Fight the Fed Model: The Relationship between Stock Market Yields, Bond Market Yields, and Future Returns

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Abstract

The "Fed Model" has become a very popular yardstick for judging whether the U.S. stock market is fairly valued. The Fed Model compares the stock market's earnings yield (E/P) to the yield on long-term government bonds. In contrast, traditional methods evaluate the stock market purely on its own without regard to the level of interest rates. My goal is to examine the theoretical soundness, and empirical power for forecasting stock returns, of both the "Fed Model" and the "Traditional Model". The logic most often cited in support of the Fed Model is that stocks should yield less and cost more when bond yields are low, as stocks and bonds are competing assets. Unfortunately, this reasoning compares a real number to a nominal number, ignoring the fact that over the long-term companies' nominal earnings should, and generally do, move in tandem with inflation. In other words, while it is a very popular metric, there are serious theoretical flaws in the Fed Model. Empirical results support this conclusion. The crucible for testing a valuation indicator is how well it forecasts long-term returns, and the Fed Model fails this test, while the Traditional Model has strong forecasting power. Long-term expected real stock returns are low when starting P/Es are high and vice versa, regardless of starting nominal interest rates. I also examine the usefulness of the Fed Model for explaining how investors set stock market P/Es. That is, does the market contemporaneously set P/Es higher when interest rates are lower? Note the difference between testing whether the Fed Model makes economic sense, and thus forecasts future long-term returns, versus testing whether it explains how investors set current P/Es. If investors consistently confuse the real and nominal, high P/Es will indeed be contemporaneously explained by low nominal interest rates, but these high P/Es lead to low future returns regardless. I confirm that investors have indeed historically required a higher stock market P/E when nominal interest rates have been lower and vice versa. In addition, I show that this relationship is somewhat more complicated than described by the simple Fed Model, varying systematically with perceptions of long-term stock and bond market risk. This addition of perceived risk to the Fed Model also fully explains the previously puzzling fact that stocks "out yielded" bonds for the first half of the 20th century, but have "under yielded" bonds for the last 40 years. Finally, I note that as of the writing of this paper, the stock market's P/E (based on trend earnings) is still very high versus history. A major underpinning of bullish pundits' defense of this high valuation is the Fed Model I discredit. Sadly, the Fed Model perhaps offers a contemporaneous explanation of why P/Es are high, but no true solace for long-term investors.

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49 References

1. Running a similar bivariate regression on both forecasted E/P and starting ten-year yield I find

2. * Y , R-Squared , =
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3. ~~Clearly, whatever long-term predictability exists is driven by E/P. Real returns over the long-term are highly correlated with starting E/P but hardly related at all to starting interest rates~~

4. In sum, nominal bond yields help explain the cross-section of stock market E/Ps. So, like for the U.S. through time, investors do require higher interest rate countries to have higher earnings-yields (lower P/Es) and vice versa. However, again mimicking the time series results for the U.S., when it comes to forecasting returns, particularly over the long-term, the Fed Model is a failure versus traditional methods