

THE RELATIONSHIPS BETWEEN THE FED FUNDS FUTURES RATES AND THE FED FUNDS RATES

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ABSTRACT

This report analyzes the relationships between the Fed Funds Rates and the Fed Fund Futures Rates reflected in the Future Contracts and to determine if the futures rates are good predictors of Fed Funds Rates.

INTRODUCTION

The Federal Reserve System and the futures markets both provide valuable services to the economy. The Federal Reserve works to keep inflation under control and the employment high through the implementation of its monetary policies and oversight of the banking industry. The futures markets provide an avenue for individuals and firms to reduce uncertainty through the use of contracts. The contracts allow for the purchase of physical or financial assets at some point in the future. Futures contracts are purchased by speculators who believe that they can predict the future rates accurately to turn a profit. In theory, the prices of futures contracts should generally predict what is going to happen to the price of the underlying asset in the future. Therefore, economists suggest that the Fed Funds futures contracts could be utilized to predict the directions of the future Fed Funds rate. This paper analyzes the relationships between the Fed Funds Futures Rates and the Fed Fund Rates.

THE FED FUNDS RATES AND FED FUNDS FUTURES RATES

The Fed Funds Rate

The fed funds rate is the rate the member banks charges other member banks for overnight loans to cover unforeseen short-term reserve shortages. A target for this rate is set by the FOMC and the actual rate is kept very close to that target through the open market operations of the FOMC. This rate is important because short-term interest rates reflect the Fed Funds Rates.

Fed Funds Future Contracts

Fed Funds Futures are traded on the Chicago Board of Trade. They are typically traded on 30-day contracts, which would mean that the contract will need to be liquidated or settled at the end of that 30-day window at the agreed upon rate. Banks are most likely to use these contracts to hedge against the changes in the Fed Fund Rates.

DATA AND METHODOLOGY

The following monthly data was collected from August of 1990 to March of 2003: the fed funds futures rate on the first trading day of each month, the actual Fed Funds Rate for the final trading day of each month, and the target fed funds rate as set by the FOMC (rate at the end of the month).

The actual month-to-month change in each of the above indicators was calculated. Statistical analysis was utilized to determine the relationships between the fed funds futures rate and the fed fund rate as well as the target fed funds rate.

RESULTS

As shown in the Table 1, the statistical results suggest a weak correlation between the Fed Funds Rate and the Fed Fund Futures Rate. It would seem that this variance lies with the fact that investors never have perfect knowledge of complex and confusing future and may not always act in a completely rational manner.

CONCLUSIONS

The fed funds futures rate is not an accurate predictor of Federal Reserve policy. The futures market relies on projections of speculative investors to mitigate the risks associated with market movements. Even when the futures market predicts movements in the fed funds target rate, it is often incorrect about the magnitude of those movements which further reduces its level of accuracy.

TABLE 1

Regression Analysis: fed target change versus fed fund futures change

The regression equation is

$$\text{Fed target change} = -0.0154 + 0.676 \text{ fed fund futures change} \quad (1)$$

Predictor	Coef	SE Coef	T	P
Constant	-0.01538	0.01342	-1.15	0.253
Fed fund	0.67565	0.06542	10.33	0.000

$$S = 0.1613 \qquad R\text{-Sq} = 41.6\% \qquad R\text{-Sq (adj)} = 41.2\%$$

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	2.7750	2.7750	106.66	0.000
Residual Error	150	3.9026	0.0260		
Total	151	6.6776			

Regression Analysis: fed fund change versus FF futures change

The regression equation is

$$\text{Fed change} = -0.0164 + 0.631 \text{ FF futures change} \quad (2)$$

Predictor	Coef	SE Coef	T	P
Constant	-0.01637	0.01196	-1.37	0.173
FF change	0.63124	0.05304	11.90	0.000

Predictor	Coef	SE Coef	T	P
Constant	-0.01637	0.01196	-1.37	0.173
FF change	0.63124	0.05304	11.90	0.000

S = 0.1444 R-Sq = 48.6% R-Sq (adj) = 48.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	2.9523	2.9523	141.63	0.000
Residual Error	150	3.1267	0.0208		
Total	151	6.0790			

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