Asymmetric response of hospitality stock prices to Fed policy actions

Ming-Hsiang Chen*

Department of Finance, National Chung Cheng University, Chia-Yi, Taiwan, ROC

ARTICLE INFO

ABSTRACT

This paper examines asymmetric response of hospitality stock prices to Fed monetary policy actions in bull and bear markets. Empirical examinations comprise two critical steps. First, following Kuttner (2001), this study uses the federal funds target rate surprise as an appropriate identification of Fed monetary policy action. Second, by using a Markov-switching model of stock returns, this study explicitly identifies bull and bear markets. Empirical test results based on an event study framework reveal that the responses of airline, gambling, hotel and travel and leisure index returns to monetary policy surprises vary greatly in bear and bull markets. The response of airline, gambling and hotel index returns is substantially greater and more statistically significant in bear than in bull markets. Moreover, the significant impact of monetary policy surprises on airline, gambling and hotel index returns exists only in bear markets. While travel and leisure index return reacts strongly to federal funds target rate surprises in both bear and bull markets, the response of travel and leisure index return is significantly greater in bear markets.

1. Introduction

Whether monetary policy can affect stock returns has been of great interest to macroeconomists and financial economists. Numerous financial studies have empirically investigated the effects of monetary policy on stock returns. As Bernanke and Kuttner (2005) note, while the objectives of monetary policy are usually expressed in terms of macroeconomic variables, such as output, employment, and inflation, the influence of monetary policy instruments on these variables is at best indirect. They state that the most direct and immediate effects of monetary policy actions are on the financial markets. By affecting asset prices and returns, the Federal Reserve (Fed) tries to revise economic behavior in ways that will achieve their ultimate objectives. Academic researchers have also found empirical evidence to support a significant impact of monetary policy on stock prices.

One of the Fed monetary policy actions that has been closely monitored by the financial markets and widely reported by the American press is the announcement of Federal Open Market Committee (FOMC) decisions concerning the federal funds target rate. Fair (2002) reports that more than 30% of identifiable events that caused a large and immediate change in stock market prices were Fed monetary policy announcements. Fleming and Remolona (1997) report that federal funds target rate announcements can lead to large price changes in the US Treasury market. Ehrmann

and Fratzscher (2004), Bernanke and Kuttner (2005) and Basistha and Kurov (2008) show that US stock returns react significantly to monetary policy changes measured by the unexpected changes in the federal funds target rate.

Several empirical studies have investigated the relationship between hospitality stock returns and changes in monetary policy. In general, those past research papers have made several major contributions to the hospitality literature. First, Barrows and Naka (1994), Chen et al. (2005) and Chen (2007b) identify several key economic and monetary explanatory variables of hospitality stock returns. Second, Chen (2007a) examines the long-term hospitality stock performance under expansive and restrictive monetary policy conditions. Third, Chen (2012a) offers a timing strategy for investing in US hospitality sector stocks. The proposed timing investment strategy incorporates the monetary policy development measured by changes in the Fed discount rate. Fourth, unlike Chen (2007a) who analyses long-term hotel stock performance under different monetary policy conditions, Chen (2012c) contributes to the hospitality literature by analyzing the reaction of daily US hospitality stock prices to monetary policy announcements.

While previous hospitality finance papers have made various contributions to the literature, no empirical work has examined the asymmetric response of hospitality stock prices to monetary policy actions under different stock market conditions. The empirical evidence concerning the relationship between hospitality stock returns and monetary policy changes is still limited in the hospitality finance literature, and hence more examinations of the influences of monetary policy actions on hospitality stock returns

* Tel.: +886 5 2720411; fax: +886 5 2720818.
E-mail addresses: finmhc@ccu.edu.tw, minghsiangchen@hotmail.com

can enhance the hospitality finance studies. As Barrows and Naka (1994) note, any identification of analytical ability of economic factors to stock price behavior in the industry sector could make a contribution to the industry analysis, and this would be true for different hospitality sectors.

In addition, the impact of monetary policy on stock returns could vary across industries. As Nowak (1993) notes, industries that are sensitive to the interest rate and those with considerable export or import components are expected to be more strongly affected by monetary policy changes. Similarly, Ehrmann and Fratzscher (2004) state that the influence of monetary policy on stock returns is likely to differ across industries for several reasons. First, the interest-sensitivity of the demand for industry products differs. Second, if monetary policy affects exchange rates, tradable goods industries would be influenced more strongly. Third, changes in the cost of capital induced by monetary policy are more important for capital-intensive industries. These three factors suggest that monetary policy changes affect expected future earnings in a heterogeneous fashion across industries and the differences should be reflected in the responsiveness of different industry stock returns. Specifically, monetary policy changes would have a strong impact on capital-intensive industries, cyclical industries, and industries that are relatively open to trade. Given the differences in the characteristics of hospitality sectors, it is highly probable that the reaction of stock returns of airline, gambling, hotel, restaurant and travel and leisure will vary.

Airline, gambling and hotel industries are known to be capital-intensive industries, which requires substantial amount of capital for the production of goods and services. Further, the airline, gambling and hotel industries are cyclical, meaning that they are highly sensitive to the state of the economy (Bodie et al., 2009). In other words, sales and future corporate earnings of companies in airline, gambling and hotel industries fluctuate with the business cycle. Bernanke and Kuttner (2005) also find that monetary policy changes have a higher effect on stock returns of firms in cyclical industries than in non-cyclical industries. Accordingly, since airline, gambling and hotel sectors are capital-intensive and cyclical industries, this study hypothesizes that airline, gambling and hotel stock returns would significantly respond to Fed monetary policy actions (*Hypothesis I*). In comparison, although the restaurant industry can be considered fairly capital-intensive, it is relatively less capital-intensive compared to airline, gambling and hotel sectors. Moreover, the restaurant industry is a non-cyclical industry. It is hence hypothesized that the response of restaurant stock return to Fed monetary policy actions would be insignificant (*Hypothesis II*).

Monetary policy changes also have an impact on exchange rates. A currency appreciation or depreciation can significantly affect future corporate earnings of firms in those industries that engage in international trade. If the U.S. dollar depreciates, it would make travel and leisure activities more costly and reduce the willingness of travelers to travel internationally. Further, the travel and leisure industry is considered as a cyclical industry because the demand for goods or services provided by the travel and leisure industry is also highly cyclical. Thus, given that the travel and leisure industry is open to trade and a cyclical industry, travel and leisure stock return is hypothesized to strongly respond to monetary policy actions (*Hypothesis III*).

Moreover, this paper analyses the asymmetric response of hospitality stock returns to Fed monetary policy surprises in different stock market conditions based on an event study framework. Empirical findings would contribute to the understanding of federal funds target rate surprises' effects on stock price behavior of different hospitality segments in bull and bear markets. Some financial papers have investigated asymmetries in the impact of monetary policy on stock returns across different stock market conditions.

Perez-Quiros and Timmermann (2000), Chen (2007c) and Jansen and Tsai (2010) test the asymmetric effects of monetary policy on stock returns in bull and bear markets. The traditional theory that explains the possible asymmetries in the impact of monetary policy on stock returns across different stock market conditions is the agency costs of financial intermediation (Bernanke and Gertler, 1989; Kiyotaki and Moore, 1997). The theory states that agency costs lead to information asymmetry between firms and financial intermediaries and agents may behave as if they are financially constrained when there is information asymmetry in the financial markets. Further, financial constraints are more likely to bind in bear markets. Consequently, this study hypothesizes that a monetary policy action can have asymmetric impact on hospitality stock returns in different market conditions and this impact is expected to be greater in bear markets (*Hypothesis IV*).

To test asymmetry response of hospitality stock prices to Fed monetary policy actions in bull and bear markets, this study requires a correct identification of Fed monetary policy actions and a correct measure of the state of stock market conditions to perform all empirical examinations. As Bernanke and Kuttner (2005) note, estimating the response of stock prices to Fed monetary policy actions is not an easy task because the stock market is unlikely to respond to Fed policy actions that were already anticipated. Therefore, it is crucial to distinguish expected from unexpected Fed policy actions. This paper follows Bernanke and Kuttner (2005) and Chen (2012c) to apply the methodology proposed by Kuttner (2001) to decompose the Fed monetary policy action measured by federal funds target rate change into two components, (i.e. the expected and unexpected or surprise component of federal funds target rate change). The surprise component of federal funds target rate change (or federal funds target rate surprise) is the unanticipated component that has not been already priced into the market. Given the efficient market hypothesis that stock prices should have already reflected all information available in the stock market, hospitality stock returns are expected to have a significant response to the surprise component, not the expected component, of federal funds target rate changes.

Kuttner's (2001) method of measuring monetary policy surprises yields a cleaner estimate of the immediate impact of a surprise change in the federal funds rate on stock returns. Bernanke and Kuttner (2005) argue that the unexpected policy actions measured by federal funds target rate surprises allow us to circumvent difficult issues of endogeneity and simultaneity, and discern the stock market response to monetary policy. Bernanke and Kuttner (2005) report that stock market prices responded only to the surprise change in federal funds target rate and, on average, a unanticipated 25-basis-point cut in the federal funds rate target is associated with about a 1% increase in broad stock indexes.

On the other hand, this study estimates the probabilities of bull and bear markets using a Markov-switching model of stock returns to measure bull and bear markets. Specifically, the transition from one state to the other is modeled as a Markov chain process and depends on probabilities of transition between the two regimes. Based on the Markov-switching model of stock returns, we can statistically identify a regime with a higher mean and lower standard deviation of returns (bull market) and a regime with a lower mean and higher standard deviation (bear market). The model parameters (means, standard deviations and transitional probabilities) are estimated jointly with maximum likelihood. Once the parameter estimates are obtained, conditional probabilities of bull and bear market at each point in time are computed and then bear and bull market conditions can be identified.

The paper proceeds as follows. Section 2 reviews the literature. Section 3 explains how federal funds target rate surprises can be measured. Section 4 describes a Markov-switching model of stock returns. Section 5 presents regression tests based on an event-study