

Paper summary

There are five risk factors in the return on stocks and bonds. Three of them are stock market factors which are market factor, firm size, and book-to-market equity. The rest are bond market factors which are maturity and default risks. These factors seem to explain average returns on stock and bonds.

This paper extends the asset-pricing tests in Fama and French in three ways. First, it expands the set of asset returns including government and corporate bonds as well as stocks. Second, it includes the list of term-structure variables that are likely to play a role in bond market. Lastly, this paper uses time series regression approach instead of the cross-section regressions. They are convenient for studying two important issues. First, it shows that risk factors related to size and BE/ME capture shared variation, and second, it provides a stringent standard of the asset pricing model.

In bond market factors, the proxy for unexpected interest rate changes is TERM and the one-month T-bill rate. The proxy for default factors is DEF and the long-term government bond return. In stock market factors, the proxy for the market return in stocks is the excess market return, $RM-RF$ (RM is calculated by return on six size-BE/ME portfolios plus the negative-BE stocks excluded from portfolio). The time-series regressions attempt to explain the cross-section of average returns with the premiums for the common risk factors in returns. It found that the common factors in returns will absorb most of variation in stock returns, making the asset-pricing tests in the time-series regressions precise. In contrast to the stock portfolio, there is little evidence that average return on government bond increase with maturity; LT corporate bonds have higher average returns than government's; and average returns on corporate bonds are higher for lower-rating group.

The excess stock returns on SMB and HML support that the size and BE/ME factors explain the strong differences in average returns across stock, but they do not explain the average premium of stock returns over one-month bill returns. However, adding excess market return, the regressions that use $RM-RF$, SMB, and HML do a good job explaining the cross-section of average stock returns. On the other hand, TERM and DEF returns imply that the two term-structure factors cannot explain much of the cross-section variation in average stock returns. From F-statistic test, the three-factor regressions, including $RM-RF$, SMB, and HML to explain average returns do surprisingly well. Adding the term-structure returns, TERM and DEF results in much lower residual standard errors. This paper supports that the five-factor regressions provide the best model for returns and average returns on bonds and stocks. Moreover, this paper found that there is no evidence that the residuals from the five-factor time-series regression are predictable. The variable known to predict stock and bond returns do not predict the residuals. This supports that the five risk factors capture the cross-section of expected stock and bond returns. Furthermore, in the regressions of the five-factor residuals on January dummy, it says that the January seasonals in returns on stocks and corporate bonds seem to be largely explained by the corresponding seasonals in the five-factor model. It also concludes that E/P and D/P portfolio capture the cross-section of average stock returns.

The results from this paper show that five factors do a good job explaining common variation in bond and stock returns and the cross-section average returns. In principle, they can be used to estimate expected stock returns, such as selecting portfolios, evaluating portfolio performance, and estimating the cost of capital. They leave many open questions to future work, such as How does profitability. or any other fundamental, produce common variation in returns associated with size and BE/ME that is not picked up by the market return?