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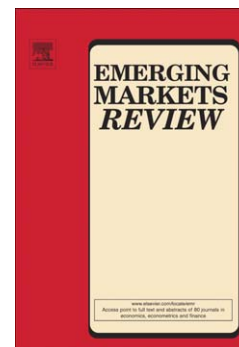
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Risk-Return Trade-Off in the Pacific Basin Equity Markets

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Abstract

We conduct an empirical study of risk-return trade-off in fourteen Pacific basin equity markets using several volatility estimators, including five variants of GARCH class, equally weighted rolling window volatility, and mixed data sampling (MIDAS), as well as binormal GARCH (BiN-GARCH) model which allows for non-zero conditional skewness in returns. Our findings imply that the BiN-GARCH model, which allows for time-variation in the conditional skewness and market price of risk, captures the expected positive risk-return relationship in eleven out of fourteen markets studied. In comparison, symmetric skewness models such as MIDAS or GARCH variants fail to capture positive and statistically significant market price of risk estimates. These results provide support for the growing literature on the necessity of modeling conditional higher moments in financial research.

Keywords: Binormal distribution, Conditional variance, Conditional skewness, GARCH, Intertemporal CAPM, Mixed data sampling, Pacific basin equity markets, Risk-return trade-off

JEL classification: C22; G12; G15.

1. Introduction

In the past twenty years, many studies in empirical asset pricing have devoted considerable energy to testing the systematic trade-off between expected returns and risk, characterized by Merton (1973) intertemporal capital asset pricing (ICAPM). The majority of empirical studies postulate a positive and linear relation between the conditional variance and expected excess market returns, with time-invariant market price of risk. Moreover, the majority of studies assume symmetry in the conditional distribution of excess returns. These assumptions practically translate into a race to come up with the best model for conditional volatility.

However, there is no consensus on even the most basic theoretical properties of the risk-return relationship; see Rossi and Timmermann (2009). In this study, we show that the problem is not the volatility model used, but failure to account for conditional higher moments and their role in the risk-return relationship. We use several variants of existing empirical methodologies to test the risk-return relationship in 14 Pacific rim financial markets. We find that the model that does not require symmetry in the conditional distribution of excess returns outperforms those that require this restriction.

We find empirical evidence supporting a positive risk-return relationship in 13 out of 14 markets studied, using binormal GARCH (henceforth, BiN-GARCH) methodology of Feunou et al. (2013). Other methods, including rolling estimator of French et al. (1987), various GARCH specifications, or mixed data sampling (henceforth, MIDAS) of Ghysels et al. (2005, 2006, 2007), deliver significantly weaker results.

We believe that our results provide significant empirical support for the idea that to build reliable risk management measures in equity markets in general and Pacific basin markets in particular, one needs to consider modeling conditional higher moments such as conditional skewness, in addition to the traditional modeling of the first two conditional moments. This paper contributes to the existing literature in two

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