

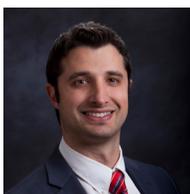


Rising Interest Rates:

A Review of Domestic vs. International Equity Performance



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Abstract

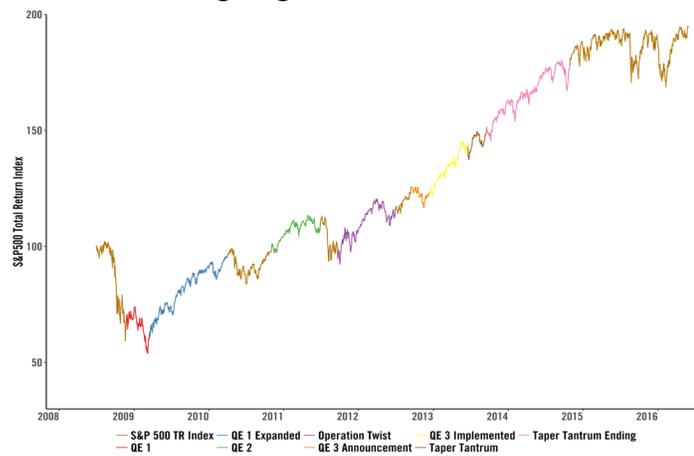
The Federal Open Market Committee (FOMC) has sustained one of the most accommodative monetary policies in the history of U.S. financial markets. Coincidentally, the S&P 500 has experienced the third-longest bull market since the Index's inception. In this study we examine seven contractionary and eight accommodative interest rate environments since 1969. We show that international equity markets' out-performance, relative to U.S. equity markets, is linked to the type of interest rate environments in the U.S.

Key Take Aways

- U.S. equity markets exhibit higher total excess returns during U.S. accommodative regimes than during contractionary regimes.
- International equity markets exhibit higher total excess returns during periods of U.S. contractionary regimes than during accommodative regimes.
- Investors can benefit from monetary policy shifts by timely reallocating financial resources between domestic and international equity markets.

The Federal Reserve’s Quantitative Easing program (QE) has been a powerful tool for controlling domestic interest rates for the better part of a decade. The Federal Open Market Committee (FOMC) has sustained one of the most accommodative monetary policies in the history of U.S. financial markets. That accommodative stance, which started in late 2008, has been an important contributing factor to the record-high levels reached by the S&P 500 Index. Figure 1 shows the several attempts made by the Fed, during this market cycle, to push the U.S. economy toward recovery. However, at this point the current Fed’s target rate of 0.25% - 0.50% leaves little-to-no wiggle room to lend further support to potentially depressed equity markets in the future.

Figure 1:
Quantitative Easing Programs: S&P 500 Performance



From 06.30.08 to 05.31.16. Indexed to 100 on 06.30.08. The color of the S&P 500 Index line denotes the Federal Reserve program in effect. SOURCE: Innealta Capital using data from Bloomberg

During the second quarter of 2016, the Fed began hinting their desire to proceed on a path towards interest rate normalization. One should expect markets to respond to the eventual lack of continuous Central Bank support. It is important for investors to understand how equity markets will respond to such monetary policy regime changes. With equity markets at historically high valuations, the switch away from an accommodative monetary policy may communicate negative consequences to markets which have become used to Central Bank support.

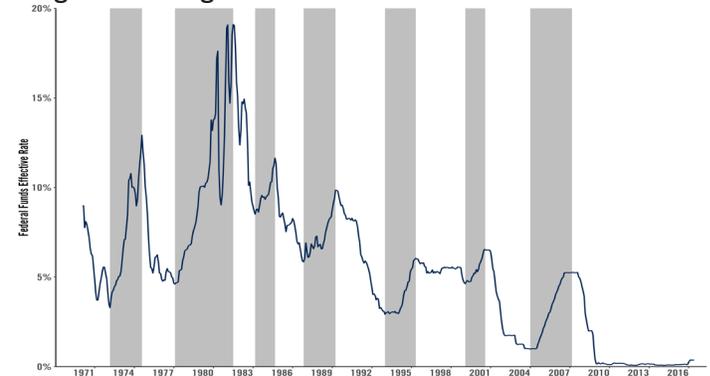
Methodology

We define a U.S. contractionary monetary policy regime as an interest rate environment where the Federal Funds Effective Rate (FFER) increases 1.25% or more over a period longer than 12 months. Conversely, a U.S. accommodative monetary policy regime is one in which the FFER falls 1.25% or more over a period longer than 12 months. These restrictions (i.e., rate change and regime duration) constitute a conservative rules-based approach to identify different interest rate environments.

In practice, as shown in Figure 2, our method identifies local peaks and troughs, which in turn can be thought as the beginning of monetary policy regimes changes.

Using data from December 1969 to March 2016, we identify 15 unique periods: 7 contractionary (shaded areas) and 8 accommodative (non-shaded areas).

Figure 2:
Long-Term Rising Rate Environments



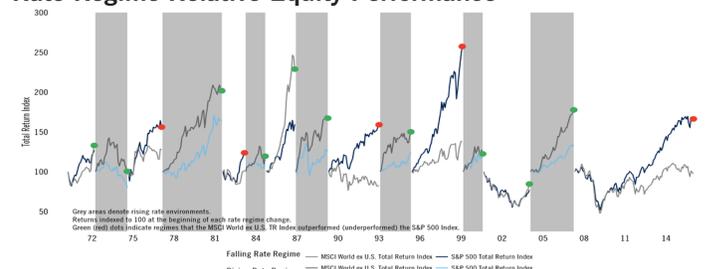
From 12.31.69 through 05.31.16. Rising rate environments are defined as periods where the Federal Funds Effective Rate rose at least 1.25% over 12 months or more. Falling rate environments are defined as periods where the Federal Funds Effective Rate fell at least 1.25% over 12 months or more. SOURCE: Innealta Capital using data from Professors Eugene F. Fama and Kenneth R. French and Bloomberg

Within each interest rate regime identified we calculate and compare the annualized excess rate of return over the risk-free rate, proxied by the 13-week Treasury bill, of U.S. equity markets (S&P 500 Index). We follow an identical procedure for international equity markets (MSCI World ex US Index). Finally, we compare the annualized excess returns of U.S. equity and international equity markets in rising (contractionary) vs. falling (accommodative) interest rate environments.

Results

From Figure 3, U.S. interest rates appear to be negatively correlated to U.S. equity returns and positively correlated to international equity returns.

Figure 3:
Rate Regime Relative Equity Performance



From 12.31.69 through 12.31.15. Index performance is presented as excess total return. Rising rate environments are defined as periods where the Federal Funds Effective Rate rose at least 1.25% over one year or more. Falling rate environments are defined as periods where the Federal Funds Effective Rate fell at least 1.25% over one year or more. SOURCE: Innealta Capital using data from Professors Eugene F. Fama and Kenneth R. French, Morningstar and Bloomberg

Grey areas denote rising rate environments. Returns re-indexed to 100 at the beginning of each rate regime change. Green (red) dots indicate regimes that the MSCI World ex U.S. TR Index outperformed (underperformed) the S&P 500 Index.

From 12.31.69 through 05.31.16. SOURCE: Innealta Capital using data from Professors Eugene F. Fama and Kenneth R. French and Morningstar and Bloomberg

Table 1 summarizes our main findings; U.S. equity markets tend to perform better during falling interest rate environments than during rising rate environments. U.S. equity market excess returns are, on average, 4.56% higher during U.S. accommodative monetary policy regimes.

Table 1:
Summary Return Statistics

Interest Rate Environment	Number of Months	S&P 500 Index Excess Ann. Ret.	MSCI World ex U.S. Index Excess Ann. Ret.
Rising	216	3.72%	10.42%
Falling	339	8.28%	2.63%
Difference		-4.56%	7.79%

From 12.31.69 through 5.31.16. Index performance is presented as excess total return. Rising rate environments are defined as periods where the Federal Funds Effective Rate rose at least 1.25% over 12 months or more. Falling rate environments are defined as periods where the Federal Funds Effective Rate fell at least 1.25% over 12 months or more. SOURCE: Innealta Capital using data from Professors Eugene F. Fama and Kenneth R. French and Bloomberg

International markets, however, exhibit a different behavior than U.S. equity markets. International equity market excess returns, on average, are 7.79% lower during U.S. accommodative monetary policy regimes.

The results above show that there may be an opportunity for investors to benefit from monetary policy shifts by timely reallocating financial resources between domestic and international equity markets. Using history as a guide, investors could earn annualized excess returns of 10.42% by investing internationally during U.S. contractionary monetary policy regimes (vs. 3.72% in U.S. equity markets) and earn annualized excess returns of 8.28% by investing domestically during U.S. accommodative monetary policy regimes (vs. 2.63% in international equity markets).

Robustness

The study's results are robust to a variety of methodology changes. For example, marginal changes to the thresholds used to identify rising and falling interest rate environments, shorter sample periods, and alternative equity and fixed income markets benchmarks don't qualitatively alter the study findings.

As an additional robustness check we introduced noise in the algorithm used to identify interest rate environments. Particularly, we allowed for a +/- 3 and 6 month window of misidentification, which is equivalent to modeling an investor being "too early" or "too late" to realize a monetary policy regime change.

Table 2 displays the difference in returns between U.S. and international equity markets during contractionary and accommodative U.S. monetary regimes. From the table, it is clear that introducing a window of misidentification does not invalidate the results of the paper.

In other words, investors could still take advantage of monetary regime shifts to allocate their resources between domestic and international equity markets even when they are not accurate in identifying the precise time when those regime changes occur.

Table 2:
Shifting-Month Robustness Check, Difference Between US and International Returns

Month Shift	Environment	S&P 500 less MSCI ACWI ex-US
+6	Contractionary	-1.97%
	Accommodative	2.39%
+3	Contractionary	-3.53%
	Accommodative	3.28%
0	Contractionary	-6.70%
	Accommodative	5.65%
-3	Contractionary	-10.67%
	Accommodative	8.84%
-6	Contractionary	-6.95%
	Accommodative	5.97%

From 12.31.69 through 5.31.16. Data shown displays the difference between excess annualized return during rising and falling interest rate environments for the U.S. (S&P 500 Index) and International (MSCI ACWI ex-U.S. Index) markets. SOURCE: Innealta Capital using data from Professors Eugene F. Fama and Kenneth R. French and Bloomberg

Conclusion

In this study we showed that US equity markets outperform international equity markets during U.S. accommodative monetary policy regimes. Additionally, international equity markets outperform U.S. equity markets during U.S. contractionary monetary policy regimes. Considering the current state of our economy, investors may be facing a unique opportunity to benefit from the purported monetary policy shifts by timely reallocating financial resources between domestic and international equity markets.



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The MSCI All Country World Index Ex-U.S. is a market-capitalization-weighted index designed to provide a broad measure of stock performance throughout the world, with the exception of U.S.-based companies. It includes both developed and emerging markets. The S&P 500 is an American stock market capitalization-weighted index that tracks the 500 most widely held stocks on the New York Stock Exchange or NASDAQ. It seeks to represent the domestic stock market by reflecting the risk and return of all large cap companies.

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