Validation of Asset Pricing Models during Crisis and Non-Crisis Periods: A Comparative Analysis of Stock Markets in Sri Lanka and in the US[1]

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Abstract

This study investigates the validity of the Pricing Model (CAPM) and Fama and French three factor model (FF3F) in predicting stock returns in the case of the Sri Lankan and US stock markets during market crisis periods and non-crisis periods. Past market crisis periods, defined as high volatility regimes, are identified using the volatility break test of Inclan and Tiao (1994). Importantly, the periods identified here were also identified as crisis periods in the previous work in finance. This study investigates whether the fundamentals based and market based equity market behavior as determined by the CAPM and the FF3F undergo changes as markets are havocked by financial calamity. This study applies weekly data from both markets for the empirical testing of the models. The methodology adopted for the formation of portfolios is similar to the one used by Fama and French (1996). In addition to the validation of the CAPM and the FF3F, this study further investigated the existence of January effect for the same portfolios mentioned above in both markets. Here the January effect is investigated for the same portfolios formed for the purpose of testing the FF3F. It is one of the unique features of this study when compared to other previous studies on January effect.

Findings suggest that in Sri Lankan market the CAPM does not work properly during crisis and non-crisis periods, whereas it works well in the US market, both in crisis and non-crisis periods. It is found that there are differences in the performance of the FF3F during the identified crisis periods in the Sri Lankan market and the US market. The findings on FF3F are mostly consistent

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[1] The thesis submitted for the Degree of Doctor of Philosophy in Department of Economics University of Colombo-2010.

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with Fama and French (1996). In particular, significant differences are found among SMB and HML during crisis and non-crisis periods in both markets. The empirical evidence also confirms that the FF3F model is sensitive to the January effect. Finally, the findings of this study may be interpreted as a warning against using the model on long series of data punctuated by random crisis periods. This will enable more specific generalization of findings for crisis and non-crisis periods. The findings of this study are mostly consistent with everal previous studies; for example, Wai and Gordon (2005) and Charitou and Constantinidis (2004).