



# State dependence in the influence of monetary policy regime shifts on hospitality index returns

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## ARTICLE INFO

### Keywords:

Hospitality index returns  
Monetary policy  
Business cycle  
Credit market condition

## ABSTRACT

Previous research studies reveal that changes in monetary policy can significantly affect hospitality stock returns. This paper makes another contribution by showing that the impact of shifts in the Fed monetary policy regime on US hospitality index returns varies to a great extent in the different stages of business cycle and under different credit market conditions. Shifts in the Fed monetary policy regime are measured by directional changes in the discount rate (*DR*) and directional changes in the federal funds rate (*FFR*). In particular, the significant influence of monetary policy regime shifts on hospitality index returns depends on the state of economy. The significant influence of *DR* exists only during periods of business cycle contraction. In addition, although US hospitality index returns respond significantly to *FFR* under both business cycle expansion and contraction, the size of the response is substantially larger and more statistically significant during periods of business cycle contraction. Finally, the impact of both *DR* and *FFR* on hospitality index returns depends on the credit market conditions, especially when the credit market is tight.

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## 1. Introduction

Federal Reserve (Fed) policy announcements and actions have been closely examined by financial market participants and academic researchers in an attempt to understand the impact of policy actions on security prices. Fed monetary policy is known as the manipulation of the money supply to impact the economy through its influence on interest rates. One of the key interest rates is the discount rate, the interest rate that the Fed charges banks and/or depository institutions on discount loans. An increase (A decrease) in the discount rate decreases (increases) discount loans and hence money supply, leading to a high (low) interest rate. Discount rate changes occur infrequently because frequent changes in discount rate would induce instability in financial markets and institutions.

In practice, discount rate changes are often interpreted as signals of the future course of Fed monetary policy. Jensen et al. (1996), Johnson and Jensen (1998), Conover et al. (1999a,b) and Jensen and Mercer (2006) rely on turning points in the monetary stance as identified by directional changes in the Fed discount rate to characterize the monetary policy stance as either “expansive” or “restrictive.” Waud (1970) identifies three advantages of using

changes in the discount rate as informative signals of the Fed’s future policy actions. First, discount rate changes are exogenous policy signals that are easy for the public to interpret. Second, discount rate changes are widely reported and relatively infrequent. Third, discount rate changes have special information and competence to judge whether changes in bank credit and money are consistent with the economy’s cash needs.

The association between stock returns and directional changes in discount rate has been supported by empirical studies. Johnson and Jensen (1998), Conover et al. (1999a) and Conover et al. (2005) reveal that U.S. stock returns are significantly related to directional changes in discount rate. Conover et al. (1999b) further show that in addition to U.S. stock market returns, stock returns in several other developed countries are also significantly related to directional changes in Fed discount rate. Empirical findings generally reveal that security returns are higher (lower) in an expansive (a restrictive) monetary stance.

Jensen and Mercer (2006) state that one notable advantage of relying on the directional changes in the discount rate as a policy signal is that the discount rate, unlike other indicators, has continuously had an official role as the interest rate that the Fed charges banks on borrowed reserves. In contrast, an explicit federal funds rate target neither exists nor makes sense during early periods in which the Fed focuses on reserve aggregates. In addition, there is debate over the extent of the Fed’s control over other rates, whereas there is no doubt that the Fed controls its discount rate. Thornton (1998) also notes that changes in the discount rate are generally

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aligned with turning point changes in the federal funds rate target.

In the hospitality literature, several studies examine whether stock returns of hospitality firms are related to a set of selected economic variables (Barrows and Naka, 1994; Chen et al., 2005; Wong and Song, 2006; Chen, 2007a,b, 2012a,b). This study makes another contribution to the hospitality finance literature by offering an insight into the state dependence in the influence of monetary policy regime shifts on hospitality index returns. Specifically, we analyze whether the impact of shifts in the Fed monetary policy regime on U.S. hospitality index returns varies in different stages of the business cycle and in different credit market conditions.

Previous financial research studies have examined the state dependence in the stock market's reaction to economic news. McQueen and Roley (1993) investigate state dependence in the stock market reaction to several macroeconomic announcements. Boyd et al. (2005) analyze whether the response of the stock market to unemployment news depends on the state of the economy. Whether the Fed monetary policy has asymmetric effects on stock market returns in bull and bear markets is examined in the study by Chen (2007). Basistha and Kurov (2008) scrutinize the impact of monetary policy on stock returns under different economic and credit market conditions.

Note that while Barrows and Naka (1994), Chen et al. (2005), Wong and Song (2006) and Chen (2007a,b, 2012a,b) provide insightful and interesting findings on the impact of monetary policy variable on hospitality stock returns, more examinations related to this stream of research can enhance the hospitality finance studies. This paper contributes to the literature by showing that although shifts in the Fed monetary policy regime can significantly affect US hospitality index returns, the effects vary widely under different business and credit market conditions.

Furthermore, in addition to the discount rate, this study includes federal funds rate in its analysis since federal funds rate is one of the main instruments of Fed monetary policy. In other words, both the discount rate and the federal funds rate are used as measures of the Fed monetary policy condition. Some researchers advocate the fed funds rate as a superior indicator of actual Fed activities (Cook and Hahn, 1989; Bernanke and Blinder, 1992; Bernanke and Kuttner, 2005). The discount rate, the interest rate that the Fed charges banks on the discount loans, is completely controlled by the Fed. Accordingly, the Fed tends to stabilize the discount rate to achieve interest rate and financial market stability. In comparison, the federal funds rate is the interest rate on short-term loans of reserves from one deposit institution to another, which is determined by the demand for and supply of reserves in the market. Given that the federal funds rate is market-driven, it may react more quickly (relative to movements in monetary aggregates) to Fed activities, and thus, serve as another good indicator of the Fed's short-term activities around a policy signal.

However, it is worth noting that this study investigates whether the impact of monetary policy regime shifts on US hospitality index returns varies in different stages of the business cycle and under different credit market conditions. Shifts in the Fed monetary policy regime are measured by both directional changes in the discount rate and in the federal funds rate. Whether the federal funds rate or the discount rate is a better indicator of the Fed monetary policy actions is beyond the scope of this study.

The remainder of the paper is organized as follows. Section 2 reviews the literature. Section 3 describes the data and key variables, including measures of Fed monetary policy stance, business cycle and credit market conditions. Regression test models are presented in Section 4. Section 5 shows empirical test

results. Section 6 concludes the study with a discussion of major findings.

## 2. Literature review

### 2.1. Economic impact on hospitality stock returns

Several recent hospitality research studies have investigated the influence of economic and financial factors on hospitality stock returns. Barrows and Naka (1994) test the effect of some selected economic variables on U.S. hospitality stock returns. They show that U.S. restaurant and lodging stock returns are strongly related to money supply growth rates, inflation rate and changes in domestic consumption. Chen et al. (2005) examine the impact of economic and non-economic variables on hotel stock returns in Taiwan. They show that among five selected economic variables, money supply growth rates and changes in unemployment rate could explain hotel stock returns in Taiwan. Moreover, money policy factor measured by lag changes in discount rate, growth rates of imports, changes in yield spread and industrial production growth rates are found to be an explanatory factor of hotel stock returns in China (Chen, 2007b).

Wong and Song (2006) investigate the link between several economic factors and U.S. hospitality stock returns based on a vector autoregressive model. Empirical test results reveal that hospitality stock prices largely follow an autoregressive process, but are not entirely independent from some economic variables. Particularly, the yield of U.S. 10-Year Treasury bonds explains a substantial proportion of the forecast error variance in the stock prices for restaurant, lodging, and casino sectors. Nonetheless, money supply, consumer price index and industrial production variables explain a relatively small proportion of the forecast error variance in the hospitality stock prices.

Extending the investigation of the effects of changes in monetary policy on the stock performance of hospitality firms, Chen (2007a) focuses on the performance of hotel stocks under different monetary policy environments and investigates hotel stock returns under two different monetary policy conditions in Taiwan. The author follows Conover et al. (1999a,b) to use the directional changes in the discount rate to measure changes in monetary policy regime. An expansive (restrictive) monetary policy regime is a period with a decrease (rise) in the discount rate. He shows that hotel stocks in Taiwan have a higher mean return and reward-to-risk ratio under an expansive monetary environment.

Chen (2012a) offers a timing strategy for investing in U.S. hospitality sector stocks. Directional changes in the Fed discount rate signal when to buy or sell stocks of different hospitality sectors. Accordingly, a timing strategy is formulated and its performance relative to a passive buy-and-hold (market portfolio) strategy is examined with five risk-adjusted performance measures. Empirical evidence supports the superiority of the proposed timing strategy for investments in hotel, restaurant and travel and leisure sector stocks over the buy-and-hold strategy based on various risk-adjusted performance evaluation methods.

Chen (2012b) examines the reaction of daily U.S. hospitality stock indices to announcements of Federal Open Market Committee decisions concerning the federal funds target rate (*FFTR*). Following Kuttner's (2001) methodology, he divides the actual *FFTR* change into the expected and surprise components. Test results find that except for restaurant index, the responses of airline, gambling, hotel and travel and leisure stock indices to the surprise component are large and highly significant. On the contrary, the corresponding responses to the actual *FFTR* change and the expected component are statistically insignificant.

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