

Contents lists available at [ScienceDirect](#)

Research in International Business and Finance

journal homepage: www.elsevier.com/locate/ribaf

Full length Article

Feedback trading in stock index futures: Evidence from South Africa

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ARTICLE INFO

JEL classification:

C22
G12
G13
G14

Keywords:

Feedback trading
Stock index futures
Market efficiency
South Africa

ABSTRACT

This study tests whether investors and speculators in stock index futures contracts on the South African stock market use feedback trading strategies. Feedback trading can be destabilizing and impede on the risk mitigation and price discovery functions of futures contracts. Using the Sentana and Wadhvani (1992) model, and accounting for the global financial crisis, we find no evidence of feedback trading in the Top40 futures index or the Top40 mini futures index contracts. Our findings have important implications for investors who wish to use index futures to mitigate risk or exploit arbitrage opportunities and regulators concerned about the destabilizing effects of futures trading.

1. Introduction

Trading in stock index futures has surged globally in the last decade growing from approximately 447 million contracts traded in 2005 to 2,792 million in 2015 ([World Federation of Exchanges \(WFE\), 2016](#)). These derivatives have low transaction costs, provide leverage and have no short-sale restrictions which makes them advantageous to investors who wish to mitigate market, credit or trade risks or traders who want to speculate on market movements. Stock index futures have been found to lead the underlying spot index in various markets ([Tse, 1999](#); [So and Tse, 2004](#)). This reflects the ability of futures markets to process information faster than stock markets (principally arising from the lower transaction costs) and therefore, actively traded stock index futures contracts improve price discovery and stock market efficiency. Futures contracts also facilitate the raising of finance for firms and governments, foster financial innovation and increase the resilience of stock markets to shocks ([Chui, 2010](#)).

Critics of index futures, however, argue that these instruments attract noise traders, who trade without the use of fundamental information. Feedback trading, which entails trading based on past prices, is a common form of noise trading. If feedback traders, particularly positive feedback traders who buy (sell) when prices rise (fall), comprise a substantial component of the market, then it is likely to bear an impact on prices, possibly leading them to deviate from their fundamental value ([De Long et al., 1990](#)). Thus, feedback traders are capable of inducing mispricing. Moreover, this trading behaviour also leads to increased volatility in the market and in the context of futures markets, this volatility is then transmitted to the spot market via arbitrage channels ([Antoniou et al., 2005](#)). The presence of feedback traders in the market can thus impede on the hedging and price discovery functions of futures contracts. Moreover, greater volatility in asset markets may result in capital flight and make it more difficult for corporates and governments to raise capital. Given these substantial destabilizing effects of feedback traders, their presence in the market may warrant regulation ([Antoniou et al., 2005](#)).

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Received 11 November 2016; Accepted 3 July 2017

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This study seeks to identify whether traders in South African stock index futures contracts follow feedback trading strategies. While such studies have been conducted internationally, little attention has been given to emerging markets, particularly African stock and futures markets. Such research, especially on derivatives exchanges, is important for several reasons. It enables investors who use these instruments to be aware of potential mispricing and the impact thereof for their risk management strategies, it enables speculators to identify mispricings, while also enabling South African authorities to consider whether regulation is necessary to prevent such trading in the market because of the negative effects. However, the importance of this research extends beyond these issues to the broader African continent, where many countries are evaluating the introduction of stock index futures (Mezui et al., 2013) and thus obtaining more information about whether such derivative securities achieve their myriad of benefits or, in fact, contribute to greater mispricing and volatility is critical.

The remainder of this paper is structured as follows: Section 2 reviews the concept of feedback trading, possible explanations for this trading strategy and the empirical evidence on the existence of feedback traders in stock and futures markets. The data and method are discussed in Section 3, with the results and analysis presented in Section 4. The conclusions are contained in Section 5.

2. Literature review

2.1. Explanations for feedback trading

Feedback trading arises when investors extrapolate past price patterns. Positive feedback trading entails trading in the direction of the past patterns – buying when prices rise or selling when prices fall. Negative feedback trading, in contrast, which is also referred to as a contrarian strategy, involves trading in the opposite direction of the past price patterns – buying when prices fall or selling when prices rise (Kallinterakis and Leite Ferreira, 2007). The premise of both these strategies is that the prices maintain some sort of inertia as directional trends tend to persist over long periods of time (Farmer and Joshi, 2002). Positive feedback trading is considered particularly destabilizing as it drives prices away from their intrinsic values and contributes to substantial volatility (Antonioni et al., 2005). In contrast, negative feedback trading is largely viewed as stabilizing as it should bring asset prices back to their intrinsic value (Sentana and Wadhvani, 1992).

The view that exploiting past price patterns is a potentially profitable trading strategy is at odds with the efficient market hypothesis (EMH) which suggests that this information should already be reflected in the current share price. The EMH rests on the assumption that most investors are rational and as such, any irrational behaviour which drives the price away from its intrinsic value will be arbitrated away rapidly by rational investors. Feedback trading may thus arise because of the irrational behaviour of many investors. However, the possibility has also been expounded in the literature that feedback trading may be consistent with rational behaviour.

Investors have been found to be susceptible to certain behavioural biases meaning that they may fail to correctly interpret the market signals that they receive (Hirshleifer, 2001). Barberis et al. (1998) showed that feedback trading may arise through the joint presence of the representativeness heuristic and the conservatism bias. The former occurs when an individual draws a conclusion about the general population by overweighting a sample of recent observations and consider it as representative for its properties, while the latter refers to the lagged response of investors to new evidence. Barberis et al. (1998) develop a theoretical model focusing on earnings announcements to demonstrate how such biases are likely to lead to a continuation of a trend in the price, that is, positive feedback trading. Overconfidence, which incorporates the self-attribution and hindsight biases, has also been linked with positive feedback trading. If, for instance, an investor follows a pattern of trading and certain events confirm that pattern's credibility, then the investor will have every reason to feel overtly proud because his strategy was the right one; the self-attribution bias. Moreover, if the price continues on the same trajectory, this may lead the investor to believe that he was able to predict this pattern as others are following suit; the hindsight bias. These biases can lead to more aggressive trading, which can reinforce existing positive feedback trading tendencies (Odean, 1999).

While less common, negative feedback trading has also been linked with behavioural biases. For example, the disposition effect, which refers to the tendency of investors to hold on to shares that have not performed well for too long and sell shares that have performed well too quickly, leads to a reversal of the price trend (Shefrin and Statman, 1985).

Positive feedback trading can also stem from rational speculation based on expectations of price movements caused by feedback traders. The model of De Long et al. (1990) shows that rational speculators, with an informational advantage, may try to exploit the trading patterns of the feedback traders and their susceptibility to behavioural biases. They do this by initiating a trend based on the available information before it becomes public and then maintain the trend by trying to exploit it. Effectively the rational speculators try to lure feedback traders to chase a trend by mirroring their behaviour, to push prices up (or down), ride the bubble and then sell (or buy) the share just before its fundamentals are made available to the rest of the market. In so doing, rational investors will contribute to driving the price further away from its intrinsic value.

Rational speculators who choose to use their informational advantage to profit from mispricing, without having instigated the trend in the first place, may also give rise to feedback trading. Farmer and Joshi (2002) proposed that there are rational traders who trade on share fundamentals and are thus able to estimate any deviation of a share price from its intrinsic value. In such cases, these traders may decide to take advantage of this informational advantage by utilising threshold-based trading rules to enter or exit the market. These thresholds enable the traders to exploit the mispricing up to the point where it is profitable for them to do so. This is often associated with the employment of stop-loss orders and portfolio insurance strategies and can be justified on the grounds of minimising transactional costs. Sentana and Wadhvani (1992) and Antonioni et al. (2005) argued that these strategies lead to sell decisions during market declines thus directly leading to feedback trading. Specifically, Sentana and Wadhvani (1992) argued that a

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