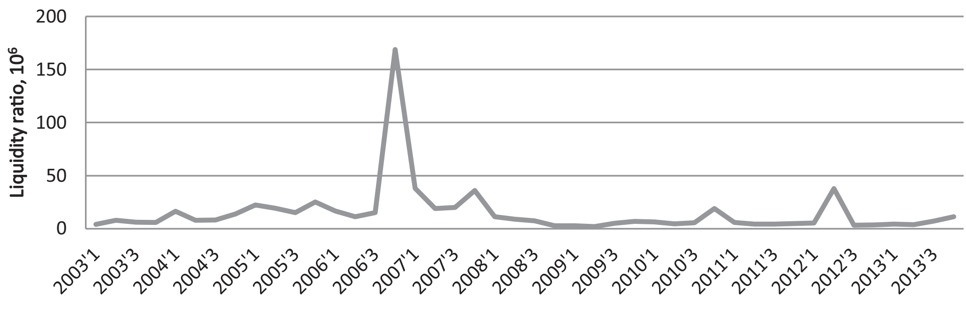

FIG. 13**. The Amivest liquidity ratio of the Lithuanian stock market during 2003–2013**

Source: compiled by the authors on the basis of Nasdaq OMX Vilnius data.

The correlation analysis has revealed that the stock market attractiveness and competitiveness are positively moderately related with liquidity (Pearson's correlation coefficient 0.396, Table 3). During the period 2003–2013, the Lithuanian stock market liquidity was relatively low and neither growing nor falling.

Volatility of dividends in the Vilnius Stock Exchange

The analysis of dividend payments in the Vilnius stock exchange (Fig. 14) has revealed that there were fewer companies which paid dividends than those which did not in the period 2003–2013. Reasonably, the outliers were observed during the years before the economical crisis (2005–2007).

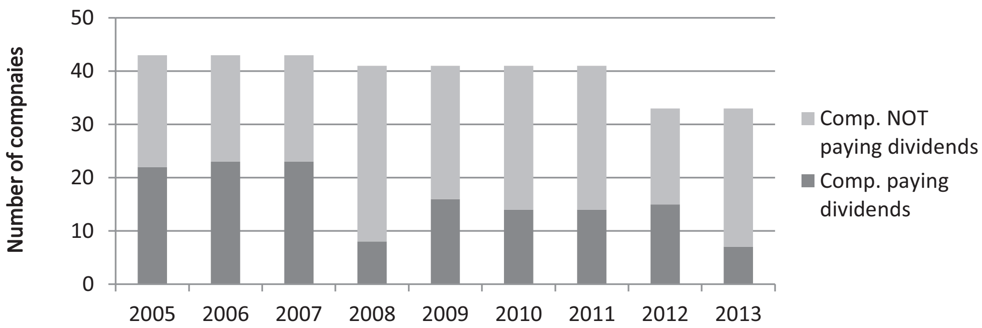

FIG. 14. **Number of companies paying dividends in the Lithuanian Stock Exchange in the period 2005–2013**

Source: compiled by the authors on the basis of Nasdaq OMX Vilnius data.

The bigger number of the companies not paying dividends than the ones paying them is a negative indicator of the stock market attractiveness and competitiveness from the viewpoint of the capital supply side since the dividends as well as capital gains are the main investors' objectives.

One could come to the conclusion that the Lithuanian stock market in the period 2003–2013 was rather unattractive and uncompetitive than attractive and competitive.

The Lithuanian stock market attractiveness and competitiveness evaluation model

The multiple linear regression function has been prepared in order to evaluate the aggregate impact of the factors analysed in the previous chapters on the Lithuanian stock market attractiveness and competitiveness:

$$\textit{Stock market attractiveness / competitiveness} = -0.923 + 0.036 \times \textit{Listing} + 3.477\text{E-}009 \times \textit{Liquidity} + 3.150\text{E-}11 \times \textit{Trade volume} + 0.009 \times \textit{Cross listings} \quad (5)$$

A new listing is not included in the multiple linear regression model due to the fact that there is no statistically significant relationship between new listings and the Lithuanian stock market attractiveness and competitiveness.

The calculated R^2 shows that the analyzed factors (listings, trade volume, cross-listings, and liquidity) explain 40.2% of the Lithuanian stock market attractiveness / competitiveness. Therefore, it might be assumed that the remaining 59.8% of the Lithuanian stock market attractiveness and competitiveness are determined by other factors. The high level of significance ($p < 0.00$) in the ANOVA analysis has assured that the model is suitable.

In accordance with the model (5) it might be stated that listing has the highest impact on the Lithuanian stock market attractiveness and competitiveness, whereas trade volume and liquidity have the lowest one.

Because of the outliers detected, additional calculations were made in order to ascertain whether these outliers influence the regression model. The Cook's distance revealed the marginal mean (4/n) to be bigger than two Cook's distances. Standardized dfBETA of each independent variable has shown that there are 10 values which are bigger than the critical value ($2/\sqrt{n}$). Therefore, 10 values out of 176 are detected as outliers, and their removal could have a significant influence on the coefficients of the regression (see Appendix 2). To summarize, it might be stated that there are outliers affecting the prediction and forecasting based on the regression model. According to the authors, the main reasons are the economic situation which strongly affects the Lithuanian stock market, as well as the subjective factors that have been analyzed in the expert survey.

CONCLUSIONS AND PROPOSALS

The analysis of scientific literature identified 12 main factors: the number of listed companies, the number of new listed companies, trade volume, cross listing, listing fees, legal regulation, liquidity, the number of active market formers, dividends, product diversification, transaction costs, and shareholders' protection influencing the attractiveness and competitiveness of the securities market.

A quantitative analysis of the influence of six factors determining the securities market attractiveness and competitiveness has revealed the following:

- based on a correlation analysis, it can be concluded that during the period 2003–2013 the main factors that showed a positive and significant impact on the attractiveness and competitiveness of the Lithuanian securities market were the number of companies listed, trade turnover, the number of foreign companies, liquidity, and dividends;
- The declining number of companies listed, trade turnover, the number of foreign companies, the low and volatile liquidity have been reducing the attractiveness and competitiveness of the Lithuanian securities market;

- assessing the Lithuanian securities market attractiveness and competitiveness from the point of capital demand, it could be concluded that the market is not attractive for issuers. With the decreasing number of listed companies and trade turnover in 2003–2013, the Lithuanian securities market was loosing its attractiveness from the point of view of both capital demand and capital supply.

Based on the results, the following proposals are made:

- in order to increase the Lithuanian securities market attractiveness from both capital demand and supply sides and the competitiveness regarding other markets' greater attention, support from the government is needed. The state policy should encourage large state-owned companies to participate in the securities market. Their freely quoted shares would significantly increase the liquidity and turnover of the market;
- greater attention to the financial and investment education would enhance the capital demand and increase the market liquidity, turnover, and attractiveness for new investors and issuers as well as competitiveness in regard to other markets.

The further analysis of the attractiveness and competitiveness of the securities market will be performed qualitatively by using the expert survey and comparative analysis.

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Appendices

APPENDIX 1. **Analysis of criteria used in other corresponding researches**

Author	Criteria	Explanation
Bancel ir Mittoo (2001)	Access to foreign capital markets	Listing in foreign markets provides better conditions for access of capital with lower costs.
	Stock liquidity	
	Industry-specific factors	Better evaluation of the company and securities in the exchange with more companies listed from the same industry.
	Degree of foreign operations	Increase in the degree of foreign operations increases a company's visibility and image as a participant of the global market.
	Firm size	Measured by the turnover or capital.
	Financial disclosure level	Costs required to be listed in the stock exchange.
	Location of foreign listings	
Pagano et al. (2001)	Liquidity	Higher liquidity – lower cost of capital. Measured by costs of trade (commissions, fees, etc.)
	Stock market size	Larger market – larger base of potential investors. Being in the listing of bigger market may lead to a better visibility and reputation. Measured as the capitalization of the market.
	Analysts' coverage	One of the advantages of being in the listing is a better attention to analysis followed by a better visibility by investors.
	Cross listings	
	"Bee with your peers"	Number of companies listed from the same industry.
	Accounting standards	Transparency, lower costs of shareholder control.
	Legal variables	Shareholders' protection degree, contract enforcement, more efficient bureaucracy.
	Cultural homogeneity	Language, institutions
Coffee (2001)	Legal enforcement	
	Growth of stock market	Number of listed companies, market capitalization as a percentage from GDP, number of IPOs.
Shih-Fang Lo (2013)	Number of listed companies	Usually, bigger stock markets seem more attractive because they have access to bigger investors' base. Bigger stock markets provide better visibility and reputation.
	Number of newly listed companies	Shows attractiveness to new companies.
	Capital raising	Measures how cheaply may the companies raise capital (price–earnings ratio).
	Visibility	Better reputation evaluation by analysts. Measured by market size (capitalization).
	Transparency	Transparency of financial institutions, contracts enforcement, efficiency of the bureaucracy.
	Legal regulation	Legal regulation and accounting standards. Higher standards attract new listings.
	Liquidity	Liquidity affects ask/bid prices of securities.

Author	Criteria	Explanation
	Price discovery	Efforts of the market to discover prices closest to theoretical equilibrium.
	Dividends	
	Product diversification	Securities, derivatives, investment funds, exchange funds, etc., trade platforms, etc.
	Easy access	Access to the capital market.
	Shareholders' protection	Better protection of investors is related with a lower difference between ask and bid prices.
Klein (2005)	Listing fees	
	Liquidity	
	Companies from the same industry	
	Legal regulation	Strong protection of minor shareholders attracts more listings and has a positive impact on differences between ask and bid prices.
	Accounting standards	
	Transaction fees	
	Liquidity	Higher liquidity increases the satisfaction of the market by both parties (issuers and investors).
	Price discovery	Discovery of a price close the theoretical equilibrium.
	Easy access to the market	Easy (technologies), equal to everybody access to the market.
Cantillon, Pai-ling Yi (2008)	Listing fee	Lower listing fees increase competitiveness
	Trading costs	
	Margins	Calculated as operating income / total revenues (excluding exceptional items)
	Trade volume	Higher trade volume increases competitiveness
	Market participants	Number of listed companies and intermediaries
	Number of products	
Coffee, Joh (2002)	Cross listing	Main prove of competitiveness
	IPOs in international markets	IPOs of local companies in foreign exchanges
	Satellite markets and market networks	Subsidiaries abroad
Carpentier, et al, (2008)	Stock market capitalization	Capitalization of all securities in stock exchange
	Trade volume	Amount of securities traded in terms of money
	Number of listed companies	Number of listed companies
	Presence of foreign corporations	Cross listing
	Listing fees	
	Costs of publicity	Information disclosure costs
Carpentier, et al. (2004)	Capitalization levels	The sum of the market value of all firms listed in a market
	Listed corporations	
	Trade volume	Amount of securities traded over the period of time in terms of money

Author	Criteria	Explanation
Kennedy (2004)	Market size	It can contribute to efficiency by increasing the potential for liquidity of a market and the diversity of its products
	Bonds outstanding	Values for total bonds outstanding represent the sum of government, corporate, eurobond, and foreign bonds outstanding
	Market capitalization	
	Number of listed companies	
	Access to global markets	Cross listing of local companies
	Liquidity	Turnover velocity (ratio ofhe value of shares traded to market capitalization
	Transaction costs	Low transaction costs are associated with high liquidity
	Transparency	The amount of quote, price, and volume information available to markets and the general public
	Market integrity	Publicity of information, market regulation, codes of conduct, their enforcement in order to assure the trust and confidence of participants

APPENDIX 2. **Standardized DFBETA**

Year	Number of companies	Liguidity	Turnover	Cross listing
2003'1	-0.15312	-0.0738	0.1081	0.02103
2003'2	-0.89756	-0.26629	0.31161	0.62425
2003'3	-0.25589	-0.00863	0.02921	0.15682
2003'4	-0.1702	-0.04205	0.06189	0.08029
2004'1	-0,0261	0.00229	-0.0032	0.03806
2004'2	0.10847	-0.00913	0.01905	-0.16212
2004'3	0.07582	-0.02234	0.02977	-0.11701
2004'4	-0.06999	0.00033	-0.00374	0.10147
2005'1	0.23725	-0.15659	0.17541	-0.23799
2005'2	0.27145	0.13474	-0.13114	-0.22557
2005'3	0.42114	-0.1121	0.11226	-0.38596
2005'4	0.25309	0.21272	-0.20101	-0.20396
2006'1	-0.12973	0.01888	-0.02468	0.24204
2006'2	0.00714	-0.01077	0.00337	0.03826
2006'3	-0.12783	0.00531	-0.00926	0.17169
2006'4	1.24917	0.1665	-5.00812	-0.03025
2007'1	0.01841	-0.30114	0.35983	-0.02961
2007'2	0.21942	0.14791	-0.14874	-0.13126
2007'3	0.06654	-0.05648	0.06401	-0.02246
2007'4	0.00107	0.00396	-0.00384	-0.00027
2008'1	-0.08725	-0.06973	0.0662	0.09496
2008'2	-0.00119	-0.00213	0.00177	0.00212
2008'3	0.03081	0.08319	-0.07557	-0.04417
2008'4	0.18867	0.29138	-0.27146	-0.18802

Year	Number of companies	Liguidity	Turnover	Cross listing
2009'1	-0.00229	0.11679	-0.10023	0.00524
2009'2	-0.00526	0.10494	-0.08631	0.00536
2009'3	0.00732	0.09746	-0.09266	0.0017
2009'4	-0.00957	0.03537	-0.02652	0.00634
2010'1	-0.00071	0.04167	-0.03751	0.00258
2010'2	0.0437	0.03698	-0.02839	-0.04076
2010'3	0.02483	0.02072	-0.01638	-0.02292
2010'4	0.00853	-0.08249	0.08243	-0.01876
2011'1	-0.07456	0.00579	-0.00439	0.08402
2011'2	-0.01844	0.01407	-0.01318	0.03018
2011'3	-0.1447	0.07708	-0.07269	0.19781
2011'4	0.00565	0.01503	-0.01383	0.01646
2012'1	-0.03013	-0.01667	0.01655	0.0009
2012'2	0.01656	-0.58087	0.55847	0.02102
2012'3	0.00487	0.00249	-0.00237	-0.00016
2012'4	-0.005	-0.0026	0.00248	0.00017
2013'1	-0.04643	-0.02406	0.02338	0.00145
2013'2	-0.00732	-0.0036	0.00345	0.00024
2013'3	0.02221	0.00036	-0.00042	-0.0003
2013'4	0.00587	-0.00253	0.0024	-0.00207

Source: compiled by the authors according to Nasdaq OMX data and SPSS.