THE ASSESSMENT OF BALTIC STOCK MARKET FROM PERSPECTIVE OF DIVIDEND YIELD AND TOTAL SHAREHOLDER RETURN RATIOS

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Abstract. Despite the integration of the Lithuanian, Latvian, and Estonian stock markets into the NASDAQ OMX Baltic exchange, the region continues to attract limited investment compared to its Nordic counterparts. This paper examines the growth and performance of the Baltic and Nordic stock markets from 2012 to 2024, focusing on Total Shareholder Return (TSR) and Dividend Yield (DY) as indicators of portfolio value. The findings show that long-term TSR is positive across all countries, with Scandinavian markets, particularly Denmark, outperforming the Baltics significantly. Denmark leads with an impressive TSR of 539% over the 12-year period, while Estonia, with only a 67.2% TSR, recorded the weakest performance. The study also highlights the positive recovery of markets following the downturn in 2022, driven by the impact of Russia's invasion of Ukraine. Short-term TSR and DY ratios indicate that Finland (9.5%) and Lithuania (5.2%) offered dividend yields surpassing the European Union's average annual inflation rate of 3.4%, positioning dividends as a hedge against inflation for investors. These results underline the importance of the Nordic markets for capital growth, while also offering insights into the Baltic market's potential for long-term wealth preservation.

Keywords: stock market, NASDAQ OMX Baltic, NASDAQ OMX Nordic, Total Shareholder Return, Dividend Yield

INTRODUCTION

This article tries to compare the Baltic stock market to Scandinavian market which are close geographically but different historically. Mostly, the Lithuanian stock market is analyzed together with Latvian and Estonian stock markets as a part of joint Baltic stock market. Main reason of this is that all three Baltic countries belong to NASDAQ OMX Baltic market. The joint market was introduced in order to increase the trading volumes and market liquidity. Together the stock markets of three Baltic countries reflected in OMX Baltic Benchmark GI index. Separately, Lithuania stock market belongs to OMX Vilnius index, Latvia to OMX Riga and Estonia to OMX Tallinn. Worth mentioning, due to occupation of the Soviet Union, Baltic countries didn't develop stock markets and now they are in a chasing position compared to more developed stock markets. Studies from different periods explain the path Baltic stock markets managed to make. D. Klimasauskiene and V. Moscinskiene (1998) indentified that Lithuanian stock market shows weak form of efficiency. It was confirmed after 4 years by V. Kvedaras and O. Basdevant (2002) in investigation of all three Baltic stock markets. Lithuania and Estonia had weak form of efficiency. Meanwhile, Latvia had strong inefficiency in their stock market. But later, K. Kiete and G. Uloza (2005) found first sights of efficiency in Lithuania stock market after they measured daily trade data from 2001 till 2004. Meanwhile, Latvian stock market suggested a semi strong inefficiency. Authors have noticed that both countries markets reacted inefficiently on announcements of earnings, i.e. this phenomena was recognized as overreaction. In one of latest studies V. Alekneviciene et al. (2018) concluded that Estonian stock market was the most efficient and Latvian – the least efficient. The reason for this is low liquidity. V. Deltuvaite (2015) confirmed it with her study. The author concluded that global integration in the Baltic stock market is very low. Latvian stock market is more isolated at the global level than Lithuania and Estonia. The drivers of such trends were discovered by A. M. Pece (2015) from behavioral finance's point of view. In the case of Lithuania, there is no evidence of herding, which may be explained by the existence of an adequate quality of information on the market. In the case of Latvia, there are evidence of existence of less experienced investors that will adopt "follower strategies". The results in Estonia provide evidence of herding in the case of medium companies.

On the one hand, low liquidity shows small interest from worldwide investors. On the other hand, worldwide events affect the Baltic stock market. R. Rudzkis and R. Valkaviciene (2014) revealed that global stock exchange indicators have a significant impact on the Baltic stock market. EUR/USD exchange rate, money supply, the price of gold and oil influence the price of companies in Baltic countries. D. Pilinkus (2010), P. Dubinskas and S. Stunguriene (2010) researched correlations between Baltic stock and macroeconomic indexes: GDP; inflation rate; unemployment rate; state debt; export and import. The relationship between these indexes and the Baltic market index is very high in the longtime period. A. Pilvere-Javorsa et al. (2018) confirmed the shrinking of the market analyzed. They estimated the number of companies listed on Baltic stock market during period of 2008 – 2018. Only Estonia showed positive increase. Lithuania and Latvia showed a significant decrease. The positive thing, in terms of market capitalization, Lithuanian and Estonian companies showed substantial growth. While Latvia stock market's capitalization shrunk at twice. Estonian stock market, as a best in Baltic, was recognized in V. Vaišvilas et al. (2017) work where authors adapted MULTIMOORA method to collect best companies from Baltic stock market in 2016. Estonian companies were dominant on this list, while Lithuania was right behind and Latvia – the last.

Study of J. Nikkinen (2012) found Baltic and Nordic (Finland, Sweden and Denmark) stock exchanges have moved towards a harmonization of procedures and common ownership. While the results of this study demonstrate that the Baltic stock markets were apparently segmented before the crisis, they were highly integrated during the crisis. A. Struckas (2020) says that stock markets of these countries have similar cycles of fluctuations in the period from 2000 till 2020. Behavioral aspects were disclosed in paper of J. Grikietytė-Čebatavičienė (2016) where author has noticed sights of crowd effect behavior in both Baltic and Scandinavian stock markets. By cultural aspects the closest to Baltics is Finland. K. Harkmann (2020) identified long-run equilibrium relationship between Baltic and Swedish markets. Author's research discovered that the Baltic States are exposed to shocks from Sweden and the shifts in the Swedish market will bring adjustment in the Baltic stock market also. But Scandinavian and Baltic stock markets have very big differences: Baltic states started their operations only after the fall of Soviet Union. Meanwhile, Copenhagen Securities Exchange (Denmark) started its trading in year 1808 and Stockholm Securities Exchange (Sweden) in year 1863. The evidence of difference was found by A. Pilvere-Javorska and I. Pilvere (2020) within conclusion that Baltic States stock market listed companies might be undervalued or improperly valued by the market when compared to the Nordic countries stock market listed companies.

The goal of this paper is estimation of value of the Baltic stock market together with the comparison with Scandinavian stocks. The objectives to reach this goal are:

1. To determine Dividend Yield and Total Shareholder Return of Baltic and Scandinavian stock markets.
2. To compare Baltic and Scandinavian stock markets.

The article aims to analyze the growth and performance of the Baltic and Nordic stock markets between 2012 and 2024, using Total Shareholder Return (TSR) and Dividend Yield (DY) as key indicators to assess portfolio value. The study specifically examines how these markets, especially in the context of the Baltic states (Lithuania, Latvia, Estonia) and Nordic countries (Denmark, Finland, Sweden), performed in terms of long-term capital growth and short-term returns, with a particular focus on the effects of geopolitical events, such as the Russian invasion of Ukraine in 2022.

METHODS OF RESEARCH

As the paper's goal is to estimate the value of Baltic and Scandinavian stock markets, here was used Total Shareholder Return (TSR) formula. M. Čupič and M. Todorovic (2011), J. Lafont et al. (2020) describe the classical formula of TSR:

$$TSR = \frac{P\ final - P\ initial}{P\ initial} + \frac{DIV}{P\ initial} \qquad (1)$$

Where, TSR – Total Shareholder Return;
P final – final stock price.
P initial – initial stock price.
DIV – dividend.

The article assumes that the period under observation lasts from 2012 till 2024 and lasts 12 years. Usually, TSR is being used to calculate each company separately. To get the data of all markets instead of one company, four models of TSR were calculated. The basis of the first two ratios were the share as the subject of investment and our calculations, i.e. one share of each company was added to the observed portfolio. The basis of the next two TSR ratios was the idea of investing 1 euro in each company. This point of view could show us a more realistic picture of the market observed. So, this article observes short-term and long term TSR from the point of view of TSR per share. And short-term and long term TSR from point of view of TSR per 1 euro.

The data of final stock price (P final) contains stock prices of each company on its ex-dividend day in 2024. In case, company has decided to not pay dividends, the final stock price contains prices of each company on its annual announcement day in 2024. All price data were obtained from NASDAQ OMX Baltic and NASDAQ OMX Nordic official websites.

The data of initial stock price (P initial) contains stock prices of each company on its ex-dividend day in 2023 for one-year TSR calculations and its ex-dividend day in 2012 for ten-year TSR calculations. All price data were obtained from NASDAQ OMX Baltic and NASDAQ OMX Nordic official websites.

The data about dividends (DIV) contains paid dividends to shareholders through observed period and were taken from official annual announcements of analyzed companies.

Another goal is to estimate Dividend Yield ratios for the same markets by formula described by A. Henne (2007):

$$DY = \frac{DIV}{P\ initial} \qquad (2)$$

Where, DY – Dividend Yield.
P initial – initial stock price.
DIV – dividend.

The companies which got into our observation list are the biggest ones in Lithuania (13 companies), Latvia (3), Estonia (18), Finland (39), Sweden (156) and Denmark (46). The biggest Baltic companies were taken from Main

List of NASDAQ OMX Baltic market. The biggest Scandinavian companies were taken from Large Cap List of NASDAQ OMX Nordic market. Worth mentioning, Large Cap List companies have share values of over 1 billion euro. Meanwhile, Main List companies have a share value over 4 million euro only. Even this regulation could show us a big difference between these markets.

Dividend Yield ratio is an essential metric for evaluating investment opportunities, especially for those seeking income, protection against inflation, and long-term portfolio growth. It provides valuable insights into a company's financial health, stability, and ability to generate reliable returns for shareholders.

THE RESULTS

During the observed period from 2012 till 2024 few global crises affected financial markets. Firstly, COVID-19 impact on financial markets should be mentioned. Early study of N. Sansa (2020) found significant positive relationship between COVID-19 confirmed cases and US, China financial markets. In case of Lithuania stock market, OMX Vilnius index fell more than 20% in first weeks of COVID-19 crisis. Secondly, the war started by Russia in February of 2022 negatively affected stock prices in all European finance markets.

This paper discusses two ratios and two periods, for reaching the main aim. Both ratios represent a possible return on portfolios made from a group of stocks. The analyzed periods are two: short term and long term. Short term contains data from 1 year from 2023 till 2024. Long term observes last 12 years from 2012 till 2024. Total Shareholders Return (TSR) and Dividend Yield (DY) ratios calculated by balanced 1 euros investment point of view. For example, each of 13 Lithuanian companies has 1/13 part in this ratio and each of Sweden 156 companies has 1/156 part in this ratio. In other words, ratios show how 1€ invested in stock market could change its value during some periods. Both ratios during the period from 2023 till 2024 are presented in Figure 1.
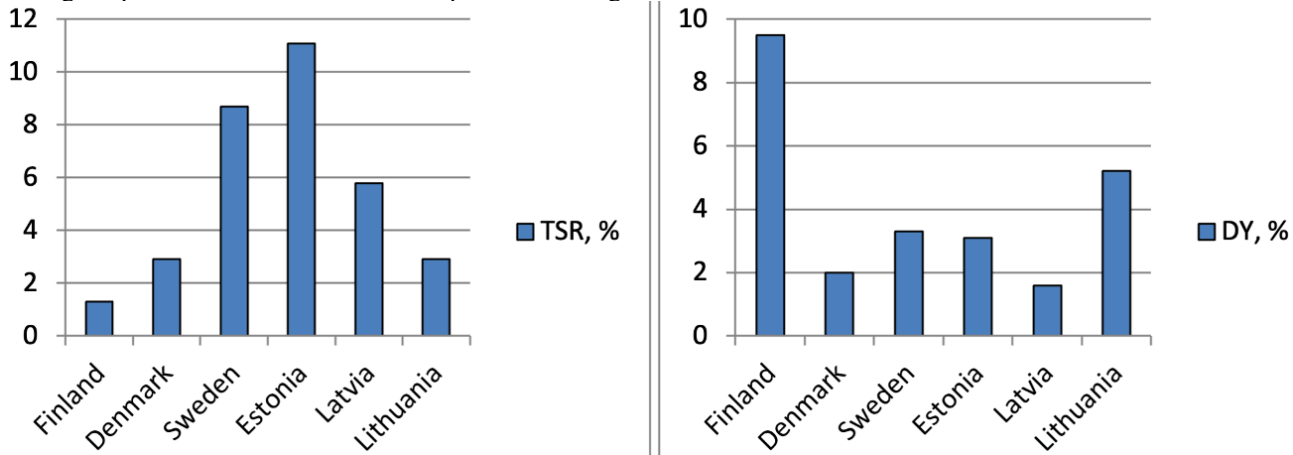

Figure 1. **TSR and DY during the period from 2023 till 2024**

Firstly, in the year 2022 (C. Bartkus, 2022) we noticed the signs of inefficiency of Baltic states stock market. That TSR was estimated after invasion in Ukraine and we had negative return for shareholder in Finland, Iceland, Denmark and Sweden. Meanwhile, results in Lithuania, Estonia and Latvia were positive. In the year 2024 financial markets around the Baltic Sea get used to the situation in the East and the year was positive for shareholders. As we see in Figure 1, the biggest annual changes in stock prices happened in Estonia (11.8%), Sweden (8.7%) and Latvia (5.8%). The biggest annual return from dividends calculated in Finland (9.5%) and Lithuania (5.2%). Two years ago, in the case of Sweden, we could assume that lost Russian market negatively affected Swedish giants as Volvo, Tele2 and etc. At year 2024 such companies as Volvo and Tele2 restored the shareholders trust with personal TSR of 5.6% and 7.8% accordingly.

One-year TSR and DY ratios (Figure 1) let us estimate sudden trends on stock markets affected by global shocks. However, individual or institutional investors are orientated to long-term investment much more. Even the above-mentioned research took the time horizon within 10 or more years. Therefore, the twelve-year ratios (Figure 2) open a more realistic view on Baltic and Nordic stock markets. Figure 2 specifies TSR ratio from 2012 ex-dividend day as initial price till 2024 ex-dividend day as final stock price. The observed period contains eight years of global rising trend and two years of global crisis. There is research, such as N. Sansa (2020) and C. Bartkus (2020), which confirmed the negative impact of COVID-19 crisis on financial markets. For example, in 2020 more than a half (8 from 14) of Lithuanian companies decided to do not pay dividends which are the part of TSR formula.
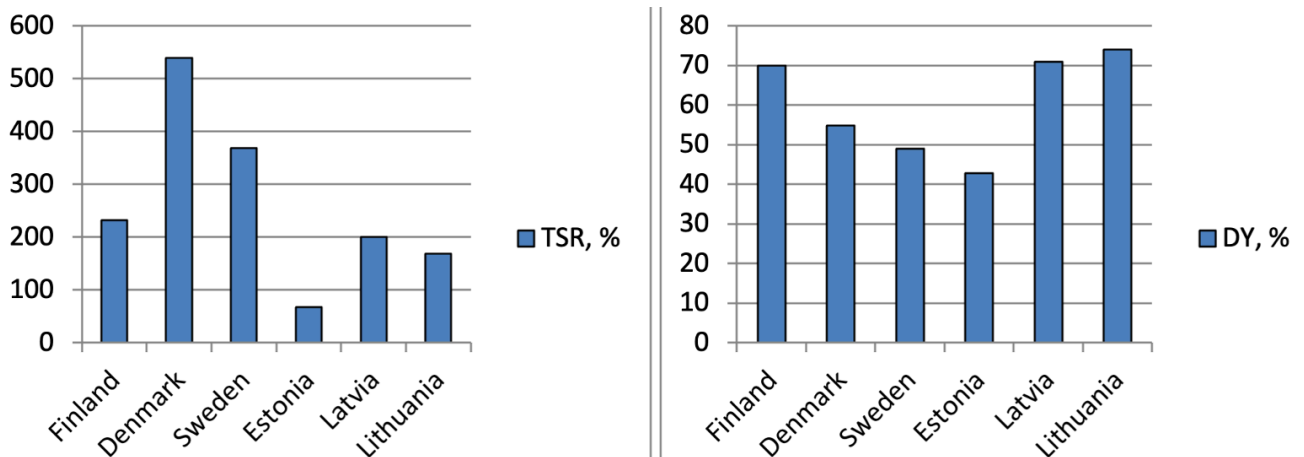
Figure 2. **TSR and DY during the period from 2012 till 2024**

In analysis of Figure 2, we can see the difference between returns for shareholders who have Scandinavian and Baltic companies in their portfolio. Especially, Denmark (539%) and Sweden (369%) are stand out with two or three times better TSR results if we compare them with the Baltic states. Probably, the Scandinavian financial market is still more attractive because of its longer financial history, bigger capitalization and stronger companies. Meanwhile, Dividend Yield per invested euro in each company shows Baltic markets as dividend attractive place to invest. There are no significant differences in times as we notice in TSR calculation. In case we ignore Latvia with only 3 representatives in Main List of Baltic market, we have Lithuania and Finland with highest Dividend Yield around 70%.

In future, such data from Baltic and Nordic stock markets should be compared with other European or Global stock markets. Also, the correlation between Total Shareholders Return and market capitalization should be explored to find reasons why return in Scandinavian market significantly better than Baltic one in long-term period. The introduction part of this article has revealed the leadership of Estonia in Baltic states stock market.

CONCLUSIONS

1. Investing in Baltic and Nordic stock markets can protect wealth for investors from inflation and even ensure the growth of capital value in long-time period. Despite long-term ratios of return are positive in absolutely all observed countries, Scandinavian market TSR ratios are several times better than Baltic. The leader is Denmark with companies which gained 539% of TSR during period 2012-2024. In the same period Estonian companies gained 67.2% of TSR and it was the worst result.

2. Short-term TSR and DY ratios revealed positive impact in the securities markets following negative 2022 which were affected by Russia's invasion in Ukraine. If we consider dividends as "life jacket" to fight inflation, only Dividend Yield of Finland (9.5%) and Lithuania (5.2%) was over European Union annual inflation rate of 3.4%.

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