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Company growth and growth opportunities on the example of some EU stock exchanges in the light of market characteristics

Abstract: This paper analyzes the relationship between growth opportunity measures and the future growth of companies. If there is a correlation between a company's growth potential and its real growth, then the markets are more predictable and effective. The survey was conducted on the example of the following European markets: Austria, the Baltic Countries, Hungary, France, Poland, and Germany. The goal of this paper is to assess the relationship between growth opportunity measures and the future growth of companies listed on the stock exchanges of some markets in the European Union. The countries considered can be classified according to the size of the state, market liquidity, and the maturity of the exchange. Those external factors were expected to influence the strength of the growth and its

opportunity relationship. It was found that growth opportunity measures based on market prices have predicting power for the future growth of companies. They are also strongly related to companies' future growth in large countries and weakly related to future growth in small countries. This paper adds to the literature on the application of growth opportunity measures regarding market characteristics. These results are in line with the view that market liquidity should increase its efficiency in revealing the value of stocks and the Comprehensive Advantage of Large Countries hypothesis.

1. Introduction

This paper discusses companies' growth and its relationship with growth opportunity measures. The strength and significance of this relationship may depend on the market and its characteristics, such as size, market liquidity, and the age of the stock exchange.

The problem of markets' ability to predict the growth of listed companies traded on the exchanges in Austria, the Baltic Countries[1], Hungary, France, Poland, and Germany will be discussed. Growth opportunity measures are calculated based on the market price of shares, including the expectation of future earnings. Growth opportunity measures should be related to growth if share prices are valued rationally and all information available on the market is included in the price. The most popular measure of growth is related to sales, but it is earnings-per-share (EPS) growth that represents the growth of a company's value.

Many market characteristics can influence company growth, and three of them are considered in this paper. Market size can support company growth and may be related to the growth potential that will determine the companies' future growth. The size effect is related to the internal demand, the number of sectors, and the external capital amount that must be moved into the economy to influence its behavior. There are

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1   By Baltic Countries, we understand Lithuania, Latvia, and Estonia. Together, they form Nasdaq Baltic, with exchanges in Tallinn, Riga and Vilnius. The core idea is to minimize the differences between the three markets to facilitate cross-border trading and attract more investments to the region. This includes sharing the same trading system and harmonizing rules and market practices, all with the aim of reducing the costs of cross-border trading in the Baltic region. The Baltic exchanges belong to Nasdaq, the world's largest exchange company.

two other effects that can influence the growth process: the liquidity and the age of exchange. Both the dynamics of the market and the new exchange effects were significant in the growth assessment in previous findings in the literature.

Danbolt, Hirst, and Jones (2011) found a relationship between measures of potential growth and subsequent company growth in the UK, but only in terms of sales, assets, and equity, but not for EPS, although it is a measure directly related to the growth of a company's value. This paper analyzes the existence and strength of the relationship between growth opportunity measures and subsequent company growth across selected European markets with different market characteristics. We examine companies in the following indices: WIG index for Poland, BUX for Hungary, ATX for Austria, DAX for Germany, CAC40 for France and OMXBBGI for the joint market of the Baltic Countries. The market features represent market size (country) and liquidity, and the maturity of the stock exchange.

The article aims to show that the impact of the growth potential on enterprises' future growth depends on external factors, such as market characteristics. The hypothesis tested in this paper is that the relationship between growth opportunity indicators and future growth might differ depending on the market that the companies are listed on. To the best of our knowledge, there are limited findings in the field of growth opportunity and the subsequent growth of companies, except for those presented for the UK by Danbolt, Hirst, and Jones (2011) and Poland (Bolek, Pietraszewski, Wolski, 2021). This paper can fill this gap.

The paper comprises the following sections: first, the literature analysis is presented, followed by the methods and data, then the results are given, and it ends with conclusions.

2. Literature analysis

Growth is related to economic development and the microeconomic sources of this growth. A company's growth can be reflected in an increase in its assets, equity, earnings per share, and sales (Erhardt, 2021; Hashai, Zahra, 2022). Earnings-per-share growth is directly related to value growth and is considered the most important growth indicator in the capital market (Danbolt, Hirst, Jones, 2011).

There are many findings related to growth where authors consider other growth factors. Bali et al. (2014) found that sales growth was the best indicator of business development in both the short and long terms. Cooper, Gulen, and Schill (2008) found that an increase in assets was a significant predictor of above-average future profits. On the other hand, Kallapur and Trombley (1999) showed that it was impossible to predict profit growth using any models, although theoretically, the model variables should determine such an increase.

The growth of an enterprise can be measured by an increase in sales, assets, or equity. However, those growths may not cause an increase in value for the owners when investment projects with negative net present values (NPVs) are implemented in the organization. According to Danbolt, Hirst, and Jones (2011), only the growth of EPS results in a company's growth in value. On the other hand, a high level of return on equity contributes to a decline in future profits as new companies emerge on the market, encouraged by high margins, increasing the sector's competitiveness and decreasing margins (Fama, French 2007). Such a situation may cause the value to decrease.

Earnings are essential in determining value, and research shows that profit fluctuations negatively affect their forecast (Hodgson, Okunev, 2021). Hunt, Moyer, and Shevlin (2000) found that companies that use profit-smoothing methods were characterized by higher equity costs, negatively influencing the value. Therefore, it can be concluded that EPS growth may not be an accurate predictor of future growth because of the large-scale manipulation.

Growth opportunity is not sufficiently described in the literature. However, Ottoo (2020) recently presented a valuation of growth opportunities based on the real options approach, extending previous findings (Ottoo 1998; Biddle, Ma, Song, 2022). Moreover, Chen (2002) analyzed the influence of capital structure on value with different growth opportunity measures. Rudiyanto, Paramita, and Suprijanto (2018) studied the influence of growth opportunities on company value.

Zhang (2007) defined a large country as one that is called a price setter on international markets. However, according to Ouyang (2016), a large country is characterized by a large territorial area and population scale. He used the term CAOLC (Comprehensive Advantage of Large Countries) to describe large countries, taking into consideration domestic product and the cultivated land area. Milner and Westaway (1993) found that in short periods, small countries' greater vulnerability to shocks or variation in world demand may affect economic structures and the growth of companies. Youhao (1999) stated that a huge domestic market, a complete system of industrial sectors, and a large gross domestic scale can influence growth and growth opportunity; as a result, the expectations will be realized in the future. Market size should influence the strength and significance of the relationship between the growth opportunity measures and growth.

It is also possible to find the effects of a new exchange on market efficiency and valuation. Mohd Daud, Ahmad, and Ngah (2021) and King and Levine (1993) found that new stock markets provide timely and accurate information about companies to investors. North (1991) found that a developing stock exchange may lower the cost of transferring ownership, which attracts investors. Meanwhile, Hull and McGroarty (2014) found that emerging markets become more efficient as they develop because long memory persistence in equity indices decreases.

Liquidity, along with other variables that characterize the market microstructure, is of key importance in price discovery (Pham, Nguyen, Do, 2022; Ryu, Yu, 2022). As an example, Chordia, Roll, and Subrahmanyam (2006) provided evidence that the short-horizon predictability of returns from past orders depends negatively on trading liquidity. Bali et al. (2014) found the importance of market liquidity for efficiency by showing that illiquidity contributes to the underreaction of stock prices to external shocks.

3. Methods and data

This article examines companies included in the WIG index for the Polish market, the BUX index for the Hungarian market, the ATX index for the Austrian market, the DAX index for the German market, the CAC40 for the French market, and the OMXBBGI index for the market of the Baltic Countries. The survey was conducted on data from March 31, 2012, to December 31, 2018, that is, the period between financial crises. Based on the Bloomberg database, only companies and related data (market indices, capitalization, P/E ratio, EPS, ROE, equity, assets, and sales) whose shares were included in each of the indices at the end of 2018 were analyzed.[2] The survey was conducted on quarterly periods calculated on the basis of prices from the last day of each quarter. The problem of "thin trading" raised by, among others, Dimson (1979), or long periods in which there are no quotations can cause load estimation of the beta coefficient or sensitivity to macroeconomic variables; therefore, the problem was solved by eliminating those companies from the study.

The number of observations is specified in Table 1[3].

Table 1. Characteristics of observations

Country	Index	Number of companies	Number of observations
Austria	ATX	19	396
France	CAC40	13	343
Germany	DAX	30	588
Hungary	BUX	10	208

2 The prices of shares and ratios have been adjusted for any transactions that could artificially affect the rate of return, such as splits, subscription rights, dividends, share buybacks, etc., according to the methodology data provider.

3 Excluded companies were those for which a break in exchange quotations lasted longer than 15 trading sessions (3 weeks), or which accounted for more than 1% of the company's total trading sessions during the period from the beginning of the company's trading (or the beginning of the study, when the company was listed before the beginning of the study period) until the end of the test period, i.e., December 2018.

Country	Index	Number of companies	Number of observations
Poland	WIG	180	3932
Baltic Country	OMXBBGI	58	1133

Source: own study based on WFE data.

Delmar (2006) and Weinzimmer, Nystrom, and Freeman (1998) proposed a general indicator for measuring growth, in which any factor can be applied.

$$g = \frac{R_{t1} - R_{t0}}{R_{t0}}, \tag{1}$$

where:

g – total growth rate of a given factor,

R_{t0} – size at the beginning of the period,

R_{t1} – size at the end of the period.

The growth ratios for assets, equity, and sales that were taken into consideration were calculated directly using formula (1), according to the following formulas for total assets growth (TAS):

-   1 quarter: $\Delta TAS_{t,t+1} = \dfrac{TAS_{t+1} - TAS_t}{TAS_t},$ (2)

-   2 quarters: $\Delta TAS_{t,t+2} = \dfrac{TAS_{t+2} - TAS_t}{TAS_t},$ (3)

-   4 quarters: $\Delta TAS_{t,t+4} = \dfrac{TAS_{t+4} - TAS_t}{TAS_t},$ (4)

-   8 quarters: $\Delta TAS_{t,t+8} = \dfrac{TAS_{t+8} - TAS_t}{TAS_t},$ (5)

-   12 quarters: $\Delta TAS_{t,t+12} = \dfrac{TAS_{t+12} - TAS_t}{TAS_t},$ (6)

where: TAS_{t+1} and TAS_{t+2} indicate assets in the first and second quarters after the base quarter. Analogical formulas were applied for equity (E) and sales (S).

Calculating the growth of earnings per share is different because earnings can be negative, and using a negative value in the denominator could affect the growth index. Therefore, total assets were taken as the basis to calculate the earnings growth.

$$\Delta EPS_{t,t+1} = \frac{EPS_{t+1} - EPS_t}{TAS_t}, \tag{7}$$

$$\Delta EPS_{t,t+2} = \frac{EPS_{t+2} - EPS_t}{TAS_t} \qquad (8)$$

and others for more periods, up to 12 quarters.

The growth opportunity measures are presented in the next step. Tobin (1969) presented an indicator that is the ratio of the market value of assets and replacement costs. Due to the problems associated with determining the level of replacement costs, it is possible to modify Tobin's Q ratio according to Danbolt, Hirst, and Jones (2011) proposal:

$$TQ = \frac{TA + MVE - BVE}{TA}, \qquad (9)$$

where:
TA – total assets,
MVE – market value of equity,
BVE – book value of equity.

In the analysis in this paper, TQ1 was taken from Bloomberg, and TQ2 was calculated according to formula (9). The higher the TQ, the higher the growth opportunity.

Another indicator that can be used to assess a company's growth opportunity is the inverse of the price-earnings ratio, i.e., earnings per share divided by the market price (E/P). The inverse is used for interpretative reasons to avoid problems when earnings are zero. The lower the E/P value, the greater the company's growth potential.

Market value to book value (M/B) is one of the capital market indicators. The higher the level of this relationship, the more investors are willing to pay for a company's shares in relation to its book value.

The model of Kester (1984) and Brealey and Myers (1981) (the KBM model) was built based on the decomposition of the share price as a growth opportunity measure.

$$P_g KBM = \frac{P_s - \dfrac{EPS}{k_E}}{P_s}, \qquad (10)$$

where:
P_gKBM – value of growth potential according to the KBM model,
P_s – share price,
EPS – profit per share,
k_E – cost of equity.

The growth potential reflected by the KBM ratio increases when the cost of equity decreases. The greater the difference between the market price and the value of shares, the higher the growth potential. The cost of equity for this model was calculated using the Capital Asset Pricing Model, given by the formula:

$$k_{Ei} = R_f + \beta_i \cdot (R_M - R_f), \tag{11}$$

where:

R_f stands for the rate of return on risk-free assets, and it is approximated by EURIBOR 3M in the case of Austria, Germany, France, and the Baltic countries, WIBOR 3M for Poland, and BUBOR 3M for Hungary;

$R_M - R_f$ stands for the market risk premium and is taken from the Damodaran database (for the Baltic countries, a weighted average of the data for Lithuania, Latvia and Estonia was used);

while β_i stands for coefficients taken from the Bloomberg database.[4]

The proposals for measuring the growth potential presented by Ottoo (1998; 2020) are related to the concept of value added; the higher the indicators, the greater the enterprise's growth potential. The first model presents the excess value of the company:

$$P_g EVF = \frac{(MVE + BVD) - (BVE + BVD)}{(MVE + BVD)}. \tag{12}$$

The second model presents the excess value of equity:

$$P_g EVE = \frac{MVE - BVE}{MVE}, \tag{13}$$

where:

$P_g EVF$ – excess value of the company,

$P_g EVE$ – excess value of equity,

MVE – market value of equity,

BVE – book value of equity,

BVD – book value of debt.

The relationship between future earnings growth and the measures of growth opportunity was studied using the multivariate regression model proposed by Danbolt, Hirst, and Jones (2011). In addition to the measures of growth potential, the model considers other factors identified in the literature associated with earnings growth. In each estimated linear regression, the chosen growth opportunity measure is only one of several explanatory variables. Therefore, these estimations make it possible to explore whether

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4 According to Bloomberg, betas were estimated in the equation $R_i = \alpha_i + \beta_i \cdot R_M + u_i$ with the Generalized Least Squares Method: the explained variable (R_i) is the surplus average monthly rate of return on shares, the explanatory variable (R_M) is WIG for Poland, BUX for Hungary, ATX for Austria, DAX for Germany, CAC40 for France and OMXBBGI for the Baltic Countries for 20 quarters (5 years) preceding the analyzed quarter.

the level of growth opportunity has any incremental impact on earnings growth once a control for other factors potentially related to that growth is considered. The regression models can be presented with the following general formula:

$$\Delta EPS_{t,t+n,i} = \alpha + \beta_1 GO_{t,i} + \beta_2 ROE_{t-4,i} + \beta_3 \Delta EPS_{t-4,t,i} + \beta_4 \Delta TA_{t,i} + \beta_5 \ln MV_{t,i} + \varepsilon_i, \quad (14)$$

for n = 4, 8 and 12,

where:

t – stands for the period (quarter) and n for the company,

$\Delta EPS_{t,t+n,i}$ – refers to 4, 8 or 12 quarters ahead (1, 2 or 3-year) growth of the i-th company's earnings per share,

$GO_{t,i}$ – growth opportunity measures applied respectively to the models,

$ROE_{t-4,i} = EPS_{t-4,i}/EQ_{t-4,i}$ – (delayed by four quarters) one-year-lagged return on equity,

$\Delta EPS_{t-4,t,i}$ – the recent one-year EPS growth, $\Delta EPS_{t-4,t,i} = \dfrac{EPS_{t,i} - EPS_{t-4.i}}{TAS_{t-4,i}}$,

$\ln MV_{t,i}$ – the natural logarithm of the market value (in each quarter).

The markets taken into consideration exemplify different combinations of size, liquidity, and maturity features. Information about the market characteristics is presented in Table 2.

Table 2. Countries and their characteristics

Country	Land (km²)	Citizens (millions)	Stock Market Capitalization (billion USD)	Turnover Market liquidity ratio	Size	Liquidity	Age
						Market classification	
Austria	83,878	8,859	116.80	0.34	Small	Not liquid	Mature
France	643,801	67,022	2365.95	0.57	Large	Liquid	Mature
Germany	357,578	83,019	1755.17	1.00	Large	Liquid	Mature
Hungary	93,030	9,805	28.93	0.34	Small	Not liquid	New
Poland	312,696	38,413	160.48	0.32	Large	Not liquid	New
Baltic Countries			2.85	0.62	Small	Liquid	New

Source: Stock market capitalization, in dollars – Country rankings (n.d.), https://www.theglobaleconomy.com/rankings/stock_market_capitalization_dollars/ [accessed: 20.05.2021].

Inferences based on the different characteristics of the countries/exchanges might also be addressed in a different way, by pooling the data for all markets together and including these characteristics as additional explanatory variables in regression models. The regression equations given by the following formula will be estimated:

$$\Delta EPS_{t,t+n,i} = \propto_0 + \beta_1 GO_{t,i} + \beta_2 ROE_{t-4,i} + \beta_3 \Delta EPS_{t-4,t,i} + \beta_4 \Delta TA_{t,i} + \beta_5 \ln MV_{t,i} +$$
$$+ \beta_{11} Z_1 GO_{t,i} + \beta_{21} Z_1 ROE_{t-4,i} + \beta_{31} Z_1 \Delta EPS_{t-4,t,i} + \beta_{41} Z_1 \Delta TA_{t,i} + \beta_{51} Z_1 \ln MV_{t,i} +$$
$$+ \beta_{12} Z_2 GO_{t,i} + \beta_{22} Z_2 ROE_{t-4,i} + \beta_{32} Z_2 \Delta EPS_{t-4,t,i} + \beta_{42} Z_2 \Delta TA_{t,i} + \beta_{52} Z_2 \ln MV_{t,i} +$$
$$+ \beta_{13} Z_3 GO_{t,i} + \beta_{23} Z_3 ROE_{t-4,i} + \beta_{33} Z_3 \Delta EPS_{t-4,t,i} + \beta_{43} Z_3 \Delta TA_{t,i} + \beta_{53} Z_3 \ln MV_{t,i} + \varepsilon_i,$$

(15)

where Z_1, Z_2, and Z_3 are binary variables representing different characteristics of markets the given company is listed on:

$Z_1 = 0$ for companies listed on the markets in small countries and 1 for those listed in large countries;

$Z_2 = 0$ for companies listed on liquid markets and 1 for those listed on illiquid markets;

$Z_3 = 0$ for companies listed on new markets and 1 for those listed on mature markets.[5]

In this case, the spotlight will be on parameters β_{11}, β_{12}, β_{12} besides β_1. For example, if β_{11} is positive and statistically significant, that supports the thesis that for companies listed on exchanges in large countries, the relationship between growth opportunity measure and future earnings growth is stronger than for the companies listed in small countries (regardless of the value and statistical significance of β_1).

4. Results

The results of the correlation between growth and growth opportunity measures and the regression results for every country analyzed are presented below, considering the market characteristics.

Austria represents a country that is small and characterized by low liquidity but it is mature. The results of the correlation between the growth opportunity measures and growth in periods of 1 up to 12 quarters are presented in Table 3.

Only about half of the relationships analyzed for Austria are significant. The growth is not predicted by all ratios in all periods considered, meaning that the prediction of future growth included in the market price of shares does not meet the real growth on the market.

In the next step, the regression models given by (14) are presented in Table 4. Only results with statistically significant regressors are reported. The irrelevant explanatory variables were eliminated by repeated estimation of the regression equations using a sequential a posteriori selection method. At each step of this procedure, the variable with the lowest student's t-statistic value (the highest p-value) is removed.

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5   Because these market characteristics can affect the relationship between future EPS growth and all explanatory variables in the regression; growth opportunity measures and binary variables are multiplied by all explanatory variables in the equation.

Table 3. Growth opportunities and realized growth – correlation coefficients (Austria)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	–0.016	–0.029	–0.057	–0.129**	–0.190**	–0.040	0.039	0.131**	0.176***	0.245***
TQ2	0.088*	0.026	0.006	0.158**	0.303***	–0.011	0.117**	0.254***	0.371***	0.389***
E/P	0.074	0.123**	0.053	0.042	0.007	–0.064	–0.047	–0.234***	–0.337***	–0.323***
M/B	–0.020	–0.015	0.038	0.098	0.083	–0.055	–0.073	–0.058	–0.068	–0.036
KBM	–0.123**	–0.120*	–0.093	–0.081	0.020	0.029	0.047	0.206***	0.450***	0.579***
EVF	0.035	0.056	0.126**	0.150**	0.139*	0.022	0.049	0.082	0.158**	0.247***
EVE	0.037	0.037	0.097*	0.110*	0.036	0.005	0.080	0.226***	0.247***	0.167**
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.107**	0.034	0.054**	0.060***	0.090***	0.054	0.044	0.049*	0.009	0.102
TQ2	0.054	0.076	0.133**	0.392***	0.440***	0.035*	0.074	0.165***	0.012	–0.055
E/P	–0.187***	–0.149**	–0.127*	–0.014	0.008**	–0.197***	–0.105*	–0.140**	–0.147**	–0.205**
M/B	0.058	0.036	0.130**	0.226***	0.314***	0.000	–0.002	0.105*	0.019	–0.025
KBM	0.036	0.023	0.037	–0.015	0.030	0.092	0.062	0.096	0.103	0.117
EVF	0.112**	0.062	0.070	0.059	0.161**	0.031	0.024	0.046	0.000	0.031
EVE	0.070	0.106*	0.156***	0.242***	0.292***	0.017	0.011	0.041	–0.033	–0.032

Note: Cells that are shaded indicate that the coefficient is significant and of the predicted sign.

*/**/*** The coefficients are significant at the 10%/5%/1% level.

Source: own study

Table 4. Determinants of future earnings growth as presented in formula 14 (Austria, models with only statistically significant regressors)

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
Explained variable: gEPS+4 (1-year EPS growth)								
Q1	−0.024		−10.965*			0.024*	1.8	2.81*
Q2	−0.004					0.005**	1.6	4.30**
E/P	−0.009	0.189***		−0.189***			11.7	11.63**
M/B	−0.008					0.010***	2.8	7.02***
KBM	−0.009	0.187***		−0.187***			11.4	10.78***
EVF	−0.004	0.114**					2.0	5.11**
EVE	−0.004	0.118**					2.2	5.46**
Explained variable: gEPS+8 (2-year EPS growth)								
Q1	−0.009	0.288***		−0.225***			16.9	14.88***
Q2	0.084**	0.258***	−23.727**	−0.315***	−0.016***	0.024***	35.0	16.28***
E/P	−0.018**	0.443***		−0.257***			28.5	23.31***
M/B	−0.015*	0.279***		−0.264***		0.012**	19.3	12.31***
KBM	−0.017**	0.441***		−0.256***			28.3	21.90***
EVF	−0.011	0.381***		−0.271***			24.1	21.92***
EVE	−0.012	0.392***		−0.264***			25.0	23.66***

	Const.	ROE$_{-1}$	ΔEPS$_0$	ΔTA$_0$	lnMV$_0$	GO$_0$	Adj. R %	F-stat.
	Explained variable: gEPS+12 (3-year EPS growth)							
Q1	−0.011		−130.11***				49.0	77.90***
Q2	−0.009		−130.67***				47.4	78.67***
E/P	−0.015		−135.10***				44.2	51.75***
M/B	−0.009		−129.99***				47.5	78.79***
KBM	−0.016		−135.37***				44.5	50.78***
EVF	−0.012		−130.08***				48.9	71.78***
EVE	−0.011		−130.11***				49.0	77.90***

Note: As for Table 3.

Source: own study

The results of the analysis indicate a rather weak relationship between growth and measures of growth opportunity in Austria, which is a small country with a non-liquid market and a mature exchange.

Hungary represents a market that is small and characterized by low liquidity of the exchange. The results of the correlation between the growth opportunity measures and the growth of assets, sales, equity, and EPS in the periods of 1 up to 12 quarters are presented in Table 5.

Only about half of the correlations tested are significant. In the case of asset growth, sales, and equity, there are many significant results of the correlation, but they are opposite to what was expected.

In the next step, regression models with statistically significant regressors are presented in Table 6.

The results of the analysis indicate a rather weak relationship between growth and the measures of growth opportunity in Hungary, which is a small country with a non-liquid market and a new exchange.

The Baltic Countries represent a market that is small, new, and characterized by high liquidity. The results of the correlation between growth opportunity measures and future growth in periods of 1 up to 12 quarters are presented in Table 7.

Only about half of the relationships are statistically significant.

In the next step, regression models with statistically significant regressors are presented in Table 8.

The results indicate a rather weak relationship between the measures of growth opportunity and subsequent growth in the Baltic Countries, which are small states with a new and liquid market.

France represents a large market; its exchange is characterized by high liquidity and can be considered mature. The results of the correlation between the measures of growth opportunity and growth in periods of 1 up to 12 quarters are presented in Table 9.

Most of the relationships analyzed and presented in Table 9 are significant.

In the next step, regression models with statistically significant regressors are presented in Table 10.

All measures of growth opportunity are significant variables in the model. The results of the analysis indicate a strong relationship between growth and the measures of growth opportunity in France, which is a large country with a liquid market and a mature exchange.

Poland represents a large market whose exchange is characterized by low liquidity and that can be considered new. The results of the correlation between the growth opportunity measures and growth in periods of 1 up to 12 quarters are presented in Table 11.

Table 5. Growth opportunities and realized growth – correlation coefficients (Hungary)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	0.168**	–0.037	0.067	0.032	0.087	0.229***	0.195***	0.101	0.146*	0.227**
TQ2	–0.022	–0.123*	–0.153**	–0.229***	–0.310***	0.143	0.072	–0.079**	–0.103***	–0.135***
E/P	0.004	0.017	–0.111	–0.177*	–0.195*	0.008	–0.005	–0.141*	–0.262***	–0.411***
M/B	–0.098	–0.141*	–0.185**	–0.302***	–0.403***	0.136*	0.117	–0.013	–0.015	–0.129
KBM	–0.023	0.026	0.205**	0.290***	0.271**	–0.023	0.032	0.205**	0.284***	0.416***
EVF	–0.119*	–0.240***	–0.349***	–0.457***	–0.627***	–0.013	–0.058	–0.142*	–0.091	–0.277***
EVE	0.072	0.095	0.181**	0.246***	0.283***	0.089	0.073	0.125	0.277***	0.353***
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.072	–0.123*	–0.157**	–0.120	–0.152**	0.428***	0.120*	0.390***	0.323***	0.620***
TQ2	0.111	0.168**	0.097**	0.047***	0.018***	0.164**	0.070	0.088	0.109	0.192*
E/P	–0.037	–0.023	–0.103**	–0.349***	–0.345***	–0.044*	0.029	–0.021	–0.085	–0.123
M/B	0.137*	0.135*	–0.142*	–0.076	–0.228**	0.193***	–0.046	0.166**	0.359***	0.336***
KBM	0.014	0.140*	0.222**	0.375***	0.344***	0.040	–0.029	0.019	0.080	0.124
EVF	0.065	–0.051	–0.190**	–0.297***	–0.246**	0.121*	0.021	–0.003	0.027	0.114
EVE	0.046	0.134*	0.181**	0.280***	0.317***	0.079	0.013	0.055	0.103	0.132

Note: As for Table 3.

Source: own study

Table 6. Determinants of future earnings growth as presented in the formula 14 (Hungary, models with only statistically significant regressors)

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
	Explained variable: gEPS+4 (1-year EPS growth)							
Q1	0.037**			−0.424***			4.8	6.90***
Q2	0.036**			−0.431***			5.1	7.38***
E/P	0.034		−22.204**	−0.463**			10.5	6.11***
M/B	0.008			−0.387**		0.020*	7.5	5.84***
KBM	0.038*		−21.946**	−0.507**			11.1	6.28***
EVF	0.034**			−0.427***			5.0	7.41***
EVE	0.249**			−0.653***	−0.019*	0.0004**		
	Explained variable: gEPS+8 (2-year EPS growth)							
Q1	−0.343***			−1.007***		0.380***	37.3	27.15***
Q2	−0.226**	1.447***	18.321**	−0.959***		0.258***	25.5	8.86***
E/P	0.028	0.923*	48.964***	−1.203***			33.9	11.96***
M/B	−0.083*		22.257***	−0.564*		0.105***	32.7	15.77***
KBM	0.028	0.897*	49.085***	−1.199***			33.7	11.87***
EVF	0.067	0.617	23.470	−1.126			17.2	7.43***
EVE	0.108**	0.994**	21.517***	−1.385***		0.001**	22.0	7.12***

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
	Explained variable: gEPS+12 (3-year EPS growth)							
Q1	−0.662****		17.483*	−1.609***		0.692***	57.3	27.39***
Q2	−0.347**	2.09***	−1.441***			0.397***	24.4	7.55***
E/P	0.133**		84.601***	−2.069***			26.0	8.54***
M/B	0.151		−11.924*	−0.672**	−0.027*	0.126**	52.2	17.37***
KBM	0.140**		84.643***	−2.121***			26.4	8.52***
EVF	0.138**		22.112*	−1.787***			13.2	5.72***
EVE	0.155**	1.401**		−2.119***		0.001**	18.6	5.51***

Note: as for Table 3.

Source: own study

Table 7. Growth opportunities and realized growth – correlation coefficients (Baltic Countries)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	0.022	0.051	0.088***	0.130***	0.123***	−0.012	0.002	0.070**	0.120***	0.091**
TQ2	0.014	0.045	0.071**	0.125***	0.123***	−0.010	0.003	0.069**	0.102***	0.060
E/P	−0.037	−0.075**	−0.014	0.081*	0.050	−0.126***	−0.144***	−0.036***	0.008***	−0.071***
M/B	0.041	0.081***	0.115***	0.165***	0.147***	−0.030	−0.010	0.091***	0.103***	0.085*
KBM	0.048	0.069*	0.047	0.030	0.096*	0.057	0.092**	0.077*	0.067	0.124**
EVF	0.030	0.113***	0.159***	0.185***	0.187***	0.019	0.020	0.089***	0.120***	0.172***
EVE	0.042	0.120***	0.163***	0.195***	0.198***	0.001	0.004	0.085**	0.121***	0.168***
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.059*	0.071**	0.031	−0.005	−0.042	−0.017	−0.018	−0.042	−0.006	0.035
TQ2	0.056*	0.048	0.020	−0.022	−0.054	−0.015	−0.010***	−0.006***	0.001***	0.057***
E/P	0.032	−0.040	0.038**	0.058**	−0.047***	−0.148***	−0.213***	−0.170***	−0.110**	−0.127**
M/B	0.055*	0.029	−0.003	0.002	−0.020	−0.013	−0.026	−0.005	−0.009	0.067
KBM	−0.002	−0.002	0.006	0.024	0.083	0.111***	0.113***	0.297***	0.343***	0.303***
EVF	0.045	0.058*	0.081**	0.093**	0.134***	−0.021	−0.010	−0.031	−0.007	0.049
EVE	0.045	0.055*	0.084**	0.088**	0.128***	−0.015	−0.007	−0.009	−0.003	0.049

Note: As for Table 3.

Source: own study

Table 8. Determinants of future earnings growth as presented in formula 14 (Baltic Countries, models with only statistically significant regressors)

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
				Explained variable: gEPS+4 (1-year EPS growth)				
Q1	−0.250	−4.008**	−36.362***	−1.550*	0.133**		12.2	22.08***
Q2	−0.270	−4.109**	−36.321***	−1.561*	0.139**		12.3	21.92***
E/P	0.142		−21.452***			−1.657**	5.2	12.72***
M/B	−0.214	−4.134**	−37.043***	−37.047*	0.126**		12.6	22.49***
KBM	0.140		−21.276***			0.134***	15.1	36.04***
EVF	−0.644**	−3.589*	−34.767***	−1.431*	0.212***	−0.331***	12.6	18.20***
EVE	−0.526*	−4.181**	−36.420***	−1.439*	0.191***	−0.204*	12.4	17.89***
				Explained variable: gEPS+8 (2-year EPS growth)				
Q1	−0.968***	−10.973***	−62.784***	−2.316**	0.394***		25.6	38.67***
Q2	−0.930***	−11.383***	−62.596***	−2.329**	0.388***		25.6	38.22***
E/P	−2.239***	−6.786**	−56.742***		0.615***		25.6	36.87***
M/B	−0.950***	−11.083***	−63.366***	−2.134*	0.391***		26.0	39.24***
KBM	−0.636**	−5.439***	−35.824***		0.260***	0.095***	25.7	26.38***
EVF	−1.783***	−9.565***	−64.129***	−2.347**	0.553***	−0.501***	26.9	32.74***
EVE	−1.711***	−10.123***	−64.568***	−2.394**	0.541***	−0.451***	27.1	33.36***

	Const.	ROE$_{-1}$	ΔEPS$_0$	ΔTA$_0$	lnMV$_0$	GO$_0$	Adj. R %	F-stat.
				Explained variable: gEPS+12 (3-year EPS growth)				
Q1	−0.934***	−6.342*	−46.951***	−2.489*	0.354***		19.6	17.37***
Q2	−0.968***	−6.700*	−46.865***	−2.484*	0.365***		19.7	17.28***
E/P	−2.181***		−24.364***		0.502***		16.4	20.99***
M/B	−0.914***	−6.440**	−46.779***	−2.749*	0.355***		19.6	17.48***
KBM	−0.940***		−27.560***		0.253***	0.081***	22.7	19.47***
EVF	−1.650***	−6.331**	−48.864***		0.481***	−0.410**	20.3	18.45***
EVE	−1.611	−6.516**	−48.963***		0.474***	−0.385**	20.4	18.52***

Note: As for Table 3.

Source: own study

Table 9. Growth opportunities and realized growth – correlation coefficients (France)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	0.208***	0.276***	0.452***	0.535***	0.422***	0.052	0.109*	0.247***	0.360***	0.612***
TQ2	0.169***	0.237***	0.458***	0.676***	0.810***	0.073	0.088	0.245***	0.393***	0.592***
E/P	– 0.010	– 0.127*	– 0.105	– 0.230***	– 0.317***	– 0.195***	– 0.190***	– 0.142**	– 0.230***	– 0.348***
M/B	0.159***	0.241***	0.462***	0.598***	0.759***	0.087	0.020	0.170***	0.294***	0.488***
KBM	– 0.052	0.019	– 0.002	0.165**	0.246***	0.230***	0.240***	0.140**	0.211***	0.396***
EVF	0.152***	0.217***	0.454***	0.631***	0.759***	0.096*	0.098*	0.244***	0.363***	0.562***
EVE	0.136**	0.213***	0.424***	0.474***	0.565***	0.073	0.067	0.159***	0.235***	0.346***
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.158***	0.223***	0.338***	0.307***	0.358***	0.052	0.146**	0.190***	0.349***	0.554***
TQ2	0.135**	0.166***	0.260***	0.327***	0.329***	0.097	0.128**	0.216***	0.329***	0.523***
E/P	0.098	0.051	0.095	–0.059	–0.029	–0.210***	–0.231***	–0.258***	–0.370***	–0.413***
M/B	0.145**	0.123**	0.267***	0.439***	0.468***	0.035	0.056	0.150**	0.281***	0.438***
KBM	–0.121*	–0.040	–0.070	0.136*	0.087	0.292***	0.302***	0.201***	0.258***	0.314***
EVF	0.128**	0.117**	0.209***	0.307***	0.333***	0.053	0.079	0.193***	0.231***	0.392***
EVE	0.049	0.062	0.137**	0.177***	0.248***	0.050	0.086	0.183***	0.217***	0.288***

Note: As for Table 3.

Source: own study

Table 10. Determinants of future earnings growth as presented in formula 14 (France, models with only statistically significant regressors)

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
	Explained variable: gEPS+4 (1-year EPS growth)							
Q1	0.008**	−0.011*	−29.422***		−0.001**	0.001**	11.7	6.54***
Q2	0.007**	−0.013**	−30.115***		−0.001**	0.002***	14.2	7.94***
E/P	0.010***		−20.179**		−0.001***	−0.014***	9.8	6.64***
M/B	0.008***	−0.017***	−31.523***		−0.001**	0.001***	14.2	8.16***
KBM	0.009***		−17.925**		−0.001***	0.001*	7.3	5.13***
EVF	0.009***	−0.018***	−33.360***		−0.001**	0.005***	16.4	9.24***
EVE	0.012***	−0.018***	−31.442***		−0.001***	0.002***	17.0	9.78***
	Explained variable: gEPS+8 (2-year EPS growth)							
Q1	0.006	−0.016**	−35.725***	−0.009**	−0.001**	0.004***	39.0	18.29***
Q2	0.007*	−0.014**	−35.746***	−0.010**	−0.001**	0.004***	38.9	18.16***
E/P	0.020***		−29.929***	0.009**	−0.002***	−0.024***	32.0	15.34***
M/B	0.011***	−0.026***	−41.741***		−0.001***	0.002***	32.9	17.89***
KBM	0.019***	0.014***	−20.029*		−0.002***	0.001*	22.2	9.75***
EVF	0.015***	−0.022***	−41.017***		−0.001***	0.009***	34.8	19.01***
EVE	0.020***	−0.014*	−31.880***		−0.002***	0.002***	29.2	15.11***

	Const.	ROE$_{-1}$	ΔEPS$_0$	ΔTA$_0$	lnMV$_0$	GO$_0$	Adj. R %	F-stat.
	Explained variable: gEPS+12 (3-year EPS growth)							
Q1	0.011**	−0.018**	35.507**		−0.001***	0.005***	51.4	26.10***
Q2	0.011**	−0.013*	−33.322**	−0.008*	−0.001***	0.005***	51.0	20.76***
E/P	0.029***	0.017***			−0.003***	−0.029***	44.0	24.08***
M/B	0.018***	−0.023**	−37.501***		−0.002***	0.002***	42.1	18.84***
KBM	0.026***	0.028***			−0.003***	0.001**	39.5	19.75***
EVF	0.021***	−0.019**	−44.230***		−0.002***	0.011***	45.5	20.86***
EVE	0.027***				−0.002***	0.002***	33.5	25.45***

Note: As for Table 3.

Source: own study

Table 11. Growth opportunities and realized growth – correlation coefficients (Poland)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	0.113***	0.186***	0.257***	0.317***	0.333***	0.038**	0.043***	0.084***	0.112***	0.148***
TQ2	0.105***	0.178***	0.221***	0.246***	0.221***	0.036**	0.058***	0.080***	0.094***	0.125***
E/P	−0.127***	−0.114***	−0.035*	−0.007	0.015	−0.212***	−0.212***	−0.093***	−0.090***	−0.100***
M/B	0.120***	0.187***	0.266***	0.294***	0.308***	0.033**	0.041**	0.080***	0.122***	0.179***
KBM	0.092***	0.072***	0.007	−0.014	−0.046*	0.186***	0.166***	0.051***	0.038*	0.058**
EVF	0.085***	0.145***	0.164***	0.191***	0.170***	0.035**	0.052***	0.059***	0.085***	0.113***
EVE	0.093***	0.151***	0.171***	0.189***	0.162***	0.051***	0.069***	0.075***	0.096***	0.123***
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.141***	0.173***	0.231***	0.269***	0.278***	0.039**	0.033**	0.029*	0.058***	0.051**
TQ2	0.114***	0.157***	0.205***	0.209***	0.205***	0.023***	0.028*	0.031*	0.039**	0.032***
E/P	0.013	−0.002	0.065***	0.063***	0.063**	−0.259***	−0.267***	−0.147***	−0.154***	−0.103***
M/B	0.151***	0.199***	0.276***	0.306***	0.292***	0.028*	0.014	0.015	0.050**	0.061***
KBM	−0.028	−0.014	−0.081***	−0.091***	−0.097***	0.235***	0.238***	0.137***	0.146***	0.096***
EVF	0.106***	0.138***	0.192***	0.204***	0.195***	0.024	0.025	0.037**	0.057***	0.047**
EVE	0.117***	0.139***	0.181***	0.200***	0.195***	0.022	0.028*	0.036**	0.048**	0.047**

Note: As for Table 3.

Source: own study

Most of the relationships between the growth and growth opportunity analyzed for Poland are significant. In the next step, regression models with statistically significant regressors are presented in Table 12.

The results indicate that all growth opportunity measures are significant. The results of the analysis indicate a strong relationship between growth and the measures of growth opportunity in Poland, which is a large country with a non-liquid market and new exchange.

Germany represents a market that is large. Its exchange is characterized by high liquidity and can be considered mature. The results of the correlation between the growth opportunity measures and growth in periods of 1 up to 12 quarters are presented in Table 13.

Most of the correlations presented in Table 13 are significant. In the next step, regression models with statistically significant regressors are presented in Table 14.

All growth opportunity measures are significant determinants in the tested model. The results of the analysis indicate a strong relationship between growth and the measures of growth opportunity in Germany, which is a large country with a liquid market and a mature exchange.

By comparing the analysis results for six separate markets, we can observe differences in the number of significant coefficients and the strength of the link between measures of growth opportunity and subsequent growth. It seems that in three markets, i.e., Germany, France, and Poland, the relationship is stronger than for the other markets. Although the results are far from conclusive, our overview of selected European countries suggests that the effect of large and small countries seems to be important for the relationship between the growth opportunities and the future growth of companies.

In the next step, by pooling the data for all markets together and including market characteristics as additional explanatory variables in regression models, we aim to draw statistical inferences on the importance of these characteristics in explaining the link between growth opportunity measures and subsequent firm growth. As before, only results with statistically significant regressors are reported in Table 15. To eliminate insignificant regressors, backward stepwise regression was used.

The relationship between measures of growth opportunity and future earnings growth is weaker for companies listed on illiquid stock exchanges than those listed on liquid markets. The new statistical inference is in line with the view that market liquidity can support market efficiency in valuating according to the inherent investment properties and growth opportunities.

Table 12. Determinants of future earnings growth as presented in formula 14 (Poland, models with only statistically significant regressors)

	Const.	ROE$_{-1}$	ΔEPS$_0$	ΔTA$_0$	lnMV$_0$	GO$_0$	Adj. R %	F-stat.
	Explained variable: gEPS+4 (1-year EPS growth)							
Q1	−0.026	−106.38***	−21.988***			0.072***	5.3	43.40***
Q2	−0.015	−101.99***	−21.958***			0.061***	5.4	43.90***
E/P	0.067***	69.677**	−8.215***			−1.016***	4.2	27.79***
M/B	0.012	−115.48***	−20.599***			0.014***	4.9	39.17***
KBM	0.027	76.262**	−6.459***			0.031***	3.5	23.04***
EVF	0.058***	−110.80***	−21.978***			0.117***	5.6	45.81***
EVE	0.067***	−112.94***	−21.138***			0.059***	5.4	43.49***
	Explained variable: gEPS+8 (2-year EPS growth)							
Q1	−0.072*	−113.81***	−24.610***			0.146***	4.2	26.25***
Q2	−0.036	−105.59**	−23.235***			0.113***	3.8	23.17***
E/P	0.105***	157.55***				−1.559***	3.4	25.48***
M/B	0.002	−99.595**	−21.266***	−0.238*		0.028***	3.7	17.19***
KBM	0.039	170.77***				0.049***	3.6	26.71***
EVF	0.095***	−114.47***	−23.365***			0.194***	4.0	24.79***
EVE	0.099***	−98.443**	−21.889***			0.095***	3.6	22.26***

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
	Explained variable: gEPS+12 (3-year EPS growth)							
Q1	0.007		−32.341***			0.084*	5.0	31.25***
Q2	0.105***		−30.285***				4.3	52.59***
E/P	0.132***	171.81**	−11.850**			−1.306***	3.0	10.61***
M/B	0.016		−27.222***	−0.312*		0.030***	4.6	19.14***
KBM	0.067*	198.39***	−8.736*			0.048***	2.9	10.24***
EVF	0.106***		−30.200***				4.3	52.16***
EVE	0.112***		−27.952***			0.070**	4.1	25.21***

Note: As for Table 3.

Source: own study

Table 13. Growth opportunities and realized growth – correlation coefficients (Germany)

	gTA+1	gTA+2	gTA+4	gTA+8	gTA+12	gS+1	gS+2	gS+4	gS+8	gS+12
TQ1	0.098**	0.164***	0.262***	0.444***	0.516***	0.050	0.083*	0.292***	0.326***	0.352***
TQ2	0.096**	0.151***	0.283***	0.404***	0.525***	0.037	0.072*	0.281***	0.280***	0.345***
E/P	−0.093**	−0.170***	−0.124**	−0.239***	−0.317***	−0.167***	−0.261***	−0.227***	−0.228***	−0.240***
M/B	0.096**	0.172***	0.245***	0.354***	0.416***	0.094**	0.089**	0.343***	0.279***	0.330***
KBM	−0.018	0.057	0.153***	0.107*	0.124*	0.036	0.063	0.165***	0.132**	0.094
EVF	0.109**	0.170***	0.297***	0.400***	0.488***	0.045	0.090**	0.307***	0.296***	0.363***
EVE	0.105**	0.183***	0.257***	0.421***	0.473***	0.102**	0.082*	0.361***	0.389***	0.401***
	gEq+1	gEq+2	gEq+4	gEq+8	gEq+12	gEPS+1	gEPS+2	gEPS+4	gEPS+8	gEPS+12
TQ1	0.125***	0.147***	0.198***	0.300***	0.322***	0.010	0.047	0.142***	0.128**	0.224***
TQ2	0.086**	0.100**	0.198***	0.296***	0.332***	0.014**	0.028**	0.110**	0.114**	0.185***
E/P	−0.081*	−0.084*	−0.149***	−0.255***	−0.350***	−0.212***	−0.304***	−0.147***	−0.165***	−0.107*
M/B	0.110***	0.179***	0.227***	0.289***	0.343***	0.015	0.022	0.095**	0.069	0.094
KBM	−0.005	0.076	0.096*	0.065	0.109	0.045	0.058	0.013	0.053	0.064
EVF	0.094**	0.118***	0.238***	0.286***	0.300***	0.024	0.030	0.125***	0.115**	0.173***
EVE	0.077*	0.129***	0.221***	0.226***	0.273***	0.030	0.030	0.117**	0.115**	0.128**

Note: As for Table 3.

Source: own study

Table 14. Determinants of future earnings growth as presented in formula 14 (Germany, models with only statistically significant regressors)

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
				Explained variable: gEPS+4 (1-year EPS growth)				
Q1	0.008***				−0.001***	0.002***	5.5	10.11***
Q2	0.009***		−10.516*		−0.001***	0.002***	5.7	7.37***
E/P	0.008**	0.006*		0.005**	−0.001**	−0.014***	5.7	5.38***
M/B	0.011***			0.004*	−0.001***	0.0004**	5.1	6.79***
KBM	0.009***			0.006***	−0.001***	0.0004**	3.9	4.81***
EVF	0.011***		−11.003*		−0.001***	0.004***	6.7	8.61***
EVE	0.011***				−0.001***	0.001***	5.4	9.95***
				Explained variable: gEPS+8 (2-year EPS growth)				
Q1	0.021***		−23.280**		−0.002***	0.003***	15.3	14.54***
Q2	0.022***		−23.264***		−0.002***	0.003***	16.4	15.93***
E/P	0.015***	0.009**	−14.464*		−0.001***	−0.013**	9.2	6.24***
M/B	0.024***		−20.760**		−0.002***	0.001**	13.4	13.06***
KBM	0.019***	0.010**			−0.002***		8.7	10.75***
EVF	0.026***		−23.196***		−0.002***	0.006***	16.8	16.39***
EVE	0.026***		−20.697**		−0.002***	0.002***	16.2	15.90***

	Const.	ROE_{-1}	ΔEPS_0	ΔTA_0	$lnMV_0$	GO_0	Adj. R %	F-stat.
	Explained variable: gEPS+12 (3-year EPS growth)							
Q1	0.030***				−0.003***	0.004***	25.2	25.39***
Q2	0.032***				−0.003***	0.005***	26.7	27.74***
E/P	0.031***				−0.003***		14.2	23.52***
M/B	0.034***				−0.003***	0.001**	19.8	19.82***
KBM	0.033***				−0.003***		15.5	25.70***
EVF	0.037***				−0.003***	0.009***	27.2	28.44***
EVE	0.038***	−0.015**			−0.003***	0.004***	26.7	19.25***

Note: As for Table 3.

Source: own study

Table 15. Determinants of future earnings growth as presented in formula 15 (pooled model with binary variables and only statistically significant regressors)

	Const.	ROE_{-4}	ΔEPS_0	ΔTA_0	$lnMV_0$	$Z1ROE_{-4}$	$Z1\Delta EPS_0$	$Z1\Delta TA_0$	$Z1lnMV_0$	$Z2\ ROE_{-4}$	$Z2\Delta EPS_0$	$Z2\Delta TA_0$	$Z2lnMV_0$
					Explained variable: gEPS+4 (1-year EPS growth)								
Q1	0.052	−2.415***			0.023*		−20.48***		−0.028***		−36.01***	−1.453***	0.091***
Q2	−0.080				0.018**		−18.74***			−2.228***	−36.72***	−1.428***	0.035***
E/P	0.050*		−20.63***				10.86**						0.024***
M/B	−0.061			−1.317	0.029	2.081	−18.56	1.292	−0.016	−2.639	−36.86		0.027
KBM	−0.057		−22.70***		0.020*		12.16***		−0.011*				0.019***
EVF	−0.155***				0.029***		−20.50***			−2.486***	−34.26***	−1.218***	0.037***
EVE	−0.112*				0.023**		−19.85***			−2.865***	−35.92***	−1.275***	0.040***
					Explained variable: gEPS+8 (2-year EPS growth)								
Q1	−0.193**			−1.933***	0.056***	6.984***	−22.95***	1.744***	−0.056***	−8.708***	−61.62***		0.192***
Q2	−0.172**			−2.034***	0.074***	5.794***	−21.67***	1.878***	−0.074***	−9.541***	−61.68***		0.173***
E/P	−0.669***	−3.121**			0.155***					−0.045***	−3.337**	−56.47***	0.095***
M/B	−0.333***			−1.795***	0.087***	5.159***	−19.32***	1.575***	−0.043***	−9.577***	−61.88***		0.092***
KBM	−0.237***	−1.803*	46.93*		0.069***		−53.63*			−0.027***	−2.506***	−83.00***	0.063***
EVF	−0.411***			−1.944***	0.099***	3.710**	−19.37***	1.841***	−0.021*	−8.206***	−61.41***		0.080***
EVE	−0.341			−1.943	0.091	3.307	−19.15	1.883	−0.025	−7.496	−62.02		0.076

	Const.	ROE_{-4}	ΔEPS_0	ΔTA_0	$lnMV_0$	$Z1ROE_{-4}$	$Z1\Delta EPS_0$	$Z1\Delta TA_0$	$Z1lnMV_0$	$Z2\,ROE_{-4}$	$Z2\Delta EPS_0$	$Z2\Delta TA_0$	$Z2lnMV_0$
	Explained variable: gEPS+12 (3-year EPS growth)												
Q1	−0.131	−3.456***		−2.081***			−32.17***	1.883***			−46.62***		0.238***
Q2	−0.088			−2.236***	0.083***		−29.62***	2.092***	−0.085***	−4.685***	−46.87***		0.171***
E/P	−0.544***			−1.988***	0.102***	−5.408***	−15.21*	2.173***			−25.97***		0.092***
M/B	−0.319***			−2.356***	0.074***		−26.08***	2.117***	−0.028***	−4.932***	−46.50***		0.078***
KBM	−0.258***	−2.556***			0.084***		−15.24**		−0.029**		−31.42***		0.042***
EVF	−0.307***			−2.025***	0.070***		−25.95***	1.962***		−3.806***	−45.80***		0.056***
EVE	−0.307			−2.025	0.070***		−25.95***	1.962***		−3.806***	−45.80***		0.056***

Note: As for Table 3.

Source: own study

Table 15. continued

	$Z3ROE_{-4}$	$Z3\Delta EPS_0$	$Z3\Delta TA_0$	$Z3lnMV_0$	GO_0	$Z1GO_0$	$Z2GO_0$	$Z3GO_0$	Adj. R %	F-stat.
Explained variable: gEPS+4 (1-year EPS growth)										
Q1	2.236**		1.219**	−0.085***			−0.347***	0.336**	11.6	41.55***
Q2	1.415*		1.224**	−0.032***					11.7	57.35***
E/P				−0.013*			−0.602***	−1.583***	5.64	32.85***
M/B				−0.026					11.7	51.70***
KBM				−0.017**			0.118***		13.7	72.01***
EVF	1.806**		1.200**	−0.039***			−0.191***		11.5	48.36***
EVE	2.145***		1.245**	−0.040***			−0.070*		11.4	47.90***
Explained variable: gEPS+8 (2-year EPS growth)										
Q1				−0.156***	0.204***		−0.687***	0.549***	22.4	62.18***
Q2	2.771**			−0.124***		0.188***	−0.453***	0.145*	22.5	57.77***
E/P	5.359***			−0.113***			−1.421***		19.9	64.78***
M/B	2.813**			−0.085***		0.032***			22.3	66.65***
KBM	3.589***			−0.066***			0.103***		20.2	53.36***
EVF	3.242**			−0.095***			−0.106*		21.7	63.62***
EVE	2.859			−0.087					22.0	73.89***

	$Z3ROE_{-4}$	$Z3\Delta EPS_{0}$	$Z3\Delta TA_{0}$	$Z3lnMV_{0}$	GO_{0}	$Z1GO_{0}$	$Z2GO_{0}$	$Z3GO_{0}$	Adj. R %	F-stat.
Explained variable: gEPS+12 (3-year EPS growth)										
Q1	2.533*			−0.207***	0.612***	−0.413***	−1.234***	1.013***	16.8	31.57***
Q2	3.219**			−0.137***	−0.228*	0.398***	−0.478***	0.304**	16.9	26.98***
E/P	3.655**			−0.094***			−2.878***		13.0	23.12***
M/B	3.142***			−0.076***		0.041***			16.1	32.63***
KBM	2.645**			−0.065***			0.099***		16.1	32.85***
EVF	2.571**			−0.076***					15.3	38.67***
EVE	2.571**			−0.076***					15.3	38.67***

Note: As for Table 3.

Source: own study

5.   Conclusions and discussion

Company growth can be measured as the growth of assets, equity, sales, and earnings per share. However, only the last one is related to the growth of value and should be considered when analyzing development in the capital market. The measures of growth opportunity are calculated based on share prices, and they include investors' expectations of companies' future growth. The measures of growth opportunity should be related to the future growth of companies if the pricing process is efficient.

This paper found a relationship between the growth opportunity and the growth of companies, but its significance depends on the market features. The research sample comprised markets that differ in size, liquidity, and age of the exchange. The countries included post-communist transformation markets, but the results show that this factor is not important and should be omitted when analyzing the problem of growth and growth potential, the same as the liquidity of the markets. Only the division between small and large countries seems important in explaining the relationship between growth and growth opportunity. The Comprehensive Advantage of Large Countries explains the issue of the measures of potential growth related to the future growth of companies (Ouyang, 2016). The findings show that in the large countries analyzed, the relationship between growth and the measures of growth opportunity is more significant than in small countries. The results of the analysis in which the data for all markets were pooled together and market characteristics were included as additional explanatory variables in regression models showed that the liquidity of the exchange can influence the efficiency of the market. Growth opportunity measures are part of the valuation process and are related to investors' expectations regarding the future growth of companies.

There are some reasons why company growth in large countries is more predictable. These countries may be more resistant to speculative capital flow, which can affect share prices on the exchange due to the level of capital that circulates on the market. The study confirms Milner and Westaway's (1993) findings that in the short term, the greater vulnerability of small countries to shocks or world demand variation may affect economic structures. Meanwhile, the economies in large countries can be called complete regarding sectors, and therefore, they are less dependent on external economies and the fluctuations there. The CAOLC idea supports the measures of growth potential that can predict the future growth of companies listed on exchanges in large countries (Kuznets, 1985; Ouyang, 2016). Our findings show that large countries support the ability to predict companies' future growth when the measures of growth potential based on market prices are taken into consideration. There is no finding to support the statements of Greenwood and Jovanovic (1990) or King and Levine (1993) that new stock markets provide timely and accurate information about firms to investors and, therefore, may be more efficient. We also did not confirm Demirgüç-Kunt and Levine's (1996) assumption

that, in the long run, stock market development supports future economic growth. Baltic Countries with high market liquidity are not characterized by the effect of the growth potential related to future growth.

The conclusions presented in this paper can support the investment process of market participants, who can apply the measures of growth opportunity to the growth of companies forecast on larger and more liquid markets. The limitations of the paper are related to the number of markets analyzed. Future research could extend the analysis of how market size and exchange liquidity influence growth.

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Rozwój firmy i możliwości wzrostu na przykładzie niektórych giełd UE w świetle specyfiki rynku

Streszczenie:	Niniejszy artykuł analizuje związek między miarami możliwości rozwoju a przyszłym rozwojem firm. Jeśli istnieje korelacja między potencjałem wzrostu firmy a jej realnym wzrostem, rynki są bardziej przewidywalne i efektywne. Badanie zostało przeprowadzone na przykładzie następujących rynków europejskich: Austrii, krajów bałtyckich, Węgier, Francji, Polski i Niemiec. Celem artykułu jest ocena związku między miarami szans rozwojowych a przyszłym rozwojem spółek notowanych na giełdach niektórych rynków w Unii Europejskiej. Rozpatrywane kraje można sklasyfikować według wielkości państwa, płynności rynku i rozwoju rynku giełdowego. Oczekiwano, że te czynniki zewnętrzne wpłyną na siłę wzrostu. Stwierdzono, że miary możliwości wzrostu oparte na cenach rynkowych mają moc prognostyczną dla przyszłego rozwoju firm. Są one również silnie powiązane z przyszłym rozwojem firm w dużych krajach i słabo powiązane z przyszłym wzrostem w małych krajach. Niniejsze opracowanie uzupełnia literaturę na temat zastosowania miar szans wzrostu w odniesieniu do cech rynku. Uzyskane wyniki są zgodne z poglądem, że płynność rynku powinna zwiększać jego efektywność w ujawnianiu wartości akcji oraz z hipotezą wszechstronnej przewagi dużych krajów.
Słowa kluczowe:	rozwój firmy, możliwości rozwoju firmy, rynek giełdowy
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