

Common risk factors in returns in Asian emerging stock markets

Wai Cheong Shum ^a, Gordon Y.N. Tang ^{b,c,*}

^a Faculty of Management and Administration, Macao University of Science and Technology, Avenue Wai Long, Taipa, Macau, China

^b Department of Finance and Decision Sciences, Hong Kong Baptist University, Kowloon Tong, Kowloon, Hong Kong, China

^c International Graduate School of Business, University of South Australia, Adelaide, Australia

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Abstract

This paper examines the application of the Fama and French's (1993) three-factor model in three Asian emerging markets (Hong Kong, Singapore and Taiwan). The empirical evidence is consistent with the US findings that the model can explain most of the variations in average returns. However, we find that the main contributing factor is the contemporaneous market excess returns. The impact of the size effect and book-to-market (BE/ME) factor is limited and in some cases insignificant. When the three-factor model is modified by using lagged market excess returns instead in order to check for the predictability of the market factor, the explanatory power of the model drops substantially but both the risk factors for size and BE/ME are now able to contribute significantly in explaining the cross-sectional variations of stock returns. Their explanatory powers are strongest for small-size with high BE/ME portfolios. The robustness of our results is also checked for the separation of up and down markets periods and January effect.

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* Corresponding author. Address: Department of Finance and Decision Sciences, Hong Kong Baptist University, Kowloon Tong, Kowloon, Hong Kong, China. Tel.: +852 3411 7563; fax: +852 3411 5585.

E-mail address: gyntang@hkbu.edu.hk (G.Y.N. Tang).

1. Introduction

Several studies documented that average return is related to firm size, book-to-market equity ratio (BE/ME), earnings to price ratio (E/P), cash flow to price ratio (C/P) and past sales growth. Banz (1981); Basu (1983); Cook and Rozeff (1984); Davis (1994); De Bondt and Thaler (1987); Keim (1983); Lakonishok and Shapiro (1984); Reinganum (1982); Rosenberg et al. (1985), and Lakonishok et al. (1994) provided evidence on these firm characteristics in explaining the average stock returns. Since these patterns in the behavior of stock prices cannot be explained by the Capital Asset Pricing Model (CAPM) of Sharpe (1964); Lintner (1965), they are typically called anomalies. Fama and French (1992) found that size and BE/ME play dominant roles in explaining the cross-sectional variations in US stock returns. Fama and French (1993) showed that size and BE/ME proxy for the security's loadings in priced factors within a three-factor model. The three factors are the returns on the market portfolio and those on two zero net-investment portfolios: long in portfolio of small-size stocks and short in portfolio of big-size stocks (SMB) and long in portfolio of high BE/ME stocks and short in portfolio of low BE/ME stocks (HML). They found that the three factors provide a good job in explaining the cross-section of average stock returns. Fama and French (1996) further showed that the three-factor model captures returns regardless of the construction methods of portfolios, i.e. based on E/P, C/P, and past sales growth.

Daniel and Titman (1997) examined the irrational pricing against the three-factor model of Fama and French (1993, 1996). They argued that expected returns are not related to an asset's covariance with any economic risk factor but rather with firm specific characteristics. They rejected the three-factor model, but not the characteristic model. However, Davis et al. (2000) documented that the three-factor model explains the value premium, as measured by HML, better than the characteristic model of Daniel and Titman (1997). They argued that the results of Daniel and Titman (1997) are due to their short sample period. Daniel et al. (2001) replicated the tests of Daniel and Titman (1997) in the Japanese stock market and provided evidence rejecting the three-factor model but not rejecting the characteristic model.

Previous empirical work has discovered that US stock returns are largely explained by size and BE/ME effects. In Asian emerging markets, Chui and Wei (1998); Ho et al. (2000b), and Lam (2002) showed that significant size and BE/ME effects are observed in Hong Kong. In fact, Ho et al. (2000a) also suggested that the CAPM may indeed be misspecified as beta plays no role after examining the equilibrium risk-return relationships in the Hong Kong stock market. Wong and Lye (1990); Lau et al. (2002) found that Singaporean stock returns are related to firm size. Chui and Wei (1998) also found no significant firm size and BE/ME effects in Taiwan. However, it should be noted that the above articles did not employ the exact Fama and French (1993) three-factor model in their analysis in that no zero net-investment portfolios are formed for size and BE/ME factors. They simply employed the market capitalization and book-to-market ratio directly in their regression models. To the best of our knowledge, except those studies by Drew and Veeraraghavan (2001 and 2003), there is probably no study to test the robustness of the same model in the Asian emerging stock markets. Drew and Veeraraghavan (2003) investigated the robustness of the Fama and French (1993) three-factor model in Hong Kong, Korea, Malaysia and Philippines. They documented that size and value effects exist for all four markets under investigation and concluded that the multi-factor model approach provides a parsimonious description of the cross-section of returns for these Asian markets over the 1990s. This paper helps provide more empirical evidence of the model in three Asian markets.

This paper makes no attempt to provide any argument whether the three-factor model of Fama and French (1993, 1996) or characteristic model of Daniel and Titman (1997) is superior

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