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The Halloween effect in European sectors

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ABSTRACT

We present economically and statistically empirical evidence that the Halloween effect is significant. A trading strategy based on this anomaly works persistently and outperforms the buy and hold strategy in 8 out of 10 indices in our sample.

We present evidence that the Halloween strategy works two out of every three calendar years and if an investor followed it "blindly", it would yield an annual average excess of return of approximately 2.4%, compared to the buy and hold strategy and further ensure a significant reduction in risk in all indices (around 7.5% on an annual basis).

We have considered several possible explanations for the anomaly, however, none was able to fully justify the seasonal effect. We suggest that a possible explanation may be related to negative average returns during the May–October period, rather than superior performance during the November–April period.

1. Introduction

Calendar effects on stock market returns have confused financial economists for over 50 years. The evidence of equity market anomalies contradicts the prediction of the Fama (1970) Efficient Market Hypothesis (hereafter EMH), at least in its weak form, because the predictable movements in asset prices provide investors with opportunities to generate abnormal returns. In addition, stock market anomalies may result from an inefficient flow of information in financial markets, which contradicts an underlying assumption of the EMH.

This theory was widely accepted until the 1990s, when empirical analyses consistently found anomalies that undermined the EMH. One of those anomalies is the Halloween effect, which was firstly presented by Bouman and Jacobsen (2002).

Their study follows an old saying, "Sell in May and go away". The message under this saying is that stock returns should be lower from May to October than during the rest of the year. Although no one knows exactly how old this saying is, research by Jacobsen and Zhang (2010) found a written reference in the *Financial Times* from 1935. After this, the phenomenon was studied by a variety of different authors.

In spite of other pioneering studies, Bouman and Jacobsen (2002) was the first study to take such research further. They analyzed the stock market monthly returns of 37 countries between January, 1970, and August, 1998 in both developed and emerging markets. For 36 of the 37 countries, average monthly returns were lower during the May–October period than

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those between November and April. The authors reported statistically significant differences at the 1 percent level for 10 countries and at the 10 percent level for 20 countries.

Moreover, they presented sample evidence that this seasonal pattern has been noticeable for a very long time in different countries. In particular, for the U.K. stock market, they found evidence of a "Sell in May" effect as far back as 1694. The authors also argued that the Halloween strategy outperforms the buy and hold strategy, on a risk-adjusted basis, for most of markets examined, casting doubt on the validity of the efficient market paradigm.

In order to find an explanation for the anomaly, Bouman and Jacobsen (2002) examined different reasons, such as risk, cross correlation between markets, the January effect, data mining, shifts in interest rates, as well as shifts in trading volume, the possibility of the effect being sector specific and also the existence of a seasonal factor in news provision. However, according to the authors, none of these seemed to provide an explanation.

In their efforts to explain the anomaly, they found only that the relative strength of the effect in different countries appeared to be related to the timing and length of summer vacations. This suggests that vacations imply changes in risk aversion. However, in their subgroup of southern-hemisphere countries, where summer vacations occur at a different time to those in the northern-hemisphere, they also find higher returns in the November–April period. Eventually, they left the seasonal anomaly unexplained.

Later, Kamstra et al. (2003) suggested an explanation for the Halloween effect that resulted in a controversial debate. They related the seasonal nature of stock market returns to the effect of Seasonal Affective Disorder (SAD). They remarked that SAD – which is a medical condition whereby the shortness of the days leads to depression for many people – increases risk aversion,[1] leading to seasonal stock market returns that depend on the daylight length. Based on this, they argued that stock returns during the fall should be lower, then become relatively higher during the winter months, when days start to get longer. Low returns occur before the winter solstice[2] and abnormally high returns after it. In short, their study argues that weather affects stock returns through the changes of investors' moods. They also added that, according to medical evidence relating to SAD, this seasonality relates to the length of the day, not to changes in the length of the day. Price seasonality and its relationship with the Halloween effect have been also documented in commodities. For example, Baur (2013) analyzes how recurring annual events potentially produces a seasonality effect on gold prices, concluding that September and November are the only months with positive and statistically significant changes in gold prices. This anomaly can be explained with hedging demand by investors anticipating the "Halloween effect" in the stock market, wedding season gold jewelery demand in India and negative investor sentiment due to shorter daylight time.

Maberly and Pierce (2004) re-examined the Halloween effect for the U.S. stock market between April 1982 and April 2003. They contended that Bouman and Jacobsen (2002) documentation of a significant Halloween effect for the U.S. equity returns appears to be driven by two outliers – the "crash" in world equity prices in October 1987 and the collapse of the Long-Term Capital Management hedge fund in August 1998 – and found that the effect disappeared after an adjustment for outliers.

Maberly and Pierce's study was specifically criticized by Witte (2010), who reported that, in their study, the authors identified the two outliers without formalizing criteria and dealt with them in an unsatisfactory way. He found that the four biggest outliers, aside from October 1987 and August 1998, all work against finding a Halloween effect, concluding that these outliers would augment the Halloween effect. In addition, he suggested that outliers do not drive Bouman and Jacobsen (2002) results, after using three robust regression methods (more appropriate to outliers, according to the author) to estimate the Halloween effect within the same time frame.

Doeswijk (2008) provided sample evidence that the abnormal returns from the Halloween strategy are, indeed, economically significant. He also suggested that the seasonal pattern could be a result of an optimism cycle. The optimism cycle hypothesis assumes that investors think in calendar years rather than 12-month rolling periods, and that the perceived outlook for the economy and earnings varies during the year. In the last quarter of the year, investors start looking forward to the next calendar year. Initially, they are usually too optimistic about the economic outlook. As the year proceeds, this reverses around the time of the summer break in the stock market and investors become less optimistic. So, from November to April, investors should overweight equities, and from May through October, they should underweight them.

Daily seasonality has been also detected in several equity markets. For example, Lucey and Brian (2006) examine the extent and determinants of daily seasonality on the Dublin stock exchange. Although he finds a daily seasonal effect, this pattern is unusual in that it is midweek, contrary to previous research. The source of this mid-week seasonality seems to differ between financial and other firms. Financial firms appear to react to macroeconomic news and non-financial to firm specific news, albeit weakly. There is no support for microstructural hypotheses of daily seasonality.

Extending prior research, this paper examines the existence of the Halloween effect on the European stock market at the levels of industry and supersector indices. This study expects to contribute in several ways to the existing literature. First, to the best of our knowledge, it is the first study of the Halloween effect that uses European stock market sector indices. Second,

[1] More specifically, they argued that the medical and psychology literature have clinically established a positive relationship between the length of night and depression through the seasons, as well as a positive relationship between depression and risk aversion.

[2] Winter solstice occurs every year on December 21st or 22nd in the Northern Hemisphere, and on June 20th or 21st in the Southern Hemisphere, on the shortest day and longest night of the year. Winter solstice marks the beginning of the winter season and, after it, days start to get longer. The SAD effect means the Southern Hemisphere is six months out of syncs, as are the seasons.