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The benefits of combining seasonal anomalies and technical trading rules

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ABSTRACT

Although many seasonal anomalies and technical trading rules have been shown to have predictive ability, investigations have focused only on them operating individually. We study the benefits of trading based on combinations of three of the best known effects: the moving average rule, the turn of the month effect, and the Halloween effect. We show that the rules can be combined effectively, giving significant levels of returns predictability with low risk and offering the possibility of profitable trading. This new investment approach is especially beneficial for a typical individual investor, who faces high transaction costs and is poorly diversified.

1. Introduction

Despite the general presumption in the finance literature in favour of the unpredictability of returns, there are some areas where predictability is well established. The effectiveness of technical trading rules has been documented in numerous studies, as surveyed by Park and Irwin (2007). Additionally, a large number of investigations confirm the presence of seasonal anomalies in many

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stock markets: Dzhabarov and Ziemba (2010) outline much of the relevant work in this area and show that many of the anomalies still exist.

In this article, we depart from previous studies that have considered the rules and anomalies on an individual basis and examine the effect of combining them. The types of rules and anomalies (henceforth, for convenience, we will use the term 'rule' for both rules and anomalies) under consideration divide time periods into sub-periods when it is advantageous to be in the market and sub-periods when it is advantageous not to be in the market. When combining rules to obtain a trade signal, there are two fundamental issues to consider: (i) the extent to which the different rules would select the same days to be in the market, and (ii) the properties of market returns on a particular day conditional on a number of rules indicating that it is advantageous to be in the market on that day. These two aspects, the timing and the conditionality of market returns, generate a wide range of possible combinations of rules. Many of them would not otherwise be apparent when focusing on each rule in separation, giving a possibility of generating more advantageous outcomes than those available by investing directly in the market or by using a single rule.

We empirically analyse the properties of combining three of the best known rules: the turn-of-the-month effect, the Halloween Effect and the moving average rule. All the rules have been known for many years in the academic literature and for longer by practitioners. Although the rules work well individually, we have not chosen them in a particular effort to maximise returns, but because they are well-known and form a parsimonious set. Some authors have shown that calendar effects are not always independent from each other (e.g., Lucy and Zhao, 2008; Swinkels and Van Vliet, 2012); hence, one should not necessarily expect sizable improvements in profitability when combining signals from several arbitrarily chosen calendar-based rules. However, other studies demonstrate an (at least partial) independence of calendar effects, implying a potential for improved profitability of strategies which combine signals from different rules: Atanasova and Hudson (2010) show that moving average rules are largely independent from many seasonal anomalies, and Haggard and Witte (2010) find the Halloween to be substantially independent from the January effect. Our approach of combining different rules aims at utilising this independence among rules and could easily be generalised to combinations of other rules.

A wide variety of seasonal anomalies have been observed in financial markets for many years. The turn of the month effect (TOTM), whereby stock returns are substantially higher around the turn of the month, was reported by market experts such as Merrill (1966) and later in academic studies by Ariel (1987) and Lakonishok and Smidt (1988). Ariel considered the last trading day of the month and the first nine trading days of the next month whereas Lakonishok and Smidt consider the last trading day of the month and the first three trading days of the next month. Subsequent studies confirm the prevalence of this effect (e.g., Ogden, 1990; McConnell and Xu, 2008; Hudson and Atanasova, 2009).

The Halloween effect and the very closely related 'sell-in-May-and-go-away' effect, whereby stock returns are lower in the summer months, first explicitly appeared in the academic literature in a paper by Bouman and Jacobsen (2002), although Gultekin and Gultekin (1983) deal with closely related issues. However, as Bouman and Jacobsen make clear, this rule has been well known to market practitioners for many decades.

The technical analysis of securities is generally considered to be the earliest form of investment analysis. The oldest techniques date back at least to Charles Dow in the 1890s and many techniques have been in use since the 1930s or before (Brock et al., 1992). Despite its popularity with practitioners, technical analysis was largely dismissed by prominent academics for many years (Malkiel, 1981). However, Brock et al. (1992) gave empirical support for the approach by showing that simple moving average and trading range break-out rules outperform a buy-and-hold approach on the Dow Jones Index from 1897 to 1986.

There are a huge number of technical trading rules (see, e.g., Lo et al., 2000). However, the moving average rules used in the Brock et al. paper are very well known and have been the subject of the most academic scrutiny. Sullivan et al. (1999) find that the results are robust to data-snooping. The rules have also been shown to work in other equity markets (e.g., Hudson et al., 1996; Ratner and Leal, 1999) and for individual stocks (Bokhari et al., 2005), albert some evidence suggests that the performance of technical trading rules have largely diminished in the resent period (e.g., Shynkevich, 2012) or even did never exist when the data snooping bias and transaction costs are accounted for