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# Seasonality in the Baltic Stock Markets

Rasa Norvaisiene[a,]*, Jurgita Stankeviciene[b], Ausrine Lakstutiene[c]

[a, b, c] *Kaunas University of Technology, K. Donelaičio g. 73, Kaunas LT-44249, Lithuania*

**Abstract**

Investors look for opportunities to increase returns and therefore apply different trade strategies. One of the options is to make use of market anomalies. Purpose of this paper is to investigate trends of seasonality evidences in the Baltic stock markets and to determine whether trading strategy based on seasonal anomalies allow an investor to earn abnormal profit. In our research, the daily log return indexes of Nasdaq OMX Tallinn, Nasdaq OMX Riga, and Nasdaq OMX Vilnius in Baltic stock exchange were analyzed for the period of 2003 – 2014. The methodology of the research employed in investigating seasonality in daily returns, entails estimating a regression with dummies to capture month effects or Halloween effect. The research of the main seasonal anomalies "Halloween" and Month effect in the Baltic stock markets for the period of 2003 – 2014 evidenced that Halloween effect exists in Estonia and Month effect exists in Estonia and Lithuania.



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*Keywords:* Baltic Stock Markets; Calendar Effects; Markets Seasonality; Seasonal Anomalies; Month Effect.

## Introduction

Investors always look for opportunities to increase returns and therefore apply different trade strategies. One of these options is to make use of the anomalies that may emerge in stock markets. Many scientific theories trying to explain the reasons for the change and trends in stock prices assume that behavior of investors in a market is rational; however a fair number of irrational actions can be observed as well. These divergences are often not random, as their systematic nature and interdependence can be observed; therefore investigation of such dependencies deserves more and more attention of both scientists and practicians. Irrational behavior of market participants in a stock market can be recognized through the formation of the calendar anomalies or seasonality in

* Corresponding author. Tel.: +370-37-300561; fax: +370-37-208757.
*E-mail address:* rasa.norvaisiene@ktu.lt



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changes of stock prices. On the ground of market anomalies, investors develop trading strategies that generate abnormal profits. Scientific literature also describes various types of anomalies in stock markets observed in both developed and emerging markets.

High interest of researchers was generated by January effect, which is evidenced by the fact that stock returns is significantly higher in January if compared to other months of a year. Rozeff & Kinney (1976), Keim (1983), Haugen & Jorion (1996) investigated seasonal anomalies in large and developed markets and found a clear evidence of the January effect. Seasonal anomalies are observed in developing stock markets as well. However, the research results in such markets are quite contradictory. The existence of January effect has been proved in Poland, Romania, Hungary and Slovakia (Asteriou & Kovetsos, 2006), Kenya (Kuria & Riro, 2013). But Flores (2008) did not found any evidence of January effect in Greece, while Georgantopolous & Tsamis (2012) in their research of the same country proved the existence of this effect. Pandey (2002) conducted the research in India and confirmed the evidence of January effect, while Raj & Kumari (2006) found no evidence of such an effect. Quite a number of scientists who performed researches in developing or small markets, found evidences of seasonality as well, but seasonal fluctuations of stock prices in these countries were evidenced not only in January, but in any other month of the year.

Other widely known seasonal anomaly is the so-called phenomenon of Halloween; basing on this phenomenon, the "Sell in May and Go Away" strategy creates an opportunity of statistical arbitrage in a certain period of the year. Quite a number of scientists in research of seasonality discovered that significantly better results are achieved if stock is bought at the beginning of November and sold in May as opposed to holding stock throughout the year. The existence of Halloween effect in many markets was proved by Bouman & Jacobsen (2002), Swagerman & Novakovic (2010), in the Arab world – by Zarour (2007), in Asia – by Lean (2011). However, some researches of small and emerging markets (Dragos, 2014) denied the existence of such seasonality.

Scientists conducting research in this field propose that seasonality in changes of stock prices is more evident in large and developed markets. However scientists also have a notion that large and strongly developed stock markets are more efficient. So it can be assumed that smaller markets are less efficient and therefore it is likely that various market anomalies come into play more intensively namely in these markets. Thus, the question is whether market anomalies are typical to small and emerging stock markets, and if so, to what extent? Therefore, the purpose of our paper is to investigate the trends of seasonality evidences in the Baltic stock markets and to determine whether trading strategy based on seasonal anomalies allow an investor to earn abnormal returns.

The research is based on the daily log return index of Nasdaq OMX Tallinn, Nasdaq OMX Riga, and Nasdaq OMX Vilnius in Baltic stock exchange and includes the period of 2003 – 2014. The methodology of research employed in investigating seasonality in daily returns entails estimating a regression with dummies to capture month of the year effects or Halloween effect.

## 1. Literature review

According to G.W. Schwert (2002), anomaly is some inconsistency, irregularity or deviation from standards. In financial terms, anomalies are perceived as empirical results, which contradict the old-established price formation theories. They are found when divergent results are observed in the market.

One of the most frequently mentioned seasonal anomalies is the Month effect; it is related to the fact that the average stock return varies in different months. Rozeff & Kinney (1976) were the first who have proved a higher average return in January if compared to other months. The researchers studied the NYSE stock, and found that the average return in January was 3.48 per cent, while during other months it amounted only to 0.42 percent. The research results of Keim (1983), Haugen & Jorion (1996), McConnell & Xu (2008) confirmed the existence of a strong January effect in the United States. January effect has been evidenced in Canada (Berges, McConnell & Schlarbaum, 1984), Poland, Romania, Hungary and Slovakia (Asteriou & Kovetsos, 2006), Kenya (Kuria & Riro, 2013). However the results of the researches in Greece are rather contradictory: for example, Flores (2008) found no evidence of January effect, while Georgantopolous & Tsamis (2012) proved the existence of January effect in this country.

One of the most famous hypotheses for explanation of January effect is tax benefits. Empirical studies have attempted to prove that abnormally high returns in early January are associated with tax payments at the end of the