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Exploring Holiday Market Anomaly: Evidence from International security Indexes

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Abstract: Research on financial market anomalies has always been a subject of fascination for researchers and investors alike. Over the years, numerous anomalies and patterns have been identified, one of which was the holiday market anomaly which refers to the recurring and abnormal behavior observed in the stock markets during the holiday season. It is a phenomenon that has captured the attention of scholars and investors due to its potential implications for investment strategies and market efficiency. The aim of this study was to ascertain or rebuff the concept using the most recent data. Accordingly, a t-test statistics was used to analyze data from a sample of six financial markets from June 12, 2018, to June 12, 2023. The findings revealed no evidence of the existence of the holiday market anomaly, at least for the most recent 5 years. A possible reason for the extinction may have been the introduction of new financial products and the spread of numerous investment strategies. Hence, long-term investors are encouraged to prioritize fundamental analysis and a disciplined investment approach, recognizing the limitations and potential risks associated with trading based on the holiday market anomaly.

Keywords: Holiday Effect; Market anomaly; Market Efficiency; Fundamental Analysis; t-statistics.

INTRODUCTION

The holiday market anomaly, also known as the holiday effect or seasonal anomaly, has been referred to as a perceived recurring pattern in financial markets where stock prices tend to exhibit distinctive behaviors during specific holiday periods (Lakonishok & Smidt, 1988). These periods often coincide with major holidays such as Christmas, New Year, Thanksgiving, Easter, and other significant cultural or national holidays. One of the most famous aspects of the holiday market anomaly is the "Santa Claus Rally" which describes the tendency of the stock market to experience a positive price movement during the last few trading days of December and the first few trading days of January (Melo-Vega-Angeles & Chuquillanqui-Lichardo, 2023). The rally is often attributed to increased optimism and high consumer spending during the holiday season. Another notable aspect of the holiday market anomaly is the "January Effect" which suggests that smaller companies and undervalued stocks tend to outperform large-cap and growth stocks in the early part of January (Clifford, Andrea, Ronen, Tobias & Lasse, 2018). Although this concept is a bone of contention among academics, some researchers attribute this effect to year-end tax-loss selling by investors, leading to temporary undervaluation, and subsequent buying in the new year (Haug & Hirschey, 2006). During holiday periods, trading activity tends to decrease significantly compared to normal market conditions. Many investors and traders take time off to celebrate the holidays with their families, resulting in lower liquidity. This reduced trading volume can lead to increased volatility and price fluctuations in the market. Financial market research studies have shown that during holiday periods, markets seem to be less responsive to negative news or events that would typically lead to significant price declines (Paulo & Elisabete, 2013). This could be due to a generally positive sentiment during holidays, which can dampen the impact of negative news on stock prices and several factors have been proposed to explain this phenomenon. During holiday periods, investors may become more optimistic and exhibit a "holiday spirit," leading to increased buying activity and driving stock prices higher (Charles & Mitchell, 1992).

Accordingly, trading activity tends to decrease around holidays due to market closures and reduced participation from investors, which can lead to higher volatility and potentially skewed price movements (Hong & Wang, 2000). Also, investors may engage in "tax-loss selling" towards the end of the year to offset gains with losses for tax purposes. Once the holiday period passes, these investors may reinvest in the market, contributing to the observed holiday rally (Enow, 2022). Institutional investors, to make their portfolios look more attractive to clients and stakeholders at the end of the year, may engage in window dressing by buying stocks that have performed well recently, which can contribute to price increases (Barko, Cremers & Renneboog, 2022). However, it is important to note that while the holiday market anomaly has been observed over the years, its reliability and profitability as a trading strategy are subject to debate. Some argue that the effects have diminished over time due to increased market efficiency and algorithmic trading, while others continue to find evidence of seasonal patterns in financial markets. Therefore, the aim of this study was to investigate the holiday market effect in six international markets around the globe. This study investigated the following question: Is there any evidence to suggest the existence of holiday market anomaly in financial markets? In answering this question investors and market participants can make inform decisions about their trading strategies. Hence a notable contribution to the literature of market anomalies.

Literature

Early studies on the holiday market anomaly date back to the mid-20th century. One of the pioneering works by Ariel (1987) demonstrated the presence of the January Effect, where small-cap stocks outperformed large-cap stocks in January. Later research expanded the focus to other holiday periods and identified various other anomalies. The holiday market anomaly refers to the consistent and recurrent patterns in financial markets during specific holiday periods (Liu, Wang & Du, 2022). It has garnered attention from researchers and investors due to its implications for trading strategies and market efficiency. Some investors attempt to capitalize on seasonal patterns by adjusting their portfolios accordingly. However, implementing strategies based solely on historical anomalies may be risky, as past performance does not guarantee future results. The existence of the holiday market anomaly challenges the concept of market efficiency (Enow, 2023). If seasonal patterns persist over time, it implies that market participants may not fully incorporate all available information into stock prices, leaving room for potential profit opportunities. Behavioural biases and investor sentiment play a crucial role in the holiday market anomaly (Enow, 2023). Understanding these psychological factors is essential to grasp market participants' decision-making during the holiday season. With the increasing use of algorithmic trading and sophisticated investment strategies, the holiday market anomaly's effectiveness may be diminishing. Automated trading systems are

designed to identify and exploit market inefficiencies quickly, potentially reducing the persistence of seasonal patterns. Hence, the aim of this study was to investigate the holiday market anomaly with the most recent data to add to the frontier of knowledge on behavioural finance. In so doing, this study makes a notable contribution. The next section highlights the blueprint of the study.

Methodology

Six financial markets namely the Johannesburg stock exchange (JSE Index), the French stock market index (CAC 40 Index), Frankfurt stock exchange index (DAX Index), NASDAQ Index, the Borsa Istanbul exchange (BIST100 Index) and Tokyo stock exchange (Nikkei 225) were used as samples to investigate the holiday market anomaly. The sampling time frame was from June 12, 2018, to June 12, 2023 (Five-year period) which represents the most recent data. Daily share prices were collected from yahooFinance which also provides up to date daily market information. These daily market prices were analyzed using a t-distribution. The tdistribution test, also known as the t-test, is a statistical method that plays a crucial role in research and data analysis. The t-distribution is considered more robust than the standard normal distribution when the data is not exactly normally distributed which can handle slight departures from normality without significantly affecting the results. It is used to compare the means of two groups or to determine if the mean of a single group differs significantly from a known value. In the case of this study, whether there is a significant difference between the average returns on holidays and other days. In so doing, the t-distribution test was used to empirically investigate whether the sample mean of the holiday returns significantly deviates from that of other days. This approach was used because it allows for more accurate and wider confidence intervals, which account for the additional uncertainty in the samples. The mathematical expression of t-distribution is given by,

$$t - distribution = \frac{\mu_H - \mu_O}{n_{\chi} \frac{s_H^2(n_H - 1) + s_O^2(n_O - 1)}{n_H + n_O - 2} \sqrt{\frac{1}{n_H} + \frac{1}{n_O}}}$$

where μ_H is the mean holiday return, μ_0 is the mean other days return, s_H^2 is the variance for holiday returns, s_0^2 is the variance for the other days return and n is the number of observations for both categories. The findings and discussions for the analysed data are presented below.

FINDINGS AND DISCUSSION

Table I below highlights the descriptive statistics for the sampled financial markets from 2018 to 2023.

	JSE	CAC 40	DAX	Nasdaq	BIST100	Nikkei 225
Mean	-0.02%	0.03%	0.06%	0.06%	0.06%	0.04%
Standard Error	0.05%	0.04%	0.05%	0.05%	0.09%	0.03%
Standard Deviation	1.65%	1.31%	1.62%	1.62%	3.27%	1.23%
Sample Variance	0.03%	0.02%	0.03%	0.03%	0.11%	0.02%
Kurtosis	3.08	11.61	6.07	6.07	676.34	3.67
Skewness	-17.7%	-75.1%	-39.1%	-39.1%	-2241.%	3.6%
Range	15.8%	20.7%	21.7%	21.7%	108.9%	14.1%
Minimum	-9.6%	-12.3%	-12.3%	-12.3%	-99.0%	-6.1%
Maximum	6.2%	8.4%	9.3%	9.3%	9.9%	8.0%
Count	1248	1248	1248	1248	1248	1248

From the table above, the standard deviation ranges from 1.23% in the Nikkei 225 to 1.65% in the JSE. Significantly, the kurtosis statistic for all considered financial markets exhibits a right-biased heavy-tailed distribution. This implies that there have been many positive price fluctuations in the JSE, Nasdaq, DAX, CAC 40, Nikkei 225 in the most recent 5 years. Also, table 1 indicates that the volatility in the sampled indexes does not vary significantly and seemed to be constant except for the BIST100. Table 2 below presents some interesting findings on the holiday market anomaly in the selected financial markets.

Table 2: Holiday Market Anomaly output												
					JSE							
								t-				
T-test	Mean	Variance	Ν	F-stat	difference	STD	df	stats	p-value			
Holiday	0.211%	0.047%	45	1.77	0.23%	0.077%	0.142	2.93	20.9%			
other	0.024%	0.026%	1203		-0.01%	0.065%	2359.7	-0.12	89.7%			
Total	0.015%	0.027%	1248									
CAC 40												
								t-				
T-test	Mean	Variance	Ν	F-stat	difference	STD	df	stats	p-value			
Holiday	0.204%	0.022%	13	1.28	-0.24%	0.06%	0.004	-4.25	14.68%			
other	0.037%	0.017%	1235		0.00%	0.05%	2454.9	0.04	96.18%			
Total	0.035%	0.017%	1248									
					DAX							
_				_		~~~~		t-				
T-test	Mean	Variance	Ν	F-stat	difference	STD	df	stats	p-value			
Holiday	0.013%	0.007%	45	2.84	-0.02%	0.044%	0.81	-0.36	77.5%			
other	0.030%	0.019%	1203		0.00%	0.054%	2353.2	0.01	99.1%			
					Nasdaq							
Theat	Magu	Vanianoo	N	Estat	difformence	CTD	46	t-	n ualus			
I-lesi	Mean	variance	IN AC	<i>г-siai</i>	aijjerence	SID	aj 0.26	stats	p-value			
Holiaay	0.02%	0.02%	46	1.09	-0.03%	0.06%	0.26	-0.53	68.93%			
other	0.06%	0.03%	1202		0.00%	0.07%	2353.0	0.01	98.41%			
Total	0.06%	0.03%	1248									
				Nik	kei 225							
T-test	Mean	Variance	Ν	F-stat	difference	STD	df	t- stats	p-value			
Holiday	0.031%	0.026%	63	1.78	-0.004%	0.06%	0.39	-0.07	95.30%			
other	0.035%	0.014%	1185		0.000%	0.05%	2306.4	0.004	99.63%			
Total	0.035%	0.015%	1248									
					BIST100							
								t-				
T-test	Mean	Variance	Ν	F-stat	difference	STD	df	stats	p-value			
Holiday	0.351%	0.047%	40	2.29	0.29%	0.11%	0.42	2.65	22.97%			
other	0.047%	0.109%	1208		-0.01%	0.13%	2369.	-0.07	94.09%			
Total	0.057%	0.107%	1248									

As opposed to prior literature, table 2 above suggest that the concept of holiday market anomalies is non-existence. This is evident in the JSE, CAC 40, DAX, Nasdaq, Nikkei 225 and BIST100 where the average returns on holidays are not significantly higher or lower than that

of the other days for the most recent 5 years. In essence, the p-values for the holidays returns in the sampled financial markets were more than the 5% threshold, indicating the absence of the holiday effect. Even though this oddity was thoroughly documented, it's likely that it no longer exists because of new financial products and the spread of numerous investing strategies. Additionally, it's conceivable that market participants may have traded on this anomaly which has ultimately vanished from the market. This finding is in contrast with that of Sasikirono & Meidiaswati (2017); Kudryavtsev (2019); Plastun, Kozmenko, Plastun & Filatova (2019); Enow (2023) who found the existence of several market anomalies and advocated the concept of behavioural finance.

CONCLUSION

Investors and traders interested in capitalizing on the holiday market anomaly should exercise caution and thoroughly evaluate historical data, statistical significance, and potential risks associated with any trading strategy based on seasonality or anomalies. Like some other proposed market anomalies, there is not enough evidence from the data analysis in section 4 to suggest that holiday market anomalies have existed in the most recent five years although it may not persist indefinitely. While the holiday market anomaly may have offered short-term trading opportunities in the past, long-term investors are encouraged to focus on fundamental analysis and a diversified investment approach. Relying solely on seasonal patterns may not align with a sound investment strategy. Investors should recognize that anomalies have changed over time, and relying solely on historical data may not be a foolproof strategy. Long-term investors are encouraged to prioritize fundamental analysis and a disciplined investment approach, recognizing the limitations and potential risks associated with trading based on the holiday market anomaly.

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