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Testing of asset and profit strategy through investment portfolio formation in Baltic States stock exchange

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Abstract

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The paper aims, after presenting the possibilities of investment portfolio formation according to the asset and profit strategy, to carry out the analysis of this strategy testing in the Baltic States stock market and to assess its efficiency. The research showed that acquiring the companies whose balance value, the net current asset value and the profit are relatively low, it is possible to achieve better results than the market's. Periodically changing the investment portfolio composition and re-evaluating the companies, better results are achieved than when applying the "buy and hold" strategy. And the use of combined index allows to avoid drawbacks that are specific for individual indicators, thus improving the results of portfolio.

1. Introduction

Relevance of research. The solutions of the investment portfolio formation are broadly analysed by many researchers and analysts, however, for the portfolio formation they usually apply some different criteria selecting financial measures. One of them is fundamental rate analysis, oriented at value investment, which attracts attention of many researchers (Pritchard, 2002; Omran, 2004; Nichols, Wahlen, 2004; Dimitropoulos, Asteriou, 2009; Arnold, Xiao, 2008; Kelly et al., 2008; Graham, Dodd, 2008; and others). A founder of value investment is considered to be B. Graham, who applied various stock selection criteria, which allowed to select stocks for the stock portfolio seeking to increase its return. This

investment strategy is called asset and profit strategy. Many different authors tested the performance of this strategy in different markets and situations. Oppenheimer (1984), Klerck and Maritz (1997) used stock selection criteria offered by B. Graham for the investment portfolio formation. According to these criteria, the portfolio received bigger return and the use of these criteria was relevant for additional profitability. Omran (2004), dealing with linear models, found that the return on equity is the only important factor determining stock return. B. Graham and D.L. Dodd (2008), assessing stock's attractiveness, suggested evaluation of the net current asset value. G. Arnold and Y. Xiao (2008) checked B. Graham's strategy using the net current asset and the market value ratio for investment portfolio formation. This proves the necessity of strategy testing in the Baltic States stock market.

Research subject — stocks of the companies in the Baltic States and their financial rates.

Research aim — to present the possibilities of investment portfolio formation according to the asset and profit strategy, and then to perform an analysis on the strategy testing in the Baltic States stock market and assess its efficiency.

Research objectives:

To systemise and generalise theoretical statements about stock selection, to present the relevance of portfolio formation applying the asset and profit strategy.

To select stocks from the Baltic States stock market in accordance with specific stock selection criteria and apply different portfolio strategies to form and justify investment portfolios.

To present the results of the asset and profit strategy testing in the Baltic States' stock market and assess its efficiency.

Research methods: analysis of the scientific literature, grouping and comparison of the statistical data, logical data generalisation, optimal portfolio calculation.

2. Process of stock portfolio formation

Analysing investments, assets and liabilities a term "portfolio" is often used, however, there is no one precise definition of it. The meaning of this term is clear — it is the set of financial assets, liabilities, physical assets and other assets, that have been made or formed to achieve a particular aim (Rutkauskas, Martinkutė, 2007). Investing in various asset classes with various different qualities, it is possible to form investment portfolios of different types. When forming the stock portfolio it is important not only to take into account the relation of return and risk, but the source of return as well. It is not fair to speak about the return of portfolio based on a single source. Though many portfolios refer to the increase in the asset price they can, however, include assets generating income in the form of dividends.

On the base of income source it is possible to make different types of portfolios (Cibulskienė, Butkus, 2009).

Investment portfolio can generally be defined as consolidation of all capital in a single unit. Due to investing into different asset classes, investment portfolio formation is a good way to diversify risk. There are many possibilities to form investment portfolio, however, there are two main management strategies to do it: passive and active (Budik, Doskočil, 2011). The passive strategy includes a longterm portfolio formation in order to seek the set of goals or simply replicate index. The active strategy seeks higher profitability rather than benchmark index profitability. The benchmark index is the passive portfolio, which is formed to satisfy customer's needs and to improve the relation between risk and profitability (Kancerevyčius, 2009). According to the stock type, growth portfolio can be defined, which is composed of assets of growing value. This portfolio aims at getting return from a positive price change and received dividends. Depending on the assumed risk and asset composition, the aggressive, conservative and middle growth portfolios can be defined. Income portfolio is focused on dividends and regular income. This portfolio is composed of stocks, bonds and other securities, whose price growth rate is not high, although regular income is received (Cibulskienė, Butkus, 2009).

Investment management is a relatively young scientific branch. Although investment management models have theoretically been deeply analysed, many processes have not yet been examined in details and applied in practice (Valentinavičius, 2010).

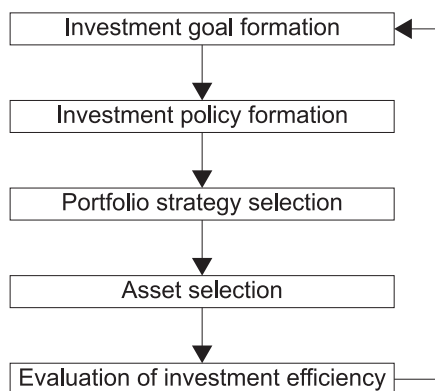


Figure 1. Steps of investment management

Source: created by authors, according to D. Cibulskienė, M. Butkus (2009).

Investment management process can be put into five steps (see Figure 1). Firstly, investment goals are set. They depend on the needs and possibilities of each investor. Then, investment policy is formed, where the assets are foreseen to be invested into. Investment portfolio strategy selection satisfying investor's aim

and investment policy is the third step. Having selected investment portfolio strategy, the next step is the selection of assets which will be included in the formed portfolio. The asset selection strategy depends on investment portfolio strategy. The fifth step is the evaluation of investment efficiency. Investing process is continuous and constantly updated, therefore the fifth investment management step is not the last one (Cibulskienė, Butkus, 2009).

Investment goal formation is necessary, because without the goals there is no aspiration and investment portfolio management can become chaotic and the obtained results cannot be compared, which makes it impossible to evaluate the manager's job. Without the investment goal it is difficult to keep existing customers and attract new ones. The outcomes of investment portfolio cannot be evaluated individually, because the profit is expected from participating in particular selected investment measure markets, where the total value is changing. Comparative analysis is an essential tool in order to evaluate investment portfolio efficiency (Valentinavičius, 2010).

The evaluation of investment portfolio efficiency is relevant for every rational investor, because financial measures are usually selected according to the relation between return and risk. Due to financial measure correlation, general portfolio risk can be reduced without compromising portfolio returns. However, due to the continuous market fluctuations and financial measure price decreases, it is necessary to constantly monitor the performance of investment portfolio efficiency (Valentinavičius, 2010).

3. Relevance of asset and profit strategy to the investment portfolio formation

The asset and profit strategy is based on fundamental analysis. The relevance of this strategy is a particular fundamental rate evaluation that is directed at the stock selection justifying the investment portfolio.

The first stage of investment portfolio formation — Stock Analysis — includes the investment fundamental and technical analyses that aim to forecast the fluctuating prices and demand in the investment market, which helps to define the factors determining changes. Fundamental analysis mainly deals with long-term and fundamental factors, such as: micro- and macroeconomic and specific issuer factors (Valentinavičius, 2010). The indicators of fundamental analysis allow to evaluate the efficiency of a company's performance, whose stocks are to be included in the portfolio, as well as how intensively it expands the scope of activity, and if it has a lot of debts (Žilinskij, 2012).

There exists empirical evidence on the relation of earnings and stock returns (Nichols, Wahlen, 2004; Dimitropoulos, Asteriou, 2009; Pritchard, 2002). Earnings represent the "bottom-line" accounting measure of a company's performance (Ni-

chols, Wahlen, 2004). Common stock is generally considered to be worth certain times its current earnings. This multiplier depends partly on the prevailing psychology and partly on the nature and record of an enterprise (Graham, Dodd, 2008).

The book value of a common stock was originally the most important element in its financial exhibit. The book value of stock is the value of the assets applicable thereto, as shown in the balance sheet. It is customary to restrict this value to tangible assets. The book value is also referred to as the “asset value,” and sometimes as the “tangible-asset value,” to make clear that intangible ones are not included. In the case of common stocks, it is also frequently termed the “equity” (Graham, Dodd, 2008).

In addition to the concept of book value, there is suggested a current-asset value. The current-asset value of stock consists of current assets alone, minus all liabilities and claims ahead of the issue. It excludes not only intangible assets but fixed and miscellaneous assets as well (Graham, Dodd, 2008). The net current asset value rule, in theory, not only protects capital from significant permanent loss, but also generates portfolio of stocks with excellent prospects for increase in price (Arnold, Xiao, 2008). Three fundamental relative ratios are used in the analysis. Their calculations are shown in Table 1.

Table 1. Relative ratios

Ratio	Calculation
Stock price and book value ratio (P/B)	Stock price/stock book value
Stock price and earning per stock ratio (P/E)	Stock price/earnings per stock (EPS)
Stock price and net current asset value ratio (P/NCAV)	Stock price/(current assets per share — company's liabilities)

Source: the authors.

The analysis of fundamental ratios nowadays attracts much attention of researchers. Xin Liang (2013), analysing the Japanese stock market, used the book value per stock and the stock price ratio, the dividend yield, the stock price and earnings per stock ratio, the cash flow and the ratio of the stock price strategies. Having invested 1 dollar in 1980, through these strategies, in 2011 the investor would have got returns respectively 115.98 \$, 81.88 \$, 433.86 \$ and 281.49 \$, while the stock market would have turned 1 dollar into 2.76 \$. Kelly et al. (2008), analysing the stock price and earnings per stock ratio, found that in 1998–2006 having invested in companies with a low P/E ratio, the return obtained was higher than that coming from having invested in companies with larger P/E ratio. Anderson and Brooks' (2006) analysis showed that the average profit of several years calculating P/E ratio, allowed to better predict the return than applying a simple P/E ratio, which uses a one-year gain. The return was best predicted when using eight-year average profit. Graham and Dodd (2008), assessing the attractiveness of stocks, offered to evaluate the net current asset value. This index is calculated from the balance sheet at current

assets minus all liabilities and divided by the number of issued stocks. Fixed assets are not included in index calculation. Arnold and Xiao (2008) examined B. Graham's strategy of investment portfolio formation using the net current assets and the market value relative ratio. The research results showed that using this ratio the return achieved was almost two times higher than the market return, and systemic risk fell between 0.5 and 0.6. The formed investment portfolio was characterised with a higher standard deviation than the market. As the investment portfolio was made up of a small number of companies, it could be expected that a company's volatility would be higher. Oppenheimer (1984) and Klerck with Maritz (1997) used B. Graham's stock selection criteria for investment portfolio formation. According to these criteria, formed portfolios achieved higher returns, and the use of these criteria was significant for additional profitability. Omran (2004), analysing the linear models, estimated that the return of equity was the single most important factor in determining stock returns. Kucko (2007) analysed the possibilities of investment portfolio formation in OMX Vilnius Stock Exchange. The analysed stocks were classified into the stocks of value and the stocks of growth. The distribution of stocks was based on the stock price and the book value relative ratio. The research found that in 2003–2006 the stock portfolio of a small capitalisation growth provided the highest returns. It can be explained by the fact that during the analysed period the economics in Lithuania grew rapidly and in the growth period the greatest return could be provided by the stocks of growth. However, this does not guarantee that in the future the stocks of growth will provide bigger return than the stocks of value. Dziukevičius and Saranda's (2011) research results showed that it was appropriate to use fundamental analysis in the stock exchange market in Lithuania, however, it must be performed after assessing typical market characteristics.

4. Research data and methodology

The research scheme of asset and profit strategy testing to carry out the research has been made, which includes three stages (see Figure 2).

In stage 1 the selection of company stocks is made to form investment portfolio. The efficiency of indicators, showing how cheaply the company's assets were sold and its profitability was analysed by the Official List of quoted companies of the Baltic Stock Exchange. Investment portfolios were formed on March 3rd, 2009. This date was chosen in order to assess the financial results of companies in 2008 and to calculate the relative ratios based on them. The beginning of 2009, characterized by strongly impaired stock prices and the global financial crisis, forced many investors to inadequately assess the situation. Therefore many investors, affected by fear, herd mentality, or other emotions, sold their stocks. In March, 2009 on the Official List of the Baltic Stock Exchange there were 40 quoted companies. The data of 27 companies were used for analysis. Some companies were

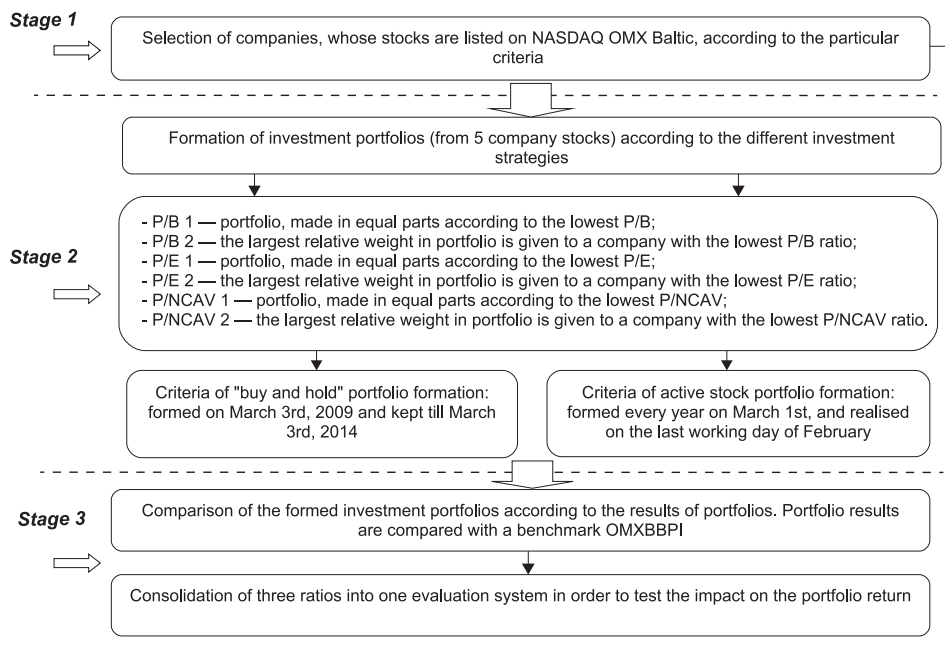


Figure 2. Research scheme for the testing of asset and profit strategy

Source: the authors.

excluded because of their bankruptcy (JSC Ūkio bankas, JSC Snoras), reunion (JSC Vakarų skirstomieji tinklai, JSC Rytų skirstomieji tinklai), diversification of activities (JSC Invalda, JSC Lietuvos dujos), disappearance from the list (JSC Kalev, JSC Norma), activity suspension (JSC Järvevana) or the mismatch of the financial year to the calendar year (JSC Tallink Grupp). The sampled companies are shown in Table 2.

Table 2. Companies selected for research from OMX Baltic Stock Exchange

Branch of industry	Companies
Telecommunication	JSC "TEO LT" (TEO)
Health care	JSC "Olainfarm" (OLF), JSC "Grindeks" (GRD)
Industrial production	JSC "Panevėžio statybos trestas" (PST), JSC "Merko Ehitus" (MRK), JSC "Harju Elekter" (HAE), JSC "City Service" (CTS), JSC "Ventspils Nafta" (VNF), JSC "Latvijas kuģniecība" (LSC)
Consumer goods	JSC "Vilniaus baldai" (VBL), JSC "Pieno žvaigždės" (PZV), JSC "Rokiškio sūris" (RSU), JSC "Vilkyškių pieninė" (VLP), JSC "Silvano Fashion Group" (SFG), JSC Skano Group (SKN), JSC "Snaigė" (SNG), JSC "Agrowill Group" (AVG), JSC "Utenos trikotažas" (UTR), JSC "Baltika" (BLT)

Consumer services	JSC “Apranga” (APG), JSC “Olympic Entertainment Group” (OEG), JSC “Tallinna Kaubamaja” (TKM), JSC “Ekspress Grupp” (EEG)
Utilities	JSC “Tallinna Vesi” (TVE)
Financial services	JSC “Šiaulių bankas” (SAB), JSC “Arco Vara” (ARC)
Technologies	JSC “SAF Technika” (SAF)

Source: the authors, according to www.nasdaqomxbaltic.com.

The asset risk was measured using a standard deviation and beta coefficient. The standard deviation allows to assess how far the asset profitability is deviated from the average. This index was counted according to the formula:

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}} ; \tag{1}$$

where:

- x_i — i^{th} asset yields;
- \bar{x} — the average yield of the assets;
- n — the number of assets (Stankevičienė, Bernatavičienė, 2012).

Beta index evaluates variation in portfolio returns comparing it with market returns (e.g. stock index). Systemic risk is counted as the ratio of investment portfolio with index returns, and the standard deviation of index returns squared (Gencay et al., 2005).

$$\beta_i = \frac{Cov(r_i, r_m)}{\sigma_m^2} ; \tag{2}$$

where:

- r_i — i^{th} asset yields;
- r_m — market yield.

In stage 2, carrying out research, the portfolios were formed from five companies whose ratios were the lowest. Previously discussed empirical studies showed that selection ratios had an impact on stock prices. Therefore, in order to assess it, the portfolio was formed in which all companies had the same weights, as well as the portfolio in which company weight depended on relative ratios. Companies weights in the portfolio were the same in all periods, when the “buy and hold” strategy was used. However, the portfolio was rebalanced every 12 months, when the active strategy was used. There was no transaction or any other costs included in calculations.

In stage 3 the results of formed investment portfolios are compared according to the portfolio results, the results of portfolios are compared with the benchmark OMXBBPI. Then the results of all three relative ratios are consolidated into one evaluation system in order to test the impact on portfolio return.

5. Results of testing the assets and profit strategy

The investment portfolios were made up of five selected company stocks. The company weights were all the same in the first portfolio, and in the second portfolio the company share depended on financial ratios: the smaller value of the relative financial ratio, the greater weight in the portfolio was given to company stocks. Investment portfolios were formed using the active and “buy and hold” management strategies. The results were compared with the OMX Baltic Benchmark price index. This index consists of the largest and most traded shares, representing all sectors available on NASDAQ OMX Baltic Market. This includes Lithuania’s, Latvia’s, and Estonia’s capital markets. Price index means that dividend is not included in index calculation. The research was carried out using the data from the period of March 3rd, 2009–March 3rd, 2014. The monthly data was used for further calculations. Changes of portfolio values are shown in Table 3.

Table 3. Investment portfolio composition

Buy and hold				
PTR	MRK	VNF	GRD	HAE
40.76	20.47	17.28	14.46	7.04
Active				
2009 03 02				
PTR	MRK	VNF	GRD	HAE
40.76	20.47	17.28	14.46	7.04
2010 03 01				
VBL	RSU	HAE	TEO	GRD
29.22	24.38	16.28	15.14	14.99
2011 03 01				
SAF	VBL	PTR	RSU	GRD
36.42	18.85	18.74	13.70	12.29
2012 03 01				
SAF	RSU	GRD	VBL	SFG
32.70	20.33	17.20	15.69	14.09
2013 03 01				
GRD	RSU	OLF	SFG	VBL
28.81	24.44	17.81	16.80	12.14

Source: the authors.

In forming a “buy and hold” investment portfolio, the PTR and VNF companies were included in all portfolio compositions. In investment portfolios made using the active strategy a few companies dominated. According to the P/B ratio,

the VNF company was selected five times, VBL, RSU — four times. According to the P/E ratio, the VLP company was selected four times, VBL, RSU — three times. According to the P/NCAV ratio, the SAF, MRK, PTR companies were selected five times, RSU — three times. Evaluating company assets, the industrial product sector companies were valued the lowest, and according to the profit made, the consumer goods sector was valued the lowest. Table 4 shows the compositions of investment portfolios made using the combined index. The percentage of the composition is similar to other portfolio compositions, however the percentage share of companies in the portfolio depends on the value of ratios. The GRD company dominated in investment portfolios made using the combined index. Also, every year, having changed the portfolio composition, the RSU, ARL companies were selected in it.

Table 4. Portfolio value change

	1 year	2 years	3 years	4 years	5 years
Buy and hold					
P/B 1	2.70	6.00	6.28	6.08	6.17
P/B 2	2.50	5.31	6.14	5.79	5.71
P/E 1	2.39	3.43	2.45	2.44	2.45
P/E 2	2.48	3.68	2.57	2.54	2.49
P/NCAV 1	2.57	6.11	4.80	4.19	4.14
P/NCAV 2	2.38	7.33	5.35	4.40	4.83
Combined 1	2.62	3.69	2.75	2.74	2.78
Combined 2	2.54	3.76	2.70	2.64	2.56
OMXBBPI	1.75	2.37	1.93	2.23	2.27
Active					
P/B 1	2.68	6.36	4.00	3.32	4.17
P/B 2	2.53	6.37	4.32	3.56	4.48
P/E 1	2.41	4.49	3.76	3.29	4.76
P/E 2	2.49	4.83	4.04	3.40	4.81
P/NCAV 1	2.54	6.13	4.82	4.21	4.83
P/NCAV 2	2.39	8.04	5.89	4.74	5.24
Combined 1	2.58	4.06	7.46	7.05	7.63
Combined 2	2.57	4.35	10.83	9.85	10.95

Source: the authors.

The analysis showed that in five years' time selected ratios allowed to significantly outperform the market. Applying the "buy and hold" strategy, the values of the portfolios made according to the P/B ratio increased 6.17 and 5.71 times in five years' time, and according to the P/E ratio — 2.45 and 2.49 times. The va-

lues of portfolios made applying P/NCAV ratio increased 4.14 and 4.83 times in five years' time. While the value of index increased 2.27 times during five years' time. Active investment portfolio management allowed to improve the results of portfolio, applying P/E and P/NCAV ratios. However, the results declined selecting companies according to their book values. The combination of the "buy and hold" strategy and the ratio performance did not provide better results. The value change of these portfolios was only slightly higher than the index's. The formation of active investment portfolio, taking into account all three indicators, reached the largest value change. The composition of portfolio accounting, estimating the weights of indicators, reached an almost five times higher rate of return than the index.

The risk of portfolios made according to the chosen strategy was assessed using the standard deviation and beta coefficient. Beta coefficient of the "buy and hold" investment portfolios showed that the chosen strategies were not very risky. Beta coefficient of four portfolios in five years' time was bigger (P/E 1) or close (P/NCAV 1, Combined 1, Combined 2) to one, which showed that the profitability of portfolios changed more than or similarly to the market's. Evaluating by standard deviation, the risk of all portfolios was higher than the benchmark.

Table 5. Beta coefficient of active portfolios and standard deviation

	Standard deviation (in percent)	Beta coefficient
P/B 1	10.35	0.793
P/B 2	10.93	0.790
P/E 1	9.42	1.105
P/E 2	9.40	1.058
P/NCAV 1	8.86	0.961
P/NCAV 2	10.56	0.779
Combined 1	7.74	0.826
Combined 2	8.91	0.782

Source: the authors.

Standard deviation of actively managed investment portfolios was also higher than the market's (see Table 5). However, it was necessary to take into account the fact that the portfolio was made of five companies, so the risk was expected to be higher than the index. Beta coefficients of actively managed portfolios remained similar to the "buy and hold" portfolios, except the P/E 2 portfolio, whose beta coefficient significantly increased. Beta coefficient of the portfolios composed using combined index decreased significantly, and standard deviation changed slightly. It was not appropriate to assess the risk based only on standard deviation. Therefore the risk was calculated per unit of return (see Table 7).

Table 6. Beta coefficient of “buy and hold” portfolios and standard deviation

	Standard deviation (in percent)					Beta coefficient				
	1 year	2 years	3 years	4 years	5 years	1 year	2 years	3 years	4 years	5 years
P/B 1	16.72	12.98	11.81	10.62	9.69	0.647	0.647	0.773	0.800	0.788
P/B 2	18.28	14.28	12.68	11.42	10.42	0.718	0.710	0.791	0.822	0.805
P/E 1	16.20	12.38	11.64	10.22	9.34	1.075	1.116	1.193	1.171	1.154
P/E 2	14.61	11.56	11.80	10.37	9.50	0.652	0.706	0.778	0.762	0.758
P/NCAV 1	14.35	11.18	11.07	10.00	9.11	0.864	0.845	0.994	1.004	0.981
P/NCAV 2	11.87	10.41	10.54	9.66	8.82	0.614	0.569	0.755	0.785	0.760
Combined 1	13.40	10.43	10.05	8.95	8.22	0.832	0.904	1.006	0.996	0.981
Combined 2	14.18	10.94	10.67	9.54	8.83	0.842	0.918	1.042	1.029	1.016
OMXBBPI	12.59	9.40	8.52	7.55	6.93					

Source: the authors.

Using the “buy and hold” strategy the best results among different ratios were achieved with P/B ratio (see Table 6). Variations of these portfolios (see Table 7) and beta coefficient were the lowest, and the return was the biggest. When actively managing investment portfolio the best results were obtained evaluating the net current asset and forming portfolio composition considering the ratio value. Such portfolio was characterised with the biggest return, lowest beta coefficient and quite low variation coefficient. The obtained results allowed to claim that the evaluation of company asset and profit was efficient and these methods allowed to achieve better results than the benchmark. The use of only one ratio had some disadvantages. Purchasing the companies whose assets were sold cheaply, the non-profitable ones could be purchased. But evaluating them only by profit, the company’s capital structure would not be taken into account. The use of combined index allowed to avoid these drawbacks. Forming active investment portfolio using all three ratios brought much better results than using separate indicators. However, the application of this method using the “buy and hold” strategy failed.

Table 7. Variation coefficients

	Buy and hold					Active
	1 year	2 years	3 years	4 years	5 years	5 years
P/B 1	1.57	1.56	2.01	2.34	2.42	3.57
P/B 2	1.71	1.73	2.09	2.48	2.61	3.49
P/E 1	1.66	1.96	3.27	3.56	3.63	3.00
P/E 2	1.72	2.41	3.47	3.38	3.44	2.99
P/NCAV 1	1.42	1.34	2.13	2.61	2.69	2.88

P/NCAV 2	1.34	1.26	2.04	2.53	2.54	3.09
Combined 1	1.46	1.68	2.94	3.46	3.91	2.27
Combined 2	1.57	1.72	3.11	3.72	4.38	2.14
OMXBBPI	2.33	2.33	3.94	3.89	4.09	

Source: the authors.

This index better indicates the risk of portfolio. The biggest risk to one unit of return was incurred in the Combined 2 investment portfolio and the index, while their variation coefficients were, respectively, 4.38 and 4.09. Considering the formed “buy and hold” portfolios made according to separate ratios, portfolios selected according to the P/E ratio were the most risky, and their variation coefficients (risk per one unit of return) were 3.63 and 3.44. When actively managing the investment portfolio, using the P/E ratio and ratio combination, variation coefficient decreased. When applying other strategies, variation coefficients increased. Using the active management strategy, the most risky investment portfolios were the ones selected according to the P/B index, and the least risky — according to the index combination.

The formation of investment portfolios considering the value of ratios did not provide additional benefit, nor did using the “buy and hold” strategy. However, changing their formation periodically considering the ratios allowed to achieve bigger return than the portfolios containing equal shares of companies.

6. Conclusions

Various scientific research proved that the relations of stock price and yield per stock, stock price and book value, stock price and current assets allowed to achieve higher profitability of investment portfolio. As B. Graham claimed, it is worth purchasing some company stocks only when the value of a company is higher than the price at which it is sold.

The research showed that purchasing the companies whose balance value, the net current asset value and the profit are relatively low, it is possible to achieve better results than the market's. Periodically changing the investment portfolio composition and re-evaluating the companies, better results are achieved than when applying the “buy and hold” strategy. And the use of combined index allows to avoid drawbacks that are specific for individual indicators, thus improving the results of portfolio.

The formation of investment portfolios considering the value of ratios did not provide additional benefit, nor did using the “buy and hold” strategy. However, changing portfolio composition, its formation periodically, considering the ratios, allowed to achieve bigger return than the portfolios containing equal parts of companies.

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