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Review

The “Sell in May” effect: A review and new empirical evidence

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ABSTRACT

In this article, we revisit a stock market anomaly widely known as the “Sell in May” (SIM) effect according to which returns tend to be higher in winter months than in summer months. Motivated by the increased attention this phenomenon has recently received in top-tier finance journals, we provide two contributions. First, we review the academic literature by systematically comparing studies in terms of their country coverage, methodology, results, explanations, trading implications and potential post-publication disappearance in order to derive a general picture on the existence and practical relevance of the SIM effect. Second, we extend the empirical work on the subject by analyzing whether the SIM effect exists in investment universes of highly liquid individual stocks and commodity futures which we would expect to be most efficiently priced. Our results indicate that this is indeed the case (with a higher effect strength in the stock market than in the commodity futures market). Furthermore, our findings support earlier studies showing that the effect is robust (across testing approaches and time) and appears to be concentrated in the industrial sector. However, we find that the SIM effect has become weaker (stronger) in the stock (commodity) market since it has become part of the public information set and that the effectiveness and persuasiveness of standard investment strategies based on the effect are limited.

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Contents

1. Introduction	00
2. Literature review	00
2.1. Empirical studies with multi-continent focus	00
2.2. Empirical studies with single-continent focus.	00
2.2.1. US market	00
2.2.2. European markets.	00
2.2.3. Asian markets.	00
2.3. Explanations for the SIM effect	00
3. Data and methodology.	00
3.1. Data sources	00
3.2. Regression models.	00

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4.	Empirical analysis	00
4.1.	Individual stocks	00
4.1.1.	Full-sample tests.	00
4.1.2.	Sub-sample tests.	00
4.2.	Commodity futures	00
4.2.1.	Full-sample tests.	00
4.2.2.	Sub-sample tests.	00
4.3.	Discussion of selected investment strategies.	00
5.	Conclusion	00
	Acknowledgments	00
	Appendix A. Supplementary data	00
	References	00

1. Introduction

Investment professionals have an old market adage: “Sell in May and go away” followed by “but remember to come back in September” or “but buy back on St. Leger Day” (see [Lucey & Zhao, 2008](#)). While the first version recommends selling assets in May and reinvesting in September, the second variant is more precise, as it suggests reinvestment after the classic horse race – the St. Leger Stakes – which normally takes place in Doncaster (UK) in mid-September. Indeed, recent research documents that this nugget of market wisdom is linked to the British upper class which usually traded on the stock market only in the winter months when they were in London. In summer, they would move to their estates in the countryside and forgo trading (see [Jacobsen & Zhang, 2014](#)). The oldest known reference to the saying comes from an article published in the *Financial Times* on May 10, 1935. Furthermore, in an article published in *The Daily Telegraph* on April 30, 2005 an 88-year-old broker confirmed that the saying was already well-known when he started working at the stock exchange in 1934.

The question of whether following the suggestion of this saying is actually beneficial for investors was first explored by [Bouman and Jacobsen \(2002\)](#) (hereafter BJ). They have shown that following the adage can be advantageous if investors reinvest in November. This is because two conditions tend to be satisfied. First, a “Sell in May” (hereafter SIM) effect² occurs. That is, on average, returns during the winter (November until April) are higher than during the summer (May until October). Second, summer returns are usually lower than the risk-free rate that could be earned in the summer.

The observation of an uneven return distribution between seasons is typically interpreted as a market anomaly. If it persists, it challenges the efficient market hypothesis of [Fama \(1970\)](#) because, in efficient markets, security prices should reflect all publicly available information and the seasonal effect should not appear over extended periods of time. If it is not persistent, markets can be considered efficient. This is because after a seasonal effect becomes public knowledge (i.e., with its discussion in a top-tier journal), arbitrage activities of investors would most likely lead to updated security prices and the effect would cease to exist. Research on other market anomalies shows that this is indeed the case. Many anomalies diminish or even disappear after they become part of the public information set (see [Dimson & Marsh, 1999](#); [Schwert, 2003](#); [Chordia, Subrahmanyam, & Tong, 2014](#); [McLean & Pontiff, 2016](#)).

In this article, we gather information on the SIM effect in stock markets from the most influential studies around the globe in order to judge its persistence and practical relevance. That is, we not only systematize the literature in terms of country coverage, methodology, results and explanations for the SIM effect but also look at the trading implications of the findings and a potential post-publication disappearance of the SIM effect in recent studies. This is important because (i) the number of papers analyzing the SIM effect has become quite extensive and thus rather difficult for investors and academics to comprehend and (ii) most recent studies report mixed results on the intensity of the SIM effect. It also helps to identify potential research gaps which could be addressed in future research.

Besides providing this structured literature review, we extend the empirical evidence on the SIM effect by conducting an analysis on (i) the individual stock level and (ii) commodity futures. Specifically, we test for the SIM effect in the actively traded constituents of the Dow Jones Industrial Average (DJIA) and the highly liquid commodity futures covered by the investable versions of the Goldman Sachs Commodity Index (GSCI).³ This asset selection is interesting for several reasons. First, most SIM studies analyze stock market indices. Thus, specific index construction methodologies can significantly influence results (see [Day & Wang, 2002](#)). Selecting individual stocks avoids this issue and takes into account the practically relevant perspective of private investors trading individual stocks instead of indices (see [Barber & Odean, 2000](#)). Second, the constituents of the DJIA are highly representative because (i) they cover about 25% of the market value of all NYSE stocks, (ii) trading strategies in this stock universe can be implemented with rather negligible transaction costs (see [Bajgrowicz & Scaillet, 2012](#)), and (iii) a

² Also known as the “Halloween” effect (see [Lucey & Zhao, 2008](#); [Haggard & Witte, 2010](#)).

³ While there are seasonality studies analyzing the DJIA index (see, for example, [Ariel, 1990](#); [Urquhart & McGroarty, 2014](#); [Gebka, Hudson, & Atanasova, 2015](#)), there is no SIM study for its constituents. Similarly, we are the first to analyze the SIM effect for commodities.

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