

Feedback trading: Strategies during day and night with global interconnectedness¹

Feedback trading strategies have gained much popularity among researchers in the last decades and are used to illustrate how new information based on returns is reflected in the markets. This behavioral approach adopts the view that stock prices are influenced by irrational trading or noise (e.g. Beja and Goldman (1980) or Thaler (1999)) and is in contrast to Fama (1970) with his notion of an efficient capital market by stating that security prices fully reveal all available information.

The literature on feedback trading is extensive and its implied effects have still been the subject of research in recent years. Cutler et al. (1990) use a model with feedback traders to account for possible links between volatility and serial correlation. They confirm that fluctuations in speculative prices cannot be predicted under the efficient market hypothesis as demonstrated at least with stock market crashes. Price determination relies on the existence of heterogeneous investors – e.g. informed traders, liquidity traders, fundamental traders, and naive (noise) traders. Thereby, noise investors base their portfolio decisions on serial correlation properties of stock returns by discovering trends in past stock prices. The so-called feedback traders pursue their own strategy, given explicit market conditions. Positive feedback traders actively buy (sell) stocks in a rising (falling) market while negative feedback traders adhere to a “buy low and sell high” investment strategy.

Stock return autocorrelation increases in the presence of feedback traders. The more feedback traders are active the higher is the autocorrelation due to a greater effect on prices. Hence, the existence of feedback traders influences the partial predictability of aggregate stock returns. Literature and experimental findings support the existence of positive feedback traders while empirical evidence is divided with respect to different stock markets and changing return behavior.²

We offer an informative framework for exploring feedback trading from two new angles. First, we decompose the overall return premium into day and night returns. Prices are more efficient and more information is revealed during the day.

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²Experimental and survey evidence can be found in Shiller (1988), Kroll et al. (1988), De Bondt (1993), or Bange (2000). Shiller et al. (1984), Cutler et al. (1990), De Long et al. (1990), or Campbell and Kyle (1993) among others provide theoretical models on feedback trading.

Market closures, on the other hand, affect the mean and standard deviation of returns due to risk compensations when trading overnight. Second, we assume interconnectedness between multiple countries and introduce a global feedback trading model. Dynamic effects with spillovers shed light on investors' strategy and provide justifications for price fluctuations. On the one hand, Lachance (2015) argues that feedback trading is profitable at night even when transaction costs are taken into account. However, taxes and regulatory fees are not included and need to be considered in order to evaluate the profitability of overnight strategies. On the other hand, individual liquidity traders congregate during the trading day and have less incentives to trade after hours due to higher adverse selection. This circumstance deters feedback trading at night. Based on the foregoing discussion, we expect less feedback trading during the night because of higher risk, lower volatility, and less trading activity. This research tackles the important issue of exploring the existence of feedback trading: Investors could use the results for conditional strategies and the timing of trades.

Daily observations are used for stock price indices of five major stock exchanges. The observed group consists of Germany, the UK, the US, Japan, and Hong Kong. We examine individual and mutual interactions of heterogeneous investors and how their actions drive stock prices in these countries. In particular, we use the following indices: DAX 30 (Germany), FTSE 100 (UK), S&P 500 (US), Nikkei 500 (Japan), and Hang Seng Index (Hong Kong). The composition of stocks varies in each index, but still covers at least 80% of the free float-adjusted market capitalization in a specific country. Daily opening and closing prices were collected from Thomson Reuters Datastream. We employ a long estimation window because the variance of the sampling error of the parameters converges to zero. In our case, the sample period covers 2165 trading days and spans from June 27, 2007, to March 7, 2017.

Overall, findings confirm the presence of positive feedback traders in daily stock market prices. However, feedback trading strategies differ across markets when distinguishing between day and night returns. Positive feedback trading tends to occur more often for day than night returns due to a decline in trading volume overnight. Market closures affect the mean and standard deviation of returns because investors need to be compensated for the risk when trading overnight. The limited possibility of liquidation constricts night returns to be higher than day returns. A decline in the trading volume during the night diminishes the attractiveness of feedback behavior and the amount of chasing investors is reduced. Feedback traders behave similarly in Japan and Hong Kong during a full trading day, whereas Germany and the UK register a strong contrariness. No feedback

trading is found to exist in Germany during trading hours. Simultaneously, positive feedback trading exists for night returns. An inverse relationship is found in the UK. During the day, investors follow a positive feedback trading strategy. Missing feedback trading during the night reflects a change in investors' behavior in this particular country. This evidence supports our hypothesis that feedback trading strategies differ between the day and night given a specific market.

Relying on the global feedback trading model, evidence for changing trading behavior is provided by examining the interaction of specific markets. For day returns, feedback trading still does not exist in Germany for all estimations. In addition, the former positive feedback trading only disappears in the UK. Global interconnectedness between both markets induces a decline of trend chasing investors in the UK. Positive and statistically significant feedback trading is present in the US, Japan, and Hong Kong even with respect to day returns in Germany. As a result, we identify two important findings for day returns – investors' behavior in Germany is not influenced by all other countries according to feedback trading, but day returns from Germany have an impact on trend chasing investors in the UK. The picture is partly different when considering night returns. We find one-sided spillover effects from Germany to the UK when comparing with the benchmark model. This also means that it is negative feedback trading that tends to occur in this particular country when including interactions with Germany.

Our findings are important in understanding investors' trading behavior and what types of indicators they use during different trading hours. The knowledge about the existence of positive or negative feedback trading is beneficial for traders in any given market. A more rational investor could use the diverse implications arising from day and night returns for own arbitrage opportunities by catching incipient trends in stock prices. Investors with low marginal trading costs can develop profitable conditional strategies and time their buy and sell orders better. Thus, strategies have to be adjusted with respect to trading hours and the stock market of interest. An interesting aspect concerning strategies arises by considering intraday data and other asset classes. Market participants diversify their portfolio allocation and do not only invest in stocks. Therefore, a mixed combination with adjusted demand functions has to be developed. More renowned sentiment measures can reveal a closer relationship between fundamental and feedback traders in addition. This interaction clarifies mainly why strategies differ across time and countries. All extensions suggest a future research involving behavioral preferences.

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