BACHELOR THESIS

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Department of Banking and Finance

Analysis of Seasonal Fluctuations in Connection with Algorithmic Trading

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Field of study: Banking and Finance

Submitted: 11.01.2019

II. Executive Summary

In this empirical work I document different seasonal fluctuations, how they change or disappear over the time. Furthermore, these findings are compared to the development of algorithmic and high-frequency Trading (AT and HFT) which is a subset. The goal is to see if the rise of these specific trading forms, especially HFT, market structure changes and smooths these seasonal trends.

For this purpose, two stock indices are chosen where the variables volume, bid-ask spread and volatility are investigated. First, a regression model is set up with specific time dummies for the various seasonal flucutations and four time periods are determined. Afterwards I compare in connection with the share development of AT and HFT in these markets how the time dummies change over the time and in the different periods.

As a result, the most common and known seasonalities show their existence depending on which variable it is investigated in. Generally, it cannot be concluded that with the rise of these two trading forms seasonalities disappear or change significantly. For example, during the increase of HFT before the Financial Crisis, the strong significant and negative impact of Monday on both liquidity measures (volume and turnover) remains. Although the assumption was that with these trading methods the markets are not less liquid than on other days. Furthermore, during the investigations, the question arose whether trade intensity and liquidity would coincide in seasonalities. However, this apparition came up only once.

Overall it is still difficult to combine seasonal fluctuations with AT and HFT. On the one hand, it is simple to identify seasonalities and to see how they change over the time but on the other, it is hard to get detailed data about AT and HFT. With the availability of more precise data respectively which trade is without human interaction and which not, it would be possible to better understand how these modern trading technologies influence such market anomalies. Another option that can be tried to figure out or may done by the regulator is that each firm in a financial market must declare if and how they use and implement AT and HFT strategies. In the end it is still questionable if such technologies are needed to efficiently allocate resources or if it is just a risk for the financial system.