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WORLD TOP INVESTMENT STRATEGIES ADAPTATION TO THE NASDAQ OMX RIGA

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Abstract. The authors of the publication are studying the strategies of world's best and most influential stock market investors. The objective of the publication is to determine most important points of different investment strategies that would help the user of the strategy to make decision whether or not to include the particular stock in the investment portfolio. To meet the objective, authors of the publication are applying different investment strategies to companies' stocks listed in NASDAQ OMX RIGA stock exchange. In the conclusion the authors of the publication gather results in a table that better show common features and differences of various investment strategies. Ultimately, the best stock portfolio is being created of NASDAQ OMX RIGA stocks applying different investment strategies. The result of the research lets authors of the publication make conclusions and give recommendations.

Keywords: investment, Nasdaq OMX Riga, strategy, Warren Buffet, portfolio, financial.

Jel classification: G11

1. Introduction

There are big amount of useful trade strategies which are in use. Strategies can be classified according to different principles, for example what has been taken into consideration of the process of creation.

The term strategy derives from the Greek strategos, an elected general in ancient Athens. The strategoi were mainly military leaders with combined political and military authority, which is the essence of strategy. Because strategy is about the relationship between means and ends, the term has applications well beyond war: it has been used with reference to business, the theory of games, and political campaigning, among other activities (Encyclopædia Britannica. Search for terms "strategy").

In case of publication, strategy has to be understood as ability to invest your own funds in stocks, when performing technical or fundamental analysis selected events, to get a profit.

Investment strategies used by other investors in stock markets have expressed an interest in regular investor since beginning of stock trading (Fabiozi *et al.* 2011). World's best and most influential stock market investors are always admiration for other investors, who always will try to find out, what kind of investing strategy they use.

As we saw from above, all that aspects makes the manuscript actual, as the authors explore world's most popular stock market investment strategies, and try to adapt those strategies to stocks listed in NASDAQ OMX RIGA stock exchange. Publication goal is adapt investment strategies to NASDAQ OMX RIGA stock ex-change listed stocks. To achieve goal authors of publication should:

– Set examples of technical analysis strategies;

– Identifying the fundamental analysis strategies;

– Identify major point in Warren Buffet investment strategy;

– Adapt investing strategy to NASDAQ OMX RIGA stock ex-change listed stocks.

– Identify best strategy for NASDAQ OMX RIGA stock ex-change listed stocks.

The object of research is investing strategy in stock markets. Based on a research volume limits authors of publication couldn't explore all investing strategies in stock market, that fore, authors chose to adopt 3 investing strategies when used technical analysis, 2 investing strategies in fundamental analysis and as a superior investors authors choose to explore and adopt to NASDAQ OMX RIGA stock ex-change listed stocks – Warren Buffett investing strategy.

At the end of publication authors will give conclusions about research. Publication could be a good guide for investors, who is trying to start trading stocks in NASDAQ OMX RIGA stock exchange.

2. Technical analysis based strategies

By definition, technical analysis is the research of the historical stock price to predict possible price trends of the future (Wong *et al.* 2008). The history of technical analysis starts at the end of 19th century, when Wall Street Journal's founder, editor and journalist Charles Dow (Charles H. Dow. 1904) laid the foundation of this theory, which is one of the cornerstones of modern technical analysis theory (Dow Theory 2007).

Nowadays, there are a lot of ways how to make decisions talking about investments in stocks. Today people have dealt two basic approaches – technical and fundamental analysis (Westerhoff 2005), which help them to assess investment opportunities. This part will look thru of technical analysis and determine three methods of technical analysis to wich the base will be built in investment strategy (Serletis *et al.* 2008).

Authors of the publications will be used only examples of how to analyze the share charts, if investor use technical analysis. Authors offers to use other sources (shedules) of the financial instrument price of reflection as a salution.

Authors have chosen three most popular models of technical analysis how the stock can be analised (Freinats *et al.* 2008).

Table 1. NASDAQ OMX RIGA stock exchange applicable technical analysis strategy

No	Strategy of technical analysis	Used instruments
1	Strategy which is based on breaking a certain level of the price chart	Resistance and support lines at the price charts
2	Strategy which is based on moving averages	Average price line at the price charts
3	Strategy which is based on oscillator convergence and divergence	Additional charts (oscillators and indicators)

The authors have also concluded that despite of the large number of books in connection with the technical analysisit is very subjective, however, the justification may be useful, if you look at it in the context of a common mood of investors in the stock market where techinical analysis may show most likely future of the market direction (Aronson *et al.* 2007). Unfortunately Riga's Stock Exchange website (NASDAQ OMX RIGA stock ex-change) do not offer the appropriate instruments to get the carry out of a technical analysis but it is possible to do that, if the share trading data is uploaded into professional technical analysis platform.

Strategies based on technical analysis in NASDAQ OMX RIGA stock ex-change, could be use only to get best price to open position.

2.1. Breakouts and crossing of the levels of price chart and the crossings

Breakouts and crossing of the levels of price chart and the crossings – it means to enter the market when prices in the price range of the upper threshold or the border and to exit from the market, when the price falls below of the lower price range graphic. Strategy which is based on crossings of price chart can be quite simple or quite complex, and the main differences are in the levels and intervals, as well determine methods of entering market.

Entrance of market is based on crossings of price charts is quite popular and varied. One of the oldest techniques is simple trend line crossing (X). Chart shows a downward trend line which serves as the top ceiling. When the prices cross it, they open a long position. If the price drops below the level the short position is opened. Support and resistance line creation according to Gunn's and Fibonacci numbers may also serve to the upper limits in the price of the crossing location price chart.

Historically, the trend line of the breakage strategies are followed by channels strategies, which are based on aid and resistance line breakage (Fig. 1).

Fig.1. Downward trend line (Source: Netdania charts)

As shown in Fig. 1 and Fig. 2 the resistance and supprot line is based on channel's internals – maximum and minimum (Carol *et al.* 2000).

Investor buys if the price climbs higher than the resistance line and sells when the price falls below the line. Channels' penetration strategy can be easily programmed and it is likeable to many investors who do not like complex trading systems sistēmas (Katz *et al.* 2002).

Fig.2. Price canal with support and resistance levels (Source: Netdania charts)

2.2. Startegy which is based on moving averiges

Moving average has been included in almost all of the technical analysis software packages, and are very many publications subject. To understand what moving average is you have to work out with the time lines – with the arrival of sequence (flow) (Menhoff *et al.* 2010). The consistency of information, such as Japanese candles closing price on price chart. It creates a sequence of information that follows one behind the other in a certain time within a period. Values in a specific order in time lines, this continuity of information we can call on „Time Window". If these information points (for example, closing price) within the time period are put and if the amount split to the number of points we get the average.

Moving averages (Baviera *et al.* 2002) are obtained when the process repeats again and again by the time window mixing it forward, a point after point of information within a row (Katz *et al.* 2002). Averages which are obtained like this, makes new time line. Authors looked thru moving average, which is based on closing price but as the parameter you can choose any of the other criteria (opening price, the average price, the minimum price, the average price for the period, T.I.).

Moving average is used to reduce the so-called „Market Noise" (rapid price fluctuations, which means anything to investors) to make pricing schedule more understandable and more successful. Moving average does not provide the alignment of price. One of the moving average major minus is the delay.

Technical analysis method is based on moving average which generates signals (Westerhoff *et al.* 2006) to open position but these signals are based on relationship between moving average and the price or just between moving average. Figure 3 shows two forms of moving averages. One of them is moving average which is based on closing position price (simple moving average) with period of twelve but second moving average is based on open position with period of sixty. Users of this type of strategy usually take decision to open position (if there is only one moving average) in cases when the moving average is above the price chart then sell, if it is below then buy. If there are more than one moving averages, such as two, then position should be opened when the slow moving average with a greater time period has crossed smaller time period from below and sells when the slow moving average with greater time period has crossed fastest moving average with smaller time period from above (Fig. 3).

Fig.3. Simple Moving averages (with periods 12 and 60) (Source: Netdania charts)

In the figure 1, the common moving average is shown, which is calculated using the formula (1).

$$MA = \frac{\sum_{i=1}^{n} Pi}{n}, \qquad (1)$$

where:

$\sum_{i=1}^{n} Pi$ – price amount in period n,

n – time period.

Following only to moving averages can afford very rich investors, who invest their funds for a long time periods. One of the biggest problems of using moving average, when transactions (Hurst *et al.* 2000) are on action, are when the fast moving average crosses the slow moving average. Fast moving average approach to slow moving average not always means the cross, shown in table (Fig. 3).

In figure 3, you can see that determine, buy and sell is very easy (red line is slow moving average, green line is fast moving average with period of twelve) but you have to keep in mind that we see the history of market, when it all has happened and in present it is more difficult, because fast moving average often approaches to slow moving

average, sometimes if is crosses it, however, then resigns. Other extreme moving average is that it cannot foresee, such as the fast moving average for some time is below slow moving average. It seems that the decision about the selling has to be accepted but that it is not very outstanding trend, than it is not known if the line comes closer to the slow moving average, because it has to be kept in mind that moving averages goes with some delay. This way of strategies has been adopted in practice, however, Jeffery Owen Katz has tested these strategies which are based only on the moving averages and became to conclusion that for a longer period of time these strategies suffers losses (Katz *et al.* 2002). We may conclude that the use of this way of strategy has to be prohibited, except in cases where the moving average is used as an additional tool, for another, more progressive and technical analysis.

2.3. Strategy which is based on convergence of oscillator and divergence

Based on this type of investment strategy serves technical analysis instruments – oscillators, or sometimes also called indicators.

Technical analysis method which is based on entrance of the market of oscillator basis – oscillators are very popular instruments between investors to make a decision. Countless books and scientific articles have issued to give some research. As one of the most popular oscillators are such as MACD – moving average convergence - divergence (Chart school, Stock charts), Lain stochastic oscillator (Chart school, Stock school) and many others with under types.

Oscillator is an indicator, which is based on prices with a tendency to vary between (to oscillate) fixed or sufficiently firm limits. Oscillators characterized by a range of normalization and long-term trend of price levels exclusion, oscillators' information obtained as pulse and overloaded. Pulse – that is a condition where the price is moving in a direction - laid down. Overload – it is too high or too low price situation, where the price is ready to quickly return to more prudent prices.

Oscillators react to price momentum and cyclical movements to reduce the importance of trends and ignore long-term shift.

One of the most popular methods to be guided into the market among investors after using oscillators is convergence or divergence search, respectively between oscillator and price indicator, which has been described by McWhorter in 1994. Convergence and divergence is achieved when the price chart, over a period of time, is created a new price peak, but in oscillator a new peak is not shown (divergence), it is signal for sale, or when the chart of price has gained a new minimum which is not a new minimum in all chart (convergence), it is signal to purchase. Example with convergence is shown in figure 4.

Fig.4. Convergence sample in stock chart (Source: Saxo trading platform)

The use of divergence and convergence often may be wrong as we can see in figure 4. Investor should have opened the long position in the stock at the first local minimum. However, it is evident that after this minimum, in price chart, there is one more, and only after them price starts to go up. The first open position would make a loss. We have to mention the psychological factor here, if the investor had opened the position at the first minimum he would had suffered the loss, and the next time when the position is opened and good for him he would think that the same could happen to him again, because there are times when the divergence and convergence goes to more than one maximum or minimum in price chart.

It is easy to determine divergence or convergence with price or oscillator chart observation, but to determine it by computer program is almost impossible, although, recently lot of programs have been made to find out convergence or divergence.

3. Fundamental analysis based strategies

Fundamental analysis is focused on company and its financial indicators. Fundamental analysis is complex and time-consuming process frequently.

It is important to understand the analysis process, methodologies and be aware of the risks associated with an investment (Vinod *et al.* 2004). There is no universal method with the help of which it is possible to evaluate all the companies (LVH 2009).

Fundamental analysis is made for further investigation of the finances to better understand the efficiency of the company. The basic assumption of this analysis is the share price is influenced by efficiency of the company. If business perspective seems stable, it is more likely that the stock market will reflect the price of this fact and it will increase. It has to be taken into account that the value of the shares depends on not only the use of future dividends but also of the risk. Fundamental analysis includes profitability and risk factors to define its effects on the share price.

Fundamental analysis starts with a retrospective company's financial stability analysis, which includes the research of companies' financial statements (Edgar 2011) to get to know the strengths and weaknesses of it, identify any changes and developments, assess effectiveness and create a company's representative features overview. Interest questions such as:

Company's competitiveness;

– The structure of assortment and sales trends;

– Company's profitability and profit figures;

– Company's recourses (assets) structure and liquidity;

– Capital structure of company.

Such information search and collection is long and work-intensive process, not always worth it, that is why they get by with materials and information what the press have already published.

Financial statements are essential fundamental analysis moment, as it would allow the investor to acquire the information of the company's production results and financial position.

Company's financial statement analysis task is to evaluate following characteristics:

– Company's funds situation of the reporting period;

– company's financial stability of the reporting day;

– use of capital intensity and profitability of the operations of the reporting period (Esipov et al. 1999);

– company's financial situation of the reporting period and the developments in recent years;

– distribution of profit and other capital source involve;

– company's interrelation with shareholders.

For useful fundamental analysis strategy, investors choose same financial indicators, compare them and choose companies, whose financial indicators are with best performance.

Investor is evaluating the information provided by the balance sheet, income statement and cash flow statement (Kellerman *et al.* 2006).

Table 2. NASDAQ OMX RIGA stock exchange adjustable fundamental analysis strategy

No	Fundamental analysis strategy	Indicators
1	Strategy which based on turnover and profit changes the same period the year before (expressed as a percentage)	Turnover and profit
2	Strategy which analyses indicators ROA, ROE and profit margin	Assets, equity, turnover and profit

As it was mentioned before, because of the limited amount of publication, authors will look thru only to three strategies based on NASDAQ OMX RIGA stock ex-change official list of financial data of five companies. Given strategies is shown in Table 2.

3.1. Profit and turnover change strategy

Any company listed on the stock exchange once every three months, four times a year release financial report. The release includes an overview of the profit and loss, balance sheet data and cash flow statement. Of these data any investor can get a turnover and profit data.

NASDAQ OMX RIGA stock ex-change official list financial data of five companies is not an exception. That is why the authors have prepared a Table 3.

Table 3. NASDAQ OMX RIGA companies turnover changes of nine months of the official list (EUR)

Company	**2011/9**	**2010/9**	**Change %**
Grindex	6955879	6669700	4.29
JSC Latvian Shipping Company	51078000	64206000	-20.45
Olainfarm	37407018	26806185	39.55
SAF Tehnika	4125786	4497859	-8.27
JSC Ventspils nafta	70865000	57780000	22.65

Where are reflected turnover of companies of nine months in 2011, compared with the same period in 2010, and the same evaluating have been done to a profit. Now based of the data of third table authors will choose companies with the largest turnover changes – Grindex, Olainfarm and JSC Ventspils nafta. To narrow the potential candidates, which invest in, an investor shall create a table four, where is shown the selected companies profit changes at the same period.

Table 4. NASDAQ OMX RIGA companies profit changes of nine months of the official list (EUR)

Company	2011/9 month	2010/9 month	Change %
Grindeks	8321000	7364399	12.99%
JSC Latvian Shipping Company	-21478000	-20728000	-3.62%
Olainfarm	7132729	4035371	76.76%
SAF Tehnika	679591	393566	72.68%
JSC Ventspils nafta	-4084000	3540000	-215.37%

The selection of the companies based on the third table we can see that the application of this strategy investor should select one of the five Nasdaq OMX Riga companies of the official list – Olainfarm. Similar publications use of such strategy authors recommend to do with other companies what are on the list of Nasdaq OMX Riga.

3.2. Strategy based on indicators of ROA, ROE and profit margin

Similar table, but does not compare the data with previous periods, is possible to create of the basis of financial report using the following parameter:

Table 5. NASDAQ OMX RIGA companies ROE, ROA and profit margin of nine months of the official list (percentage)

Company	ROE	ROA	Profit margin
Grindex	9.09	6.51	11.96
JSC Latvian Shipping Company	-10.24	-4.32	-42.05
Olainfarm	19.80	12.94	19.07
SAF Tehnika	5.93	4.76	16.47
JSC Ventspils nafta	-0.87	-0.84	-5.76

– ROE (return on equity) gives the profit divided by equity and expressed as a percentage (Chien-Ta *et al.* 2009);

– ROA (return on assets) gives the profit divided by total assets and is expressed as a percentage (Marston *et al.* 2011);

– Profit margin – gives profit divided by turnover and is expressed as a percentage (Stahl *et al.* 2011).

The higher the percentage, the better is for company. Authors based on previously mentioned assumptions have created Table 5, where is shown all five companies ROE, ROA and profit margin. As we see in Table 5, the best results for this type of fundamental strategy are Olainfarm.

4. Investment strategy of Warren Buffett

As one of the leading investment strategies based on other investor ideas of investing in the stock market, the authors come forward with Warren Baffetts' investment strategy (Buffet 1997).

It should be stressed that Warren Baffett strategy like this would not use in the case of investment of funds in NASDAQ OMX Riga stock ex-change, because the capitalization of the company and whole market is inappropriate for the investor requirements. The authors of the publication have applied this investment strategy making assumptions that the capitalization of the companies is much greater and the history of the data does not aim so distant past as required by the investor.

4.1. Buffett's Philosophy

Warren Buffett descends from the Benjamin Graham school of value investing (Mirzahi *et al.* 2007). The value investors are looking for securities with prices that are unjustifiably low based on their intrinsic worth (Buffett 1997). When the stocks are discussed to determine intrinsic value could be a little hard as there is no universally accepted way to obtain this figure. Most often intrinsic worth is estimated by analyzing a company's fundamental. Many value investors are not supporters of the efficient market hypothesis, but they do trust that the market will eventually start to favor those quality stocks that were undervalued.

4.2. Methodology

Warren Buffett's methodology consists of twelve points and investor pays careful attention to them before he has selected the companies to invest in their funds. Most of these points are with philosophical character, for example the 1st point – "Does the company understand the business?" This type of points each investor can understand differently, so the authors of the publication the greatest importance assigned to point 7th to investment of strategy of Warren Buffett – Return on Equity – ROE – to evaluate the companies finances. Of the long term return on capital (at least ten years) is much reliable than just earning results. ROE shall be calculated on the basis of the specified sample from the chapter 3.2.

The authors of publications based on it have created Table 6, where they have collected NASDAQ OMX RIGA stock ex-change companies from the official list with ROE indicators from 2006 to 2010. The given indicators will show to Warren Buffet's company to invest in his funds.

Table 6. NASDAQ OMX RIGA companies ROE from 2006–2010 (5 years in percentage)

Company	2006	2007	2008	2009	2010
Grindex	20.9	18.3	18.9	6.9	12.1
JSC Latvian Shipping Company	-6.98	-2.40	13.8	-19.8	-46.4
Olainfarm	5.7	2.6	-10.0	13.8	17.1
SAF Tehnika	14.4	1.9	-5.9	-16.8	19.9
JSC Ventspils nafta	1.5	16.6	14.4	0.5	1.6

The authors have made the Table 6, where are collected companies with ROE indicators from 2006 to 2010 of NASDAQ OMX RIGA stock exchange official list. The given indicators will show to Warren Buffett company to invest in his funds. As a result from table 6, that Warren Baffett's sight should be on company called Grindex.

Table 7. NASDAQ OMX RIGA investment strategies results

Strategy	**Best stock/comment**
Technical	This kind of strategy does not for finding best stock, but only to find best price to open position.
Fundamental 1	
Turnover changes	Olainfarm/turnover changes + 39.55 %
Profit changes	Olainfarm/profit changes + 76.76 %
Fundamental 2	
ROE	Olainfarm/Return on equity + 19.80 %
ROA	Olainfarm/Return on assets + 12.94 %
Warren Buffett	Grindex/ 5 years average ROE +15.42 %

There is difference between fundamental analyses indicator ROE analyses, where is analyzed % change in period n and period n-1. Warren Buffetts major point is to analyses indicator in long term (in publication case 5 years), and only if ROE is good for long term Warren Buffett he decide to include companies stocks in his portfolio.

5. Conclusions

At the end of the publication, the authors have reached all its objectives. This publication provides a wide range of insight into investment strategies in the stock market.

The authors conclude that, to achieve a diversified stock portfolio is necessary to analyze more companies, but based on the authors' publications, as shown in Table 7, the best companies have Olainfarm and Grindex.

The authors have studied three technical analysis strategies, two fundamental strategies and one of the world's famous investors – Warren Buffett's investment strategy.

As the best alternative of investing in Riga's stock ex-change companies shares, the authors of the publication come forward with fundamental analysis, with particular emphasis on turnover and profit change strategy, also investment strategy based on ROE, ROA and profit margin. Both fundamental strategies showed that from NASDAQ OMX.

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