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Industry long-term return reversal

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ABSTRACT

Given that extreme industry returns may herald long-term structural changes in the industries involved that may eventually lead to reversals in industry fortunes, we investigate the evidence for long-term return reversal in industry returns. Our study employs both pure contrarian strategies and late-stage contrarian strategies, and includes extra-long strategy formation periods (up to 132 months) to allow sufficient time for structural changes to begin. We find strong evidence of reversals in the long-term returns of industries. These reversals continue for many years (with valuation effects observed up to 10 years after commencement) and are difficult to reconcile with overreaction.

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1. Introduction

In an influential article, DeBondt and Thaler (1985) document strong evidence of the reversal of long-term stock returns that challenges the notion of market efficiency. Their contrarian strategies buy portfolios of stocks that have low long-term past returns (losers) and sell portfolios of stocks that have high long-term past returns (winners). In their paper, stocks are classified based on the returns over the past 3–5 years. For US stocks, DeBondt and Thaler (1985) show that losers outperform winners over the following 3–5 years. DeBondt and Thaler (1985, 1987) and others, such as Arnold and Baker (2007), attribute this long-term return reversal to investor overreaction.[1]

Evidence that international equity market indices also exhibit long-term return reversal has been reported in a number of studies, including Richards (1997), Balvers et al. (2000), and Malin and Bornholt (2013). However, there is little published research investigating whether or not industry returns exhibit long-term return reversal.

Examining intra-industry and inter-industry variation in the cross-section of US stock returns, Asness et al. (2000) find evidence of a strong long-term contrarian effect in US stocks based on a 60-month formation period. This reversal in long-term returns is composed of a weak across-industry contrarian effect and a strong within-industry contrarian effect. In portfolio sorts on industry returns, equal-weighted portfolios produce weakly significant evidence of industry long-term return reversal. Investigating industry momentum and autocorrelation of returns in Taiwan, Fu and Kang (2009) find little evidence of industry momentum in Taiwan but some evidence of a long-term return reversal effect for industries at formation

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[1] Although Fama and French (1996) show that their three-factor model can explain long-term return reversal in stocks, the rational basis for the value premium in their model remains controversial.

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and holding period lengths of 24 and 36 months. The aim of this paper is to fill this gap in our understanding of the dynamics of industry returns.

In contrast to the limited amount of research into long-term return reversal at the industry level, there have been a number of studies reporting on whether the short-term (1 month) reversal effect between stocks is also evident across industries. Decomposing stocks' short-term reversal profits into an across-industry and within-industry component, Da et al. (2010) show that buying 1-month loser industries and selling 1-month winner industries earns a negative profit. That is, there is 1-month momentum at the industry level. The 1-month short-term reversal effect at the stock level does not carry over to the industry level. Similarly, Hameed and Mian (2015) document short term reversals of stock returns within industries but 1-month momentum across industries. These results are consistent with an earlier study by Moskowitz and Grinblatt (1999).

Our study is guided by a number of considerations and motivations. First, since industries are differentially impacted by consumer taste changes and by macroeconomic, technological and regulatory shocks, it is not unusual for some industries to perform poorly for long periods while others enjoy excellent results over many years. Such extremes in industry fortunes tend not to last indefinitely because they encourage offsetting structural changes. For example, if an industry suffers a poor long-term performance then this situation will force individual firms to adapt and will frequently lead to industry consolidation as some companies merge or are acquired while others exit the industry. The consequent reduction in competitive pressures may then position the industry for a number of years of improving conditions. Similarly, an industry enjoying excellent conditions may attract new entrants and increased competition that eventually undermines its future prospects. According to Shleifer and Vishny (1992), regulatory and economic shocks within and across industries lead to reallocations of industry assets through acquisitions and mergers.

Since an industry's returns will tend to mirror its underlying health, its past long-term returns may be predictive of such reversals in its fortunes. If investors are slow to recognize that structural changes in an industry will produce a reversal in its fortunes then low (high) past long-term returns will tend to be followed by high (low) returns in the future. That is, investor underreaction to structural change may also produce return reversal. This potential route to industry-level long-term return reversal has an important implication for researchers using contrarian strategies to investigate reversal between industries. In order to give industries with extreme performances sufficient time for structural changes to occur, 'winner' and 'loser' industries may need to be determined by their past returns calculated over much longer periods than the 3–5 years typically used in contrarian strategies.

Furthermore, even if investor overreaction is involved at the industry level, mispricing a whole industry is quite different to mispricing individual stocks. There is no reason to expect that 3–5 years is a sufficiently long period over which to calculate each industry's past return for the purpose of identifying those industries likely to be over-valued or under-valued due to overreaction. Therefore, as a consequence of the above considerations this paper ranks industries as long-term winners or losers based on a broad range of past long-term returns (from 36-month returns to 132-month returns).

One obstacle that reduces the efficiency of traditional contrarian strategies is that not all long-term losers and winners are equally ready to begin to reverse their past long-term performances. To overcome this problem, Malin and Bornholt (2013) propose a modified contrarian strategy called the late-stage contrarian strategy. They provide evidence that the late-stage strategy consistently generates stronger long-term return reversal in international equity market indices than does the traditional 'pure' contrarian strategy. Their late-stage strategy is a double-sort strategy that exploits the recent short-term performances of securities to select those showing indications of being more ready to reverse their long-term past performances. The late-stage strategy is long a portfolio of long-term losers with relatively good recent short-term returns and is short a portfolio of long-term winners with relatively poor recent short-term returns. In this paper we use both the traditional pure contrarian and the late-stage strategy to investigate evidence of reversal in long-term industry returns.

This research contributes to the existing body of knowledge in two ways. Firstly, this paper provides strong evidence of reversal in long-term industry returns. The evidence is produced by contrarian strategies with long formation periods (96, 108, 120 and 132 months) rather than the formation periods typically used in studies of stock return reversals (36, 48 and 60 months). We also find that the reversal in long-term industry returns leads to valuation changes over the following 10 years that seem difficult to reconcile with the notion of investor overreaction.

Second, this paper compares and contrasts the single-sorted pure contrarian strategy with the late-stage contrarian strategy to show that the late-stage strategy exhibits significant evidence of reversal in industry returns and has consistently larger profits than the traditional pure contrarian strategy. These results complement Malin and Bornholt's (2013) finding in a study of international equity market indices that the late-stage contrarian approach is better than the pure contrarian approach for detecting return reversal.

The remainder of the paper is organized as follows. Section 2 describes the data and the methodology used to construct and investigate the various contrarian strategies. Section 3 presents the main empirical results, and Section 4 draws conclusions from the study.

2. Data and methodology

The industries data used in this study are the value-weighted monthly returns, average firm size (ME), and the value-weighted average firm book-to-market ratio (BM) for 48 US industries. The market represents the monthly returns of the Centre for Research in Securities Prices' (CRSP) value-weighted US market index of all US stocks while the 1-month Treasury

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