Relationship between realised returns of UK unit trust and its unsystematic risk

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Abstract

This paper pays attention to unsystematic risk measured by the standard deviation of regression residuals. Conventional studies emphasise market systematic risk and assume that unsystematic risk would be eliminated by diversifying equity portfolio. In reality, however, active equity funds are rarely fully diversified due to high trading costs. Moreover, the benchmark might be misspecification, failing to price all risk factors. The unpriced risk of fund portfolio would be contained in the variance of residuals. Therefore, unsystematic risk might exist due to imperfect diversification of actual portfolio and misspecification of benchmark.

Prior studies construct artificial stock portfolio by simulating investment strategy to study unsystematic risk or idiosyncratic risk. By contrast, this thesis use actual portfolio of UK equity unit trusts to examine unsystematic risk. In order to distinguish from idiosyncratic risk, we name trust’s unsystematic risk ‘unique risk’. Unique risk is measured by the standard deviation of regression residuals for each unit trust but benchmarking trust against a portfolio accounting for common market risk and unpriced aggregate idiosyncratic risk. Aggregate idiosyncratic risk captures public firm-level shocks, which would be considered by managers when they make investment decision. If the benchmark controls public stock shocks, the value of error term will crucially depend upon private information and investment abilities of each trust manager. The variance of residuals would measure the extra risk against average risk fund industry, which is unique for each unit trust.

This study explores two research questions. The first question is whether high level of unique risk is associated with high level of realised trust returns, motivated by the purpose of serving retail investors to make wise unit trust strategies. For example, a positive relation between realised returns of individual trust and its unique risk could suggest consumers to select relatively high-risk trusts in UK unit trust market in their acceptable risk tolerance.

Second, we study whether fund managers take benefits from low volatility stocks in the context of volatility anomaly. Volatility anomaly suggests that low volatility portfolio outperforms corresponding high volatility portfolio (Haugen and Heins, 1972; 1975). Low/high volatility portfolio is constructed by stocks with low/high standard deviation of returns or beta coefficients. Prior studies document that volatility anomaly remarkably, persistently, and comprehensively exist in the global stock markets, and even extends to bonds, credit, and futures markets across many different countries (Ang et al., 2009;
Blitz and van Vliet, 2007; Chen et al., 2012; Baker and Haugen, 2012; Frazzini and Pedersen, 2014; etc.). The presence of volatility anomaly motivates us to explore volatility strategy of equity unit trusts.

We have five primary findings. First, our cross-sectional study finds a significant positive relation between realised returns of unit trust and its unique risk in the short term. We would advise retail investors to select relative high risk trust given their risk tolerance and capability. Second, the positive relation is not persistent, as the coefficient of 3-month lagged unique risk is zero and coefficients of 6-month and 12-month lagged unique risk change to negative. We also use a time-series model of GARCH-in-mean to study long term relation between returns and unique risk for each unit trust. We find positive but insignificant relation on average. We would advise retail investor to timely change trust holdings.

Third, we find that almost all unit trusts prefer to hold stocks having relatively high volatility and low beta. This finding indirectly supports the hypothesis that presence of volatility anomaly would partly due to institutional agency mandate restricting managers to offset volatility anomalous in the stock market. Fourth, we find that, in the group of high unique risk, unit trusts’ market coefficient is low while coefficient of volatility factor is high, implying that those unit trusts prefer to hold high volatility stocks to chase high abnormal return. Unit trusts with high unique risk can produce positive abnormal return while trusts with low unique risk produce significant negative abnormal return. Fifth, volatility factor has almost equally explanation power with size and value factors, as correlations between volatility and size and value factor is up to –0.52 and 0.22, respectively.