Book-to-Market, Firm Size, and the Turn-of-the-Year Effect: Evidence from Pacific-Basin Emerging Markets*

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Abstract

This paper investigates the relationship between expected stock returns and market beta, book-to-market equity, and size in five Pacific-Basin emerging markets: Hong Kong, Korea, Malaysia, Taiwan, and Thailand. In all the markets examined, the relationship between average stock return and market beta is weak. On the other hand, the book-to-market equity can explain the cross-sectional variation of expected stock returns in Hong Kong, Korea, and Malaysia, while the size effect is significant in all five markets. Interestingly, the degree of the relation between average return and book-to-market equity coincides with the magnitude of the average book-to-market ratio in a country. We also find that large firms in Hong Kong and small firms in Korea have experienced higher returns in January. We argue that the different pattern of the 'turn-of-the-year' effect between Hong Kong and Korea may be attributed to a different composition of investors. The majority of investors in Hong Kong are foreign institutional investors, while investors in Korea are mainly individuals. Finally, we find that the seasonal behavior of size premiums is not only related to the composition of investors, but also related to the openness of the capital control policy.

1. Introduction

The traditional Capital Asset Pricing Model (CAPM) developed by Sharpe (1964), Lintner (1965), and Black (1972) states that (a) expected returns on stocks are positively related to their risk (market betas), and (b) market betas are the only risk factor to explain the cross-sectional variation of expected returns. However, using non-financial stocks traded in the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ during the 1963-90 period, Fama and French (1992) find that the market beta cannot explain the cross-sectional variation of expected returns on U.S. stocks. On the other hand, they find that the variation of cross-sectional stock returns can be captured by two firm characteristics: firm size and book-to-market equity. Chan, Hamao, and Lakonishok (1991) also find that book-to-market equity plays a significant role in explaining the cross-sectional variation of stock returns in the Japanese market. These empirical results strongly suggest that the widely used market beta is not related to expected stock returns.

In contrast to the voluminous research in the U.S. and Japan relating to the cross-sectional behavior of stock returns to market risk and firm characteristics, there has been very limited research relating to the emerging markets. However, the extraordinary growth of the emerging stock markets, especially in the Pacific-Basin region, during the last decade has already attracted a lot of attention from investors around the world. Research on the emerging stock markets in the Pacific-Basin region will definitely provide academics and practitioners a better understanding on the cross-sectional behavior of stock returns in this region.

The purpose of this paper is to examine the relationship between average stock return and market beta, book-to-market equity, and size in five emerging markets in the

Pacific-Basin region: Hong Kong, Korea, Malaysia, Taiwan, and Thailand. We will also investigate the seasonal behavior of the premiums associated with book-to-market equity and size in these markets. We focus on the relationship between expected returns, size, and book-to-market equity in January and in non-January months. Previous evidence in the U.S. and Japan suggests that stocks of small size firms usually have larger risk-adjusted returns in the month of January (Keim (1983), Roll (1983), Jaffe and Westerfield (1985), and Kato and Schallheim (1985)). This phenomena is named the 'turn-of-the-year effect' or the 'January effect.' Using size-decile portfolios of Korean stocks from January 1980 to December 1988, Kim, Chung, and Pyun (1992) also find that stock returns in Korea are higher in January. But they cannot detect a significant inverse relationship between firm size and average stock return. On the other hand, by examining the stocks traded on the Taiwan Stock Exchange over the period from December 1973 to October 1988, Chou and Johnson (1990) could not find any January effect in Taiwan. Their results also suggest that stock returns in Taiwan are not related to firm size. Apart from these studies in Korea and Taiwan, little work on the January effect and firm size has been done on other markets in this Pacific-Basin region. This study will fill this gap.

Like the evidence found in the U.S. by Fama and French (1992), we find that the relation between beta and average return is flat for all five emerging markets in the Pacific-Basin, even when beta is used alone to explain average return. One may argue that the weak relationship between the average return and the beta is due to the measurement error associated with the beta estimates. To correct for the measurement error in beta estimates, the Maximum Likelihood Estimator (MLE) developed by Litzenberger and Ramaswamy (1979) is also employed to investigate the relationship

between the average return and the beta. However, the beta still fails to explain the cross-sectional variation in stock returns.

Unlike the simple relation between beta and average return, the univariate relations between average return and size and book-to-market equity are strong for Hong Kong, Korea, and Malaysia, especially when individual stocks instead of portfolio returns are used in the regressions. Interestingly, the degree of the relation between the average return and the book-to-market equity coincides with the magnitude of the average book-to-market ratio in a country. We also find that the simple relation between the average return and the size is strong for Thailand when individual stock returns are used in the regressions. There exists a January effect in Hong Kong and Korea. However, the results oppose each other. Large firms in Hong Kong and small firms in Korea have higher returns in January. We attribute the different pattern of the January effect between Hong Kong and Korea to the composition of investors. The Hong Kong market is dominated by foreign institutional investors who concentrate their investments on blue-chips, while the Korean market is dominated by local individual investors who are inclined to invest in small firms. Finally, we find that the size effect is not only related to the composition of investors, but also related to the openness of the capital control.

The remainder of this paper is organized as follows. Section 2 gives a brief review of the institutional backgrounds for the five emerging markets mentioned above. Section 3 describes the data and Section 4 discusses the methodology. Section 5 presents the empirical results, and finally Section 6 concludes the paper.

2. Pacific-Basin emerging markets: A brief review

Table 1 shows that all five stock markets in this study have experienced tremendous growth in both market capitalization as well as in trading value over the period from December 1984 through December 1993. As of December 1993, Hong Kong was the largest market in terms of market capitalization amongst the five. Next in order are Malaysia, Taiwan, Thailand, and Korea. It should be noted that Malaysia ranked first in December 1984, but its growth rate was significantly lower than the other markets during the period under our study and its first place was eventually taken over by Hong Kong. In contrast to the Malaysian experience, Thailand witnessed its market size skyrocket from US$ 1.72 billion in December 1984 to US$ 133.66 billion in December 1993. The Thailand market experienced a 77.7 times increase in its market capitalization within a decade. Taiwan, on the other hand, had the largest trading value in 1993 and its trading value is more than double that of Korea - the first runners-up in the same race. The trading values of Hong Kong and Malaysia in 1993 were close to that of Korea, while Thailand had the lowest trading value in the same year. In terms of turnover ratio (annual trading value divided by the December market capitalization), Taiwan had the highest turnover ratio for all three years sampled. In this measure, Taiwan was followed by Korea and Thailand. It is a little bit surprising that even though Hong Kong and Malaysia were the two largest stock markets among the five in the same period, the turnover ratios of these two markets were usually the lowest.

[Put Table 1 about here]

Table 2 shows that there were also substantial differences in terms of investor composition among these five emerging stock markets. The Korean and Taiwanese stock markets were usually dominated by domestic individual investors (Harrison (1994)) and

Howell (1994)), and to a great extent this is also true for Thailand (George (1991)). The proportion of individual investors was significantly lower in Hong Kong and Malaysia. It has been suggested that foreign institutional traders were the major force behind the Hong Kong market during this period.

[Put Table 2 about here]

Table 3 shows that these five emerging markets also have significant differences in terms of taxation and controls on capital flows and foreign exchanges. Hong Kong by far is the paradise for foreign investors. There is no restriction on capital flows or foreign exchange transactions in Hong Kong. Neither is there any capital gains tax or dividend tax. In contrast, the most restricted markets against foreign investors are Korea and Taiwan. Prior to 1983, the Taiwanese market was completely closed to foreign investors. In 1983, the Taiwan government began to take steps to open up the market to foreigners. During 1983 to 1988, foreign investors could only indirectly participate in the market through the investment funds. In late 1987, the Taiwan government relaxed its foreign exchange control. Beginning on July 15, 1987, every Taiwanese could freely remit out of Taiwan any sum not exceeding US$ 5 million per year provided that each remittance taken by itself did not exceed US$ 1 million. At the same time, a temporary ceiling of US$ 50,000 was imposed on capital inflows. As a result, starting from late 1987, Taiwan investors could directly invest in foreign markets. If Taiwan investors are buying/selling foreign securities through the specific channels, such as the 'Designated-Purpose Trust Program,' the transactions conducted are not subject to the above inward/outward limitations. In December 1990, regulations were passed allowing foreign institutional investors who satisfy certain highly restrictive requirements to invest directly in the Taiwanese market. A single foreign institution is restricted to acquire at most 5% of a

local company's equity. A company's equity is only allowed to have a maximum of 10% foreign holdings. There is no capital gains tax in Taiwan, but dividends are subject to withholding tax.

[Put Table 3 about here]

Korea followed closely with Taiwan in the process of opening up its stock market to foreigners. Starting from the early 1980s, foreign investors were allowed only indirect access to the Korean stock market through investment funds. The major capital control change came in late 1988 when the Korean government announced plans to open its stock market to foreign investors. However, it was not until January 1992 that foreign investors were allowed to invest directly up to 10% for almost all the securities in the Korean market, with a maximum holding of 3% per foreign investor. Unlike Taiwan, direct investments in foreign securities by domestic institutions and individuals are still strictly forbidden. The Korea government has also imposed a tight control over foreign exchange. Foreign exchange transactions generally require approval. Capital gains tax in Korea only applies to companies. Dividends to all types of investors are taxable.

The openness of the Malaysia and Thailand markets lies somewhere in between Hong Kong and Taiwan. In Malaysia, foreigners can directly invest in the stock market subject to a ceiling on the percentage of shares ownership. This ceiling changes overtime. As of December 1987, foreign investors were allowed to hold not more than 15% of a local firm's shares, and, in December 1993, this limit was raised to 30%. The Malaysian government has a loose control over foreign exchange. There are no exchange controls on foreign portfolio investments, nor are there restrictions on repatriation of capitals and earnings. Domestic investors can directly invest in foreign securities. There is no capital gains tax in Malaysia, but dividends are taxable. Similar to Malaysia, foreign investors

can directly invest in the Thai stock market up to a certain limit in shares ownership. However, foreign investors can trade only on the Alien Board in Thailand. Exchange control has been a major problem for foreigners. Nevertheless, the situation has been improved, and from early 1990, controls were successively relaxed. From early 1991, registration of inward remittance of capitals and loans was abolished. On the other hand, restrictions on direct investments in foreign securities made by domestic investors are still in force. There are capital-gains tax as well as dividend tax in Thailand.

3. Data

Monthly stock returns and the accounting data for the five emerging markets are collected from the PACAP databases complied by the University of Rhode Island.[1] The sample period roughly covers July 1977 through June 1993 with some variations for individual countries owing to data availability. The sampling periods and the risk-free rates used for these markets are listed in Table 4. The majority of firms in these countries have December as the end of their fiscal year. To ensure that the accounting information is known before the stock returns for which the accounting information is used to explain, we match the stock returns for the period between July of year t to June of year t+1 to the accounting data of the company at the fiscal year-end that falls in year t-1.[2]

[Put Table about 4 here]

We apply the following three criteria for the selection of sample stocks in all five markets. First, a stock must have active trading. Any stock without a trading record for

[1] Although the Indonesian market is included in the PACAP tape, the history of data is too short to yield a meaningful study. We thus decided to drop the Indonesian market from our current study.

[2] It is noticed that the currencies in the financial statements used by Hong Kong companies vary across firms. Although the majority of firms use the Hong Kong dollar as the currency, some firms use the U.S. dollar and some use the British pound. The same problem has also been found for Malaysian companies. The majority of the Malaysian firms use the Malaysian dollar as the currency, but some firms use the British pound and some use the Singapore dollar.

more than three consecutive months during the twelve-month period preceding July of year t is disregarded. Second, a stock should have at least eighteen monthly returns in the forty-eight-month period before July of year t. Third, a stock should not have a negative book equity at the fiscal year-end that falls in year t-1. The first criterion is used to rule out extremely thin issues as they are likely to have very different return characteristics. The second criterion is needed in order to calculate the market beta for individual stocks. The last criterion is a requirement that one generally finds in previous research on book-to-market equity.

A firm's market equity (ME) is defined as price times number of shares outstanding at the end of June in year t. The book-to-market equity (BM) is computed as the ratio between the book equity of a firm at the fiscal year-end that falls in year t-1 and the firm's market equity at the end of December in year t-1. Because infrequent trading is quite common in these emerging markets, we use the Scholes and Williams (1977) method to calculate the market beta for each stock. The Scholes-Williams beta is computed as $\beta = \beta^S/(1+2\rho_1)$, where β^S is the sum of the slopes in the regression of the monthly returns on a stock on the lead, the current, and the lag month's value-weighted market returns and ρ_1 is the first-order autocorrelation coefficient for the market returns. The market betas are estimated from forty-eight monthly returns prior to July of year t.

We apply the same procedure to form portfolios of the stocks in these five markets. At the end of June of year t, all stocks in the sample are sorted into three equal groups based on their size at the end of June in year t from small to large. The stocks are also independently sorted into three equal groups according to their book-to-market equity (BM) at the end of year t-1 from low to high. Nine size-BM, value-weighted portfolios in each of the countries is defined as the intersection of the three size groups

and the three BM groups of that country. Nine portfolios are chosen to insure that there are enough stocks in each portfolio for all years.[3] Value-weighted monthly returns on the portfolios are calculated from July of year t to June of year t+1. The monthly excess returns on the portfolios are computed as the portfolios' monthly returns minus the risk-free rate defined in Table 4. A portfolio's beta, size, and book-to-market equity are the value-weighted averages of the beta, size, and book-to-market equity of the stocks in the portfolio.

Table 5 reports the summary statistics for these portfolios. The statistics include the average monthly excess returns, the standard deviation of the monthly excess returns, and the average values of beta, market value, book-to-market ratio, and the number of firms in the portfolio. Average values are calculated over the sampling period. The evidence in Table 5 shows that except for Taiwan and Thailand, average excess returns are positively related to book-to-market equity. On the other hand, average excess returns in all markets, in general, are negatively related to size. These findings suggest that there may be a strong relation between average stock returns and book-to-market equity as well as size effects in these countries.

For Hong Kong, the BM spread (defined as the return difference between the highest BM portfolio and lowest BM portfolio) is 1.69% within the smallest size group and 0.49% per month within the largest group. The size spread (defined as the return difference between the largest size portfolio and smallest size portfolio) is 1.24% within the highest BM group and 0.04% per month with the lowest BM group. The average excess return on the smallest-size, largest-BM portfolio is about twice the average return

[3] Nine portfolios may encounter a problem of unreliable estimates (i.e., the degrees of freedom are too small) in the Fama-MacBeth regressions especially for a multivariate regression. As a result, in the interpretation of our results, we will rely more on results from regressions based on individual stocks instead of portfolios.

on the largest-size, lowest-BM portfolio. Korea and Malaysia also exhibit a similar pattern. That is, the BM spread is largest within the smallest size group, while the size spread is the largest within the highest BM group. However, for Thailand, the largest BM spread falls to the medium size group, while the largest size spread happens to the lowest BM group. For Taiwan, the BM spread is not so obvious, while the largest size spread belongs to the lowest BM group. We also notice that the book-to-market ratio varies a lot across these countries. Korean stocks have the highest book-to-market ratio, and next in order are Hong Kong, Malaysia, Taiwan and Thailand. The average book-to-market ratios in Taiwan and Thailand are below one for all nine size-BM sorted portfolios. We also find that Taiwan has the largest standard deviation of monthly excess returns making the Taiwanese market the most volatile market among these five countries.

[Put Table 5 about here]

4. Methodology

To investigate the relationship between stock returns and market beta, firm size, and book-to-market equity, we employ the Fama-MacBeth (1973) procedure to estimate the following empirical model:

$$R_{pt} - R_{ft} = \alpha_{ot} + \alpha_{1t} Beta_{pt} + \alpha_{2t} SZ_{pt} + \alpha_{3t} BM_{pt} + \varepsilon_{pt} \quad (1)$$

where R_{pt} and R_{ft} are the monthly return on portfolio p and the risk-free rate in month t, respectively. The $Beta_{pt}$, SZ_{pt}, and BM_{pt} are the market beta, the logarithm of market equity, and the logarithm of book-to-market ratio for portfolio p in month t, respectively, and ε_{pt} is the residual term. The averages of the time-series slopes from these month-by-month, cross-sectional regressions, $\alpha_i = (\Sigma\alpha_{it})/T$, i = 0,1,2,3, are the estimates of the risk premiums associated with these risk factors or firm characteristics. We use the Fama-

MacBeth procedure because this methodology allows the risk premiums to vary across months. This feature is appealing especially when the data covers a long time period such as the one we use in this study.

The CAPM states that (a) expected return on an asset is positively related to its market beta, and (b) beta suffices enough to describe the cross-section of expected returns. As a result, the CAPM predicts that α_1 is positive, and both α_2 and α_3 are zero. However, recent evidence in the U.S. and Japan shows that average stock returns are positively related to book-to-market equity and negatively related to size. As a result, we hypothesize that $\alpha_1 > 0$, $\alpha_2 < 0$ and $\alpha_3 > 0$. Equation (1) provides a concise summary of the relation between stock returns and their risks as well as firm characteristics.

To explore the turn-of-the-year effect in these countries, we calculate the difference between January and non-January returns on the portfolios and name it as the 'January spread.' The spread is estimated by regressing the excess portfolio returns on a January dummy variable (JAN), which takes the value of one in January months and zero otherwise:

$$R_{pt} - R_{ft} = a + b * JAN \qquad (2)$$

where the intercept term 'a' is the mean excess portfolio returns for non-January months and the slope 'b' represents the January spread. If the turn-of-the-year effect is present, we expect 'b' to be significantly positive particularly for small size portfolios. In line with the literature (Chan, Hamao, and Lakonishok (1991) and Eleswarapu and Reinganum (1993)), seasonal behavior of risk premiums can be detected by using the Fama-MacBeth procedure to estimate equation (1) separately for January months and non-January months.

In addition, we also investigate the possible impact of the change in policy for capital flow control in Taiwan.[4] Starting from late 1987, Taiwan residents can directly invest in foreign securities. This allows Taiwan investors to build more diversified portfolios and this may affect the fundamental relationship between stock returns and risk factors in the Taiwanese market. To analyze the effect of this structural change in the risk-return relationship, we apply the methods discussed above on the two sub-samples in Taiwan: (a) before 1988 (07/1981 to 12/1987) and (b) after 1988 (01/1988 to 06/1993).

Furthermore, portfolio grouping procedures based on empirically motivated variables, such as size and book-to-market, might exaggerate the relationship between portfolio excess returns and these variables (Lo and MacKinlay (1990)). Lo and MacKinlay (1990) suggest that this problem is less severe if data for individual securities are used. In addition, since the number of stocks in each of these markets is small, this prevents us from forming large number of portfolios, say 25. The small number of portfolios presents problems in the Fama-MacBeth regressions. When equation (1) is estimated using 9 portfolios, we have only 5 degrees of freedom left. This may result in unreliable estimates. In order to safeguard against biased results due to the portfolio formation approach, we also apply the Fama-MacBeth procedure to equation (1) for data on individual securities. Furthermore, we will rely more on the regressions based on individual stock returns to interpret our results.

For the test based on individual stocks, previous studies often assign a portfolio's market beta as the market beta for each stock in the portfolio to reduce the measurement error associated with the beta estimates. However, this approach is not free of

[4] We do not investigate the possible impact of opening up to foreigners' direct investments in the domestic markets in Korea and Taiwan. The reason is that these markets only allow foreign direct investments in the early 1990s and the date of policy change is quite close to the end of our sampling period.

measurement errors. To eliminate the measurement error more effectively, we adopt the Maximum Likelihood Estimator (MLE) developed by Litzenberger and Ramaswamy (1979).[5]

Define the vector of realized excess returns in month t as $R_t \equiv \{R_{1t}, R_{2t}, ..., R_{Nt}\}'$ and the matrix X of independent variables in month t as $X_t \equiv \{1, Beta_t, SZ_t, BM_t\}$, where

$1 = \{1,1,...,1\}'$;

$Beta_t = \{Beta_{1t}, Beta_{2t}, ..., Beta_{Nt}\}'$;

$SZ_t = \{SZ_{1t}, SZ_{2t}, ..., SZ_{Nt}\}'$; and

$BM_t = \{BM_{1t}, BM_{2t}, ..., BM_{Nt}\}'$.

The $Beta_{it}$, SZ_{it}, and BM_{it} are the market beta, the logarithm of market equity, and the logarithm of book-to-market ratio for stock i in month t, respectively. Denote the vector of regression coefficients in month t as $\Gamma_t = \{\alpha_{ot}, \alpha_{1t}, \alpha_{2t}, \alpha_{3t}\}'$. Then the cross-sectional regression in month t can be expressed as

$$R_t = X_t\Gamma_t + \varepsilon_t \tag{3}$$

where $\varepsilon_t = \{\varepsilon_{1t}, \varepsilon_{2t}, ..., \varepsilon_{Nt}\}$ is a vector of residual terms. Litzenberger and Ramaswamy (1979) have shown that if the beta estimates contain an error, the ordinary least squares (OLS) estimator for Γ_t and thus the time series averages, $\Gamma = (\Sigma\ \Gamma_t)/T$, are biased and inconsistent. Making use of the measurement error in the beta, they derived an unbiased and consistent estimator for Γ_t and named it the Maximum Likelihood Estimator (MLE). The MLE for Γ_t is computed as

$$\Gamma_t^{MLE} = \left[\frac{X_t^{*'}X_t^*}{N_t} - A\right]^{-1}\frac{X_t^{*'}R_t^*}{N_t} \tag{4}$$

[5] We also perform the test using the portfolio's market beta as the market beta for each individual stock in this portfolio. The results are virtually identical to those reported here. In particular, the relation between return and beta is still flat.

where $R_t^* = PR_t$, $X_t^* = PX_t$, $A = \begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$, and N_t is the number of observations in month t. P is a transformation matrix of order $(N_t \times N_t)$ which can be written as

$$P = \begin{pmatrix} 1/\sigma_{1t} & 0 & . & . & . & 0 \\ 0 & 1/\sigma_{2t} & 0 & . & . & 0 \\ . & 0 & . & . & . & . \\ . & . & . & . & . & . \\ . & . & . & . & . & 0 \\ 0 & . & . & . & 0 & 1/\sigma_{Nt} \end{pmatrix} -$$

where σ_{it} is the standard deviation of the measurement error in $beta_{it}$ for stock i. In the current study, we use the asymptotic standard deviation of the Scholes-Williams beta to be the σ_{it}.

Define $R_{m3t} = R_{m,t-1} + R_{m,t} + R_{m,t+1}$ as the sum of market returns for the previous, current, and subsequent months. Also denote ω_i as the variance of the residual term ξ_{It} for stock i in the following market model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \xi_{it} \tag{5}$$

where R_{it} is the excess return on stock i in month t, t = 1,...,T. As shown by Scholes and Williams (1977), the asymptotic standard deviation, σ_{it}, for stock i can be expressed as

$$\sigma_{it} = \left\{ \frac{\omega_i}{T-1} \frac{1+2\rho_i\rho_{M3}}{\beta_{M,M3}^2 Var(R_{m3t})} \right\}^{1/2} \tag{6}$$

where $\rho_i = cov(\xi_{it}, \xi_{it-1})/\omega_i$ is the first-order autocorrelation of the residual term in equation (5), $\rho_{M3} = \dfrac{Cov(R_{m3t+1}, R_{m3t})}{std(R_{m3t+1})\, std(R_{m3t})}$ and $\beta_{M,M3} = \dfrac{Cov(R_{mt}, R_{m3t})}{Var(R_{m3t})}$. The consistent estimator of σ_{it} is found by replacing all population moments in equation (6) with their

corresponding sample moments. The MLE derived by Litzenberger and Ramaswamy (1979) is, in fact, a weighted least squares estimator with the appropriate weighting for each row i of matrix X_t equal to the inverse of σ_{it}. Litzenberger and Ramaswamy also show that the averages of the time series MLE estimates, $\Gamma^{MLE} = (\Sigma\ \Gamma_t^{MLE})/T$, is consistent. For comparison purposes, we also perform the test on individual stocks using ordinary the least squares (OLS) estimation method.

It is well known that the individual stock's beta, size, and book-to-market ratio are intercorrelated. The presence of this multicollinearity problem will substantially lower the precision of our estimates. To control for the adverse effect of this intercorrelation among the independent variables, we employ a procedure similar to the one used by Fama and French (1993) and Cai, Chan, and Yamada (1997). We first use the Fama-MacBeth procedure to run a regression using beta and book-to-market ratio (BM) to explain size (SZ). We then add together the intercept estimates and their corresponding residuals of the above regressions and name this factor as 'AdjSZ.' By construction, 'AdjSZ' should be perfectly correlated with size but uncorrelated with beta and book-to-market ratio. The regression results are reported in Table 6. We find that size is significantly positively correlated with the beta in Hong Kong, Malaysia, and Taiwan. The correlation between size and the book-to-market ratio is significantly negative and is large in magnitude in all the five markets. In the subsequent analysis on individual stocks, we will use 'AdjSZ' in place of size (SZ) to remedy the multicollinearity problem.

[Put Table 6 about here]

5. Empirical results

5.1 The Fama-MacBeth regressions on BM-size sorted portfolios

The results from the Fama-MacBeth regressions on portfolio returns are reported in Table 7. It should be noted that it does not matter if the market beta is used alone in the regression or jointly with other risk factors, the coefficient on the market beta is always insignificant.[6] This implies that the relation between stock returns and market beta is 'flat' for all the markets. This finding coheres with the one found by Fama and French (1992) in the U.S. market. The effect of size and book-to-market ratio on the stock returns, however, varies from one market to another. All the coefficients on size have the predicted sign, yet the size effect is only significant in the Korean market. On the other hand, the coefficients on the book-to-market ratio have the expected sign in all the markets but Taiwan. Moreover, the coefficients on book-to-market are significant in Hong Kong, Korea, and Malaysia, but not in Taiwan and Thailand. Interestingly, we find that the magnitude of significance in the relation between the average return and the book-to-market equity coincides with the average value of book-to-market equity in a country. Recall from Table 5 that Korea has the highest book-to-market ratio, and next in order are Hong Kong, Malaysia, Taiwan, and Thailand, with Taiwan and Thailand having the BM ratios below one for all nine size-BM portfolios. We also notice the significance of the coefficients on book-to-market has dropped when we move from the univariate regression model (3) to the multivariate regression model (7) in Korea and Malaysia. This is likely due to the correlation among book-to-market ratio, size, and market beta. Since the Fama-MacBeth regressions on portfolios present problems as discussed in

[6] The coefficient of the market beta in Korea is insignificant but large in size. This is likely due to the fact that the market beta for each portfolio is almost the same, which makes the market beta correlated with the intercept.

Section 4, in the next section we will use individual stocks instead of portfolios to test our hypotheses.

[Put Table 7 about here]

5.2 The Fama-MacBeth regressions on individual stocks

Table 8 contains the results of the analysis on individual stocks. The results using the MLE are, in general, similar to those obtained from the OLS. However, the coefficient on the market beta has the expected positive sign in Hong Kong, Korea, and Taiwan, when we use the MLE instead of the OLS. Nevertheless, similar to the results found from the portfolios, the market beta does not have any power to explain the cross-sectional variation of stock returns. On the contrary, the size and book-to-market effects are much stronger than those found in the portfolios. The coefficients on size are negative and significant in all markets except Taiwan. The size coefficient is negative but insignificant in the Taiwanese market. The coefficients on book-to-market are all significant and positive in Hong Kong, Korea, and Malaysia. These results suggest that even though the five emerging markets have very diverse institutional backgrounds, size effect seems to exist in all the markets except Taiwan. However, as we will discuss below, the exception of Taiwan is mainly due to the drastic change in the control over capital flow in late 1987. The book-to-market effect, on the other hand, only exists for stocks in Hong Kong, Korea, and Malaysia. The most disappointing results are those related to the market beta. The findings strongly suggest that market beta lacks the power to explain expected stock returns in the five markets we examined.

[Put Table 8 about here]

5.3 January effects

The 'January spread' for the five markets are presented in Table 9. Stocks in only Hong Kong and Korea exhibit significantly higher returns in January months.[7] Interestingly enough, the patterns of the January effect in these two markets are opposite to each other. Small firms in January usually have higher returns than the large firms in Korea. The pattern in Korea is similar to the empirical evidence found in the U.S. The large firms in Hong Kong, on the contrary, have much larger returns in January.

[Put Table 9 about here]

Table 10 shows that the above-observed patterns are related to the seasonal behavior of premiums on the risk factors or firm characteristics. The results from both portfolios and individual stocks indicate that the market risk premium is again insignificant for all five markets. On the other hand, the results from either portfolio returns or individual stock returns indicate that the size premium in January months is negative in all markets except Hong Kong.[8] Moreover, the evidence from portfolio returns demonstrate that the size premium in January months is significantly negative only in Korea and is significantly positive in Hong Kong. The size premium in non-January months is always negative but insignificant. The results from individual stock returns are virtually the same as those from the portfolio returns. Nevertheless, the size premium in Hong Kong becomes positive but only marginally significant at the 10% level in January months and significantly negative in non-January months.[9] In addition, the

[7] The January spreads in Taiwan and Thailand are in general large in size, but they are not significant. The evidence indicates that the existence of the January effect in these two markets is weak.

[8] The size premium in January is positive in Malaysia only when we use the MLE on individual stocks. The premium is very small in magnitude and is insignificant. The evidence shows that the positive premium is weak.

[9] Based on individual stock returns, the size premiums for January months and non-January months in Hong Kong are marginally significant at the 10% level and significant at the 5% level, respectively. However, the difference in the magnitude of size premiums between January months and non-January months is almost the same whether we use portfolio returns or individual stock returns. Therefore, the results from the individual stock returns are still consistent with those from the portfolio returns.

size premium estimated from individual stock returns is negative and significant for non-January months in Malaysia and Thailand.

[Put Table 10 about here]

Our findings indicate that the size effect in the Korean market is negative and concentrated on January months. The size effect in Hong Kong has a strong seasonal pattern. It is significantly positive in January months and becomes significantly negative in non-January months. The size effects for Malaysia and Thailand are negative and are concentrated on non-January months.

Since both Hong Kong and Korea do not have capital gains tax, the 'tax-loss selling' hypothesis of Roll (1983) cannot explain the different patterns of the January effect in these two countries. The January effects in these two countries cannot be explained by the 'parking-the-proceeds' hypothesis suggested by Ritter (1988) either. The 'parking-the-proceeds' hypothesis is viewed as a generalization of the tax-loss selling hypothesis. It states that (a) the portfolio composition of individual investors is more intensive in low-capitalization stocks than that of institutional investors, and (b) individual investors have a below-normal buy/sell ratio in December and an above-normal ratio in early January.

However, the 'buying-pressure' hypothesis of this paper may offer an explanation of the observed January effect in Hong Kong and Korea. The buying pressure hypothesis is partially related to the parking-the-proceeds hypothesis in the sense that we also assume that the portfolio composition of individual investors is more intensive in low-capitalization stocks than that of institutional investors. This requirement is in fact the case and has been documented in the U.S., Hong Kong, and other markets. The second requirement in the 'buying pressure' is that there is more money flowing to the market in

January. This is also in fact the case. The trading volume is on average higher in January than in non-January months. This may be due to the bonus pay at the end of the year.

The buying-pressure hypothesis predicts that the pattern of the January effect depends on the composition of investors in the market. Foreign institutional investors are the major force in the Hong Kong market and they usually concentrate on the large stocks such as the 'blue chips.'[10] Since there is a buying pressure in large stocks in January, this makes large stocks in Hong Kong have higher returns in January. Furthermore, since institutional investors focus their trades on large stocks in Hong Kong, the returns on the large stocks therefore will be less than that on small stocks for non-January months. In contrast with Hong Kong, the majority investors in Korea are individuals and they tend towards buying small stocks. Since individual investors in Korea buy more small stocks in January, small stocks therefore have higher returns in January.

The book-to-market premium also displays a seasonal pattern. The premium is always insignificant in January months. Whether a portfolio or individual stock returns are used in the regressions, we find that the book-to-market premium is significantly positive during non-January months in Hong Kong as well as in Korea. This premium, however, is significantly positive in Malaysia only when we are using individual stock returns. Our findings are in contrast with the previous results found in Japan (Chan, Hamao, and Lakonishok (1991)). They find that the book-to-market premium is significantly positive in January months as well as in non-January months and the book-to-market effect is even stronger in January months.

[10] Foreign institutional investors will even concentrate more on big stocks than domestic institutional investors. The reasoning behind this fact is liquidity and lack of knowledge of local markets.

5.4 The impact of change in capital control policy on cross-section of stock return in Taiwan

On the other hand, we find that the change in the policy for capital control in Taiwan does have a substantial impact on the risk-return relation in the stock market. The findings are reported in Table 11. Using portfolio returns, the size effect in Taiwan was positive before 1988. However, when we add the turnover variable (TN, the logarithm of monthly trade volume of a stock divided by its market capitalization at the end of the month) into equation (1) and re-estimate the whole equation again, size effect becomes negative but statistically insignificant.[11] The coefficient of turnover, on the contrary, is significantly negative. The results on individual stocks are similar to those obtained from the portfolios. However, the coefficient on size becomes positive but insignificant when it is jointly estimated with turnover. Turnover can be regarded as a measurement of market liquidity. The negative coefficient on turnover implies that illiquid stocks have higher returns than liquid stocks in the Taiwanese market. Since turnover was the only significant factor before 1988 in Taiwan, it seems that the Taiwanese stock market, before allowing direct investment in foreign securities, was mainly a liquidity driven market. This pattern disappeared after 1988. The only statistically significant risk factor in Taiwan after 1988 is size and its effect on the stock returns is negative.

[Put Table 11 about here]

Table 12 shows that the size and liquidity effects in Taiwan before 1988 are concentrated in January months when we use portfolio returns. However, the analysis based on individual stock returns shows that the premiums on size and turnover are

[11] We also estimate the relationship between stock returns and turnover for other markets as well. However, the regression coefficient on turnover in these markets is insignificant. Besides, the inclusion of the turnover variable does not alter our previous findings in these markets. Therefore, the result is not reported in this paper.

negative but insignificant. As we have noted above, when the majority of investors are individuals, such as in Korea and Taiwan, the size effect in January is normally negative. The only significant factor in January months in Taiwan before 1988 is the book-to-market ratio. On the contrary, the premium on the turnover is significantly negative in non-January months. After 1988, the coefficient on the beta becomes significantly positive in January months. The size effect, on the other hand, becomes significantly negative only for non-January months after 1988.[12]

[Put Table 12 about here]

It is interesting to compare the size premiums in Hong Kong, Korea, and Taiwan. Hong Kong is the most open market among the three. Taiwan's market is more liberal than Korea's market in the sense that Taiwan investors have been able to invest directly in foreign securities since late 1987. Before the change in capital control policy took place, the seasonal behavior of the size premium in Taiwan was the same as that in Korea. Both markets have negative size effect only in January months. After the Taiwanese government relaxed the control on capital flow, the seasonal behavior of the size premium in Taiwan is more in line with that in Hong Kong. Both of them have significant negative size effect in non-January months. We also notice that the negative size effects in Malaysia and Thailand are only significant in non-January months based on individual stock returns. Capital flow is quite liberal in Malaysia and foreigners have been able to invest directly in the Thai market for years. Our results seem to suggest that the seasonal behavior of the size premium in these emerging markets is not only related to the composition of investors, but also depends on the restriction on capital flow. The

[12] For the analysis using portfolio returns, we notice that the coefficient on turnover is significantly negative in non-January months after 1987. However, this coefficient is insignificant when individual stock returns are used.

more loose the control on capital flow, the more significant is the negative size effect in non-January months.

6. Conclusion

This paper examines the relationship between expected stock returns and market beta, size, and book-to-market ratio in five emerging markets in the Pacific-Basin, namely Hong Kong, Korea, Malaysia, Taiwan, and Thailand. We find no evidence in supporting a positive relationship between market beta and stock returns. On the other hand, we find strong size effect in all the markets and significant book-to-market effect in Hong Kong, Korea, and Malaysia. Our results are in line with the previous findings in the U.S. by Fama and French (1992) and Daniel, Titman, and Wei (1996). The relationship between stock returns and market beta is 'flat' and stock returns are more related to two firm characteristics: size and book-to-market ratio. Furthermore, we find that the degree of relation between the average return and the book-to-market equity coincides with the value of the average book-to-market ratio in a country.

We also investigate the 'turn-of-the-year' effect and the seasonal behavior of the risk premiums associated with market beta, size and book-to-market ratio in these markets. Strong 'turn-of-the-year' effect is found in Hong Kong and Korea. However, the patterns of the 'turn-of-the-year' effect in these two countries are opposite to each other. It is the large firms that have larger January returns in Hong Kong. On the contrary, it is the small firms that have larger January returns in Korea. The seasonal patterns of the size premiums agree with the 'turn-of-the-year' effect. The size premium in January months is significantly positive in Hong Kong and significantly negative in Korea. The different size effect in these two markets is related to the 'turn-of-the-year'

effect reflected in the different composition of investors in these two markets. Individual investors incline towards holding more small stocks in their portfolios while institutional investors usually focus their trading on large stocks. Both types of investors tend to buy more stocks in January and create a buying pressure in January. Since the major force in the Hong Kong market is foreign institutional investors who buy the large stocks in January, large stocks in Hong Kong have higher returns in January. On the other hand, the Korean market is dominated by individual investors who buy small stocks in January, so small firms in Korea have larger returns in January. In contrast to the findings in Japan by Chan, Hamao, and Lakonishok (1991) but consistent with those found by Daniel, Titman, and Wei (1996), our results indicate that the book-to-market premium is significant primarily during non-January months.

Additionally, we explore the possible impact of relaxation of control on capital flow on the cross-section of returns in Taiwan in late 1987. We find that before 1988, the Taiwanese market is mainly a liquidity driven market. After the change in capital control policy, however, size becomes the only significant factor and its effect is mainly concentrated on non-January months.

Finally, we notice that before the Taiwanese investors could invest directly in foreign securities, the seasonal pattern of the size effect was the same as that in Korea. After the change in policy on capital flow took place, the seasonal behavior of the size premium in Taiwan is similar to that of Hong Kong. Furthermore, the analysis based on individual stocks suggests that negative size effect exists during non-January months for all the markets but Korea and the period before 1988 in Taiwan. Since the markets that have negative size effect in non-January months are quite open towards capital flow, we conclude that the more liberal the control on capital flow, the more significant is the

negative size effect. Seasonal behavior of size premium not only depends on the composition of investors in the local stock market, but also depends on the openness of the capital control.

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Table 1
Market capitalization, trading value, and turnover ratio at the end of 1984, 1989, and 1993 for the five Pacific-Basin emerging markets.

	1984	1989	1993
Country	**Total Market Capitalization (US$ billion)**		
Hong Kong	24.05 (34.5%)	93.09 (17.4%)	445.77 (39.8%)
Korea	5.72 (8.2%)	114.79 (21.4%)	124.14 (11.1%)
Malaysia	28.18 (40.4%)	58.78 (11.0%)	220.06 (19.7%)
Taiwan	9.99 (14.3)	242.57 (45.3%)	196.11 (17.5%)
Thailand	1.72 (2.6%)	25.96 (4.9%)	133.66 (11.9%)
Total	69.66 (100%)	535.19 (100%)	1119.73 (100%)
	Total Trading Value(US$ billion)[a]		
Hong Kong	1.68 (11.1%)	34.56 (3.1%)	132.12 (15.4%)
Korea	3.36 (22.3%)	103.32 (9.2%)	150.36 (17.6%)
Malaysia	1.8 (11.7%)	6.00 (0.5%)	145.32 (17.0%)
Taiwan	8.04 (53.3%)	970.08 (85.9%)	343.32 (40.1%)
Thailand	0.24 (1.6%)	14.4 (1.3%)	85.44 (9.9%)
Total	15.12 (100%)	1,128 (100%)	856.56 (100%)
	Turnover Ratio[b]		
Hong Kong	6.96%	37.2%	29.64%
Korea	59.04%	90%	121.08%
Malaysia	6.24%	10.2%	66%
Taiwan	80.76%	399.96%	175.08%
Thailand	14.16%	55.32%	63.96%

[a] the total trading value is the annual trading values of the year.
[b] the turnover ratio is defined as the ratio between total trading value and the December market capitalization of the year.

Table 2
Types of investors in the five Pacific-Basin emerging stock markets

Country	Descriptions
Hong Kong	A survey conducted by the Hong Kong Stock Exchange in November 92 found that only 8% of the adult population in Hong Kong were owners of shares. On the other hand, foreign institution investors are believed to be the major participants in the market.[a]
Korea	During 1988 to 1993, individual investors account for about 50% of the share ownership. Foreign direct investment was not allowed until January 1992.[a]
Malaysia	A survey conducted by the Kuala Lumpur Stock Exchange in 1992 found that individuals held about 16.5% of the share ownership.[a] Approximately, 10% of the share ownership are held by foreign investors.[b]
Taiwan	Individual investors held approximately 50% of the share ownership over the period 1988 to 1993. Foreign direct investment was not allowed until January 1991.
Thailand	It is believed that individual investors constitute the major force in the market.[c]

[a] Sources : Harrison (1994), "Asia Pacific Securities Market."
[b] Sources : Howell (1994), "Investing in Emerging Markets."
[c] Sources: George (1991), "A Guide to Asian Stock Market."

Table 3
Controls of foreign exchange and capital flows in the five Pacific-Basin Emerging markets.

Country	Foreign Exchange Control	Foreign Direct Investment	Direct Investment Overseas	Capital Gains Tax	Dividend Tax
Hong Kong	No	Yes	Yes	No	No
Korea	Restricted, but being liberalized.	Since January 1992, foreigners can invest directly in the market subject to a ceiling on the percentage of share ownership.	No	Yes, but only for Companies	Yes
Malaysia	Loosely Controlled. None for foreign portfolio investment.	Yes but subject to a ceiling on the percentage of share ownership.	Yes. Approval is required for residents making more than 2 million local dollars of direct investment in foreign securities. But such approval is usually given automatically.	No	Yes
Taiwan	Restricted, but being liberalized.	Since January 1991, foreigners could invest directly in the market subject to a ceiling on the percentage of share ownership.	Since July 1987, Taiwanese can invest directly in foreign securities but subject to outward/inward remittance limitations. However, transactions conducted through specific channels set up by the government are not subject to the limitations.	No	Yes
Thailand	Yes but fairly liberal, especially after May 1990.	Yes, but subject to a ceiling on the percentage of share ownership	No	Yes	Yes

Sources: a. Harrison (1994), "Asia Pacific Securities Market."
b. Rhee, Chang, and Ageloff (1992), "The Microstructure of Asian Equity Markets."

Table 4
Sampling periods and the risk-free rates used in the analyses

Country	Sampling Period	Risk-free Rate
Hong Kong	07/1980 - 06/1982	Hongkong & Shanghai Banking Corporation's best lending rate
	07/1982 - 06/1988	One month time deposit rate paid by principal licensed banks
	07/1988 - 06/1993	Interbank offer rate on one month deposit
Korea	07/1978 - 06/1993	Interest rate on time deposits of deposit money banks
Malaysia	07/1977 - 12/1978	Interbank offer rate on overnight deposit
	01/1979 - 12/1982	One month fixed deposit rate paid by commercial banks
	01/1983 - 06/1993	Interbank offer rate on one month deposit
Taiwan	07/1977 - 06/1993	Central Bank rediscount rate
Thailand	07/1984 - 06/1993	Commercial banks interbank lending rate

Table 5
Descriptive statistics for the nine book-to-market and size sorted portfolios

At the end of June of each year t, stocks in each country are assigned to 3 equal size-sorted groups (from small to large) according to their June market value (stock price times number of shares outstanding, million dollar in local currency). The stocks in each country are also independently assigned to 3 equal BM-sorted groups (from low to high) based on their book-to-market ratio. The book equity is measured at the fiscal year-end that falls in year t-1 and the market equity value is measured at the end of December of year t-1. Nine value-weighted size-BM portfolios are defined as the intersection of the three size and the three BM groups. Value-weighted monthly returns on the portfolios (R_{pt}) are calculated from July of year t to the following June. Negative book equity firms are excluded when forming the portfolios. The Scholes-Williams betas for the stocks are estimated from the market model over the 48 months preceding July of year t. Each stock should have at least 18 monthly observations to estimate the Scholes-Williams betas. The portfolios' beta, market value, and book-to-market ratio are value-weighted averages for the stocks in the portfolios.

The statistics reported are the average monthly excess returns in percentage on the portfolios (R_{pt}-R_{ft}), the standard deviation of the portfolios' monthly excess returns, the portfolios' market value, the portfolios' average beta, average book-to-market ratio and average number of firms in the portfolios. All mean values are averaging over the sample period in each country.

Hong Kong: July 1984 - June 1993

	Book-to-Market Ratio					
	Low	Medium	High	Low	Medium	High
Size						
		Excess Return			**Standard Deviation**	
Small	1.95	3.28	3.64	8.95	8.43	9.19
Medium	1.71	2.45	2.83	8.46	9.65	9.73
Large	1.91	2.31	2.40	7.05	9.22	8.64
		Beta			**Market Value**	
Small	1.13	1.10	1.08	183	175	160
Medium	1.00	1.12	1.21	569	567	568
Large	0.89	1.13	1.14	24,728	18,858	11,497
		Book-to-Market			**Number of Firms**	
Small	0.50	1.07	2.10	13	24	25
Medium	0.50	1.07	2.23	16	25	21
Large	0.35	1.05	1.96	28	18	20

Korea: July 1982 - June 1993

	Book-to-Market Ratio					
	Low	Medium	High	Low	Medium	High
Size						
		Excess Return			**Standard Deviation**	
Small	1.46	1.81	2.65	8.73	8.00	8.76
Medium	0.80	1.56	1.89	7.23	7.39	7.69
Large	0.76	0.87	1.38	7.60	7.37	7.29
		Beta			**Market Value**	
Small	0.94	0.98	0.96	8,202	7,662	7,662
Medium	0.87	0.93	0.91	20,159	20,127	19,573
Large	0.85	0.87	0.94	734,614	186,104	278,001
		Book-to-Market			**Number of Firms**	
Small	0.97	1.57	3.13	20	35	43
Medium	0.95	1.59	2.93	29	36	38
Large	0.84	1.55	2.88	52	31	22

Table 5 (continued)

Malaysia: July 1981 - June 1993

Size	Book-to-Market Ratio: Low	Medium	High	Low	Medium	High
	Excess Return			**Standard Deviation**		
Small	0.65	1.19	1.37	7.88	8.63	10.24
Medium	0.24	0.67	0.42	7.18	8.47	9.42
Large	0.12	0.37	0.61	7.11	7.32	8.72
	Beta			**Market Value**		
Small	0.99	1.05	1.07	64	65	65
Medium	1.00	1.09	1.13	181	187	185
Large	1.04	1.03	1.18	2,853	1,683	1,203
	Book-to-Market			**Number of Firms**		
Small	0.34	0.66	1.13	20	25	22
Medium	0.38	0.65	1.15	21	20	28
Large	0.36	0.64	1.08	26	23	21

Taiwan, July 1981 - June 1993

Size	Book-to-Market Ratio: Low	Medium	High	Low	Medium	High
	Excess Return			**Standard Deviation**		
Small	2.87	1.68	2.06	17.23	16.04	16.31
Medium	1.95	1.63	1.57	14.88	13.51	15.31
Large	1.94	1.73	1.79	14.77	12.43	15.45
	Beta			**Market Value**		
Small	1.02	0.87	0.96	2,087	2,096	2,141
Medium	1.07	1.05	1.07	5,576	5,364	5,279
Large	0.95	1.04	1.07	76,546	51,680	40,396
	Book-to-Market			**Number of Firms**		
Small	0.35	0.58	0.91	8	13	16
Medium	0.38	0.56	0.88	11	14	13
Large	0.28	0.58	0.97	16	12	11

Thailand, July 1988 - June 1993

Size	Book-to-Market Ratio: Low	Medium	High	Low	Medium	High
	Excess Return			**Standard Deviation**		
Small	2.79	1.22	2.67	15.98	9.54	10.29
Medium	1.12	1.80	2.59	10.43	9.86	12.19
Large	0.66	0.26	1.58	8.95	10.64	9.72
	Beta			**Market Value**		
Small	0.86	1.13	1.05	604	684	630
Medium	1.12	1.14	0.91	2,046	2,084	1,839
Large	1.15	1.37	0.78	30,742	6,745	15,907
	Book-to-Market			**Number of Firms**		
Small	0.23	0.44	0.77	6	14	21
Medium	0.25	0.42	0.81	15	17	13
Large	0.21	0.42	0.86	18	13	15

Table 6
Relationship between size, beta and book-to-market ratio

Using the Fama-MacBeth procedure, the size (SZ, the logarithm of market value) of each individual stocks is regressed on the stock's Scholes-Williams beta and the logarithm of book-to-market ratio (BM) for each year. The coefficients are the averages of the time series OLS estimates and the corresponding t-values are in parentheses.

Country		Intercept	Beta	BM
Hong Kong	July 1984 - June 1993	8.63	0.11	-0.52
		(95.57)	(2.46)	(-23.55)
Korea	July 1982 - June 1993	12.38	0.19	-0.59
		(41.91)	(0.72)	(-33.21)
Malaysia	July 1981 - June 1993	5.50	0.11	-0.11
		(52.11)	(3.97)	(-3.91)
Taiwan	July 1981 - June 1993	10.29	0.51	-0.62
		(88.71)	(6.72)	(-16.84)
Thailand	July 1981 - June 1993	9.26	-0.03	-0.46
		(115.23)	(-1.09)	(-18.52)

Table 7
The Fama-MacBeth monthly regressions on portfolio excess returns

Monthly excess returns on the portfolios are regressed on the portfolios' beta, size (SZ, the logarithm of market value) and the logarithm of book-to-market ratio (BM) for each month t. The coefficients are the averages of the time series OLS estimates and the corresponding t-values are in parentheses.

Hong Kong: July 1984 - June 1993				
Model	**Intercept**	**Beta**	**SZ**	**BM**
(1)	1.96	0.58		
	(2.40)	(0.64)		
(2)	3.49		-0.14	
	(2.96)		(-1.19)	
(3)	-0.73			0.70
	(-0.69)			(3.01)
(4)	3.00	0.62	-0.16	
	(2.54)	(0.78)	(-1.32)	
(5)	-0.52	-0.07		0.69
	(-0.52)	(-0.06)		(2.82)
(6)	0.39		-0.11	0.62
	(0.25)		(-0.89)	(2.61)
(7)	0.00	-0.44	-0.08	0.76
	(0.00)	(-0.54)	(-0.68)	(3.49)
Korea: July 1982 - June 1993				
Model	**Intercept**	**Beta**	**SZ**	**BM**
(1)	-36.47	38.24		
	(-1.47)	(1.53)		
(2)	4.12		-0.28	
	(2.15)		(-1.66)	
(3)	-3.15			0.90
	(-2.16)			(3.15)
(4)	7.89	-2.60	-0.37	
	(0.41)	(-0.14)	(-1.90)	
(5)	-45.34	43.00		0.77
	(-1.46)	(1.37)		(2.32)
(6)	-0.35		-0.23	0.79
	(-0.15)		(-1.40)	(2.87)
(7)	2.47	-0.09	-0.35	0.56
	(0.12)	(-0.00)	(-1.84)	(1.78)
Malaysia: July 1981 - June 1993				
Model	**Intercept**	**Beta**	**SZ**	**BM**
(1)	0.51	0.12		
	(0.53)	(0.14)		
(2)	1.60		-0.17	
	(1.58)		(-1.58)	
(3)	-1.12			0.42
	(-1.31)			(1.65)
(4)	-0.23	1.33	-0.09	
	(-0.19)	(1.60)	(-0.76)	
(5)	-1.44	-0.45		0.61
	(-1.03)	(-0.38)		(1.67)
(6)	0.21		-0.17	0.32
	(0.20)		(-1.52)	(1.31)
(7)	-0.85	1.03	-0.11	0.26
	(-0.64)	(1.11)	(-0.93)	(0.84)

Table 7 (continued)

Taiwan: July 1981 - June 1993				
Model	**Intercept**	**Beta**	**SZ**	**BM**
(1)	1.77	0.13		
	(1.10)	(0.08)		
(2)	3.29		-0.10	
	(1.25)		(-0.47)	
(3)	3.26			-0.34
	(1.32)			(-0.55)
(4)	2.11	1.27	-0.09	
	(0.79)	(0.85)	(-0.38)	
(5)	6.29	0.30		-1.11
	(1.67)	(0.15)		(-1.51)
(6)	5.83		-0.13	-0.65
	(1.51)		(-0.57)	(-1.02)
(7)	5.60	1.15	-0.14	-0.78
	(1.41)	(0.90)	(-0.57)	(-1.15)
Thailand: July 1988 - June 1993				
Model	**Intercept**	**Beta**	**SZ**	**BM**
(1)	4.70	-3.01		
	(2.40)	(-1.81)		
(2)	4.44		-0.38	
	(1.74)		(-1.48)	
(3)	0.30			0.42
	(0.10)			(0.59)
(4)	7.24	-2.68	-0.38	
	(2.34)	(-1.66)	(-1.96)	
(5)	4.01	-2.53		0.11
	(1.12)	(-1.57)		(0.17)
(6)	3.59		-0.37	0.28
	(0.75)		(-1.36)	(0.38)
(7)	6.99	-2.17	-0.37	-0.04
	(1.43)	(-1.43)	(-1.49)	(-0.06)

Table 8
The Fama-MacBeth monthly regressions on individual stocks' excess returns

Monthly excess returns on individual stocks are regressed on the stocks' Scholes-Williams beta, adjusted size (AdjSZ, size adjusted for its correlation with BM and beta), and the logarithm of book-to-market ratio (BM) for each year. The coefficients are the averages of the time series MLE and OLS estimates. For those regressions excluding beta, we report only the OLS estimates since no correction for the measurement error in the beta is needed. The corresponding t-values are in parentheses.

Hong Kong: July 1984 - June 1993					
Model		Intercept	Beta	AdjSZ	BM
MLE	(1)	2.29	0.34		
		(3.48)	(0.53)		
OLS	(1)	3.24	-0.30		
		(4.09)	(-0.69)		
OLS	(2)	6.43		-0.40	
		(3.72)		(-2.63)	
OLS	(3)	-0.50			0.74
		(-0.58)			(3.70)
MLE	(4)	4.25	0.56	-0.20	
		(2.97)	(0.88)	(-1.67)	
OLS	(4)	6.79	-0.28	-0.40	
		(3.89)	(-0.65)	(-2.64)	
MLE	(5)	-0.48	0.14		0.67
		(-0.60)	(0.22)		(3.38)
OLS	(5)	-0.25	-0.48		0.81
		(-0.29)	(-1.11)		(4.24)
OLS	(6)	3.34		-0.41	0.70
		(2.16)		(-2.70)	(3.41)
MLE	(7)	1.43	0.35	-0.17	0.62
		(1.17)	(0.55)	(-1.48)	(3.36)
OLS	(7)	3.53	-0.44	-0.41	0.76
		(2.25)	(-1.02)	(-2.67)	(3.95)
Korea: July 1982 - June 1993					
Model		Intercept	Beta	AdjSZ	BM
MLE	(1)	-1.58	3.07		
		(-0.28)	(0.53)		
OLS	(1)	1.71	-0.09		
		(0.61)	(-0.03)		
OLS	(2)	6.21		-0.42	
		(2.30)		(-2.32)	
OLS	(3)	-3.93			1.07
		(-2.91)			(4.01)
MLE	(4)	0.01	5.23	-0.34	
		(0.00)	(0.94)	(-1.94)	
OLS	(4)	6.29	-0.03	-0.42	
		(1.78)	(-0.01)	(-2.33)	
MLE	(5)	-7.11	2.56		1.20
		(-1.15)	(0.43)		(3.94)
OLS	(5)	-3.40	-0.46		1.07
		(-1.18)	(-0.18)		(3.99)
OLS	(6)	0.71		-0.42	1.08
		(0.31)		(-2.32)	(4.02)
MLE	(7)	-5.69	4.79	-0.35	1.24
		(-0.90)	(0.83)	(-1.99)	(4.07)
OLS	(7)	1.20	-0.40	-0.42	1.07
		(0.38)	(-0.16)	(-2.33)	(4.00)

Table 8 (continued)

Malaysia: July 1981 - June 1993					
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**
MLE	(1)	1.05	-0.38		
		(1.97)	(-0.48)		
OLS	(1)	0.58	0.09		
		(1.14)	(0.20)		
OLS	(2)	2.39		-0.27	
		(1.94)		(-1.92)	
OLS	(3)	-1.24			0.47
		(-1.39)			(2.01)
MLE	(4)	2.32	-0.27	-0.20	
		(2.62)	(-0.34)	(-1.68)	
OLS	(4)	2.30	0.08	-0.27	
		(2.28)	(0.18)	(-1.97)	
MLE	(5)	-0.64	-0.52		0.44
		(-0.62)	(-0.64)		(1.72)
OLS	(5)	-1.22	0.04		0.45
		(-1.40)	(0.10)		(2.00)
OLS	(6)	0.49		-0.26	0.46
		(0.39)		(-1.90)	(1.96)
MLE	(7)	0.93	-0.40	-0.20	0.36
		(0.80)	(-0.49)	(-1.70)	(1.43)
OLS	(7)	0.54	0.04	-0.27	0.43
		(0.48)	(0.08)	(-1.95)	(1.93)
Taiwan: July 1981 - June 1993					
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**
MLE	(1)	1.73	0.38		
		(1.44)	(0.36)		
OLS	(1)	1.98	-0.05		
		(1.66)	(-0.09)		
OLS	(2)	2.53		-0.09	
		(0.75)		(-0.33)	
OLS	(3)	3.21			-0.35
		(1.53)			(-0.70)
MLE	(4)	3.08	0.56	-0.16	
		(0.92)	(0.54)	(-0.61)	
OLS	(4)	2.59	-0.05	-0.10	
		(0.76)	(-0.08)	(-0.34)	
MLE	(5)	1.08	0.30		0.12
		(0.49)	(0.32)		(0.20)
OLS	(5)	3.22	-0.04		-0.35
		(1.63)	(-0.09)		(-0.72)
OLS	(6)	3.74		-0.09	-0.35
		(1.04)		(-0.32)	(-0.69)
MLE	(7)	2.55	0.25	-0.15	0.09
		(0.73)	(0.26)	(-0.57)	(0.16)
OLS	(7)	3.80	-0.03	-0.09	-0.35
		(1.07)	(-0.07)	(-0.33)	(-0.72)

Table 8 (continued)

Thailand: July 1988 - June 1993					
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**
MLE	**(1)**	1.62	-1.05		
		(1.16)	(-0.09)		
OLS	**(1)**	2.20	-0.51		
		(2.10)	(-0.86)		
OLS	**(2)**	7.56		-0.60	
		(2.25)		(-1.93)	
OLS	**(3)**	-0.48			0.64
		(-0.19)			(1.07)
MLE	**(4)**	7.68	-0.68	-0.52	
		(2.71)	(-0.57)	(-1.95)	
OLS	**(4)**	8.09	-0.53	-0.60	
		(2.42)	(-0.89)	(-1.92)	
MLE	**(5)**	2.30	-0.04		-0.07
		(0.75)	(-0.03)		(-0.09)
OLS	**(5)**	0.37	-0.44		0.53
		(0.14)	(-0.72)		(0.88)
OLS	**(6)**	5.52		-0.60	0.61
		(1.29)		(-1.93)	(1.03)
MLE	**(7)**	7.51	-0.53	-0.50	0.07
		(1.63)	(-0.49)	(-1.95)	(0.09)
OLS	**(7)**	6.43	-0.46	-0.60	0.50
		(1.47)	(-0.76)	(-1.93)	(0.83)

Table 9
Excess portfolio returns in January

$$R_{pt} - R_{ft} = a + b*JAN + \varepsilon$$

Monthly excess returns on the portfolios are regressed on a January dummy variable (JAN), which takes a value of one in January and zero otherwise.

Hong Kong: July 1984 - June 1993				**Book to Market**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Size		**a**			**b**	
Small	1.94	3.34	3.78	0.15	-0.68	-1.68
	(2.14)	(3.92)	(0.93)	(0.05)	(-0.23)	(-0.52)
Medium	1.70	2.54	2.91	0.08	-0.99	-0.91
	(1.99)	(0.97)	(2.96)	(0.03)	(-0.29)	(-0.27)
Large	1.69	2.08	2.21	2.54	2.83	2.24
	(2.39)	(2.24)	(2.54)	(2.45)	(3.21)	(3.01)
Korea: July 1982 - June 1993				**Book to Market**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Size		**a**			**b**	
Small	0.87	1.21	2.06	7.05	7.20	7.07
	(1.12)	(1.71)	(2.65)	(2.62)	(2.94)	(2.62)
Medium	0.15	1.01	1.38	7.82	6.59	6.11
	(0.24)	(1.55)	(2.02)	(3.59)	(2.91)	(2.58)
Large	0.57	0.54	1.17	2.33	3.99	2.56
	(0.83)	(0.81)	(1.77)	(0.97)	(1.73)	(1.12)
Malaysia: July 1981 - June 1993				**Book to Market**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Size		**a**			**b**	
Small	0.54	1.12	1.14	1.36	0.89	2.75
	(0.78)	(1.49)	(1.28)	(0.57)	(0.34)	(0.89)
Medium	0.15	0.51	0.20	1.13	1.88	2.60
	(0.24)	(0.70)	(0.24)	(0.52)	(0.74)	(0.91)
Large	-0.01	0.20	0.48	1.64	2.01	1.52
	(-0.02)	(0.32)	(0.64)	(0.76)	(0.91)	(0.58)
Taiwan: July 1981 - June 1993				**Book to Market**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Size		**a**			**b**	
Small	2.36	1.19	1.29	6.08	5.83	9.22
	(1.57)	(0.86)	(0.92)	(1.17)	(1.21)	(1.89)
Medium	1.33	1.56	1.07	7.39	5.70	5.99
	(1.03)	(0.99)	(0.81)	(1.66)	(1.40)	(1.30)
Large	1.43	1.34	1.51	6.15	4.77	3.42
	(1.12)	(1.24)	(1.11)	(1.39)	(1.27)	(0.73)
Thailand: July 1988 - June 1993				**Book to Market**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Size		**a**			**b**	
Small	1.09	0.72	2.60	20.35	6.06	0.77
	(0.54)	(0.56)	(1.86)	(2.89)	(1.37)	(0.16)
Medium	0.80	1.28	2.41	3.80	6.22	2.27
	(0.57)	(0.97)	(1.45)	(0.78)	(1.36)	(0.40)
Large	0.14	-0.44	1.10	6.30	8.29	5.67
	(0.12)	(-0.31)	(0.85)	(1.52)	(1.70)	(1.26)

Table 10
Relationship between excess returns and beta, size, and book-to-market ratio in January and non-January months

The whole sample is divided into two sub-samples: January months and non-January months. Using the Fama-MacBeth procedure, monthly excess returns on portfolios are regressed on the beta, size (SZ, the logarithm of market value) and the logarithm of book-to-market ratio (BM) for each month in these sub-samples. For individual stocks, monthly excess returns are regressed on beta, adjusted size (AdjSZ, size adjusted for its correlation with BM and beta), and BM for each month in these sub-samples. The coefficients are the averages of the time series MLE and OLS estimates. The corresponding t-values are in parentheses.

Hong Kong: July 1984 -June 1993					
Portfolios					
	Model	**Intercept**	**Beta**	**SZ**	**BM**
OLS	**January**	-4.26	-2.64	0.92	0.61
		(-0.72)	(-0.87)	(2.50)	(0.93)
OLS	**Non-January**	0.39	-0.25	-0.17	0.77
		(0.26)	(-0.29)	(-1.40)	(3.35)
Individual Stocks					
	Model	**Intercept**	**Beta**	**AdjSZ**	**BM**
MLE	**January**	-2.47	0.77	0.67	-0.38
		(-0.66)	(0.42)	(1.84)	(-0.65)
MLE	**Non-January**	1.79	0.31	-0.25	0.71
		(1.38)	(0.46)	(-2.06)	(3.70)
OLS	**January**	0.81	0.10	0.43	-0.48
		(0.16)	(0.14)	(0.86)	(-1.38)
OLS	**Non-January**	3.77	-0.49	-0.48	0.87
		(2.28)	(-1.04)	(-3.06)	(4.28)
Korea: July 1982 - June 1993					
Portfolios					
	Model	**Intercept**	**Beta**	**SZ**	**BM**
OLS	**January**	6.25	16.68	-1.54	-0.10
		(0.23)	(0.59)	(-3.01)	(-0.06)
OLS	**Non-January**	2.13	-1.62	-0.25	0.62
		(0.09)	(-0.07)	(-1.22)	(2.01)
Individual Stocks					
	Model	**Intercept**	**Beta**	**AdjSZ**	**BM**
MLE	**January**	22.25	-3.24	-1.74	2.01
		(1.98)	(-0.33)	(-3.19)	(1.49)
MLE	**Non-January**	-8.23	5.52	-0.22	1.17
		(-1.22)	(0.89)	(-1.23)	(3.77)
OLS	**January**	10.19	10.74	-1.84	1.97
		(0.90)	(1.46)	(-2.95)	(1.66)
OLS	**Non-January**	0.38	-1.41	-0.29	0.99
		(0.11)	(-0.54)	(-1.58)	(3.63)

Table 10 (continued)

Malaysia: July 1981 - June 1993					
Portfolios					
	Model	Intercept	Beta	SZ	BM
OLS	January	-4.63	3.28	-0.15	0.90
		(-1.93)	(1.12)	(-0.37)	(0.81)
OLS	Non-January	-0.51	0.82	-0.10	0.20
		(-0.35)	(0.84)	(-0.86)	(0.63)
Individual Stocks					
	Model	Intercept	Beta	AdjSZ	BM
MLE	January	0.03	5.14	0.08	-0.68
		(0.01)	(1.93)	(0.19)	(-1.11)
MLE	Non-January	1.01	-0.91	-0.23	0.46
		(0.83)	(-1.07)	(-1.84)	(1.69)
OLS	January	1.60	2.73	-0.28	-0.03
		(0.48)	(1.67)	(-0.50)	(-0.05)
OLS	Non-January	0.45	-0.21	-0.27	0.47
		(0.37)	(-0.48)	(-1.89)	(1.98)
Taiwan: July 1982 - June 1993					
Portfolios					
	Model	Intercept	Beta	SZ	BM
OLS	January	10.98	-0.54	-0.61	0.48
		(0.63)	(-0.13)	(-0.62)	(0.20)
OLS	Non-January	5.12	1.30	-0.10	-0.90
		(1.26)	(0.98)	(-0.38)	(-1.27)
Individual Stocks					
	Model	Intercept	Beta	AdjSZ	BM
MLE	January	5.71	7.13	-0.97	1.18
		(0.46)	(1.78)	(-0.96)	(0.74)
MLE	Non-January	2.26	-0.38	-0.07	-0.01
		(0.62)	(-0.39)	(-0.28)	(-0.01)
OLS	January	6.37	3.20	-0.66	0.99
		(0.47)	(1.53)	(-0.61)	(0.66)
OLS	Non-January	3.56	-0.33	-0.04	-0.47
		(0.97)	(0.70)	(-0.14)	(-0.92)
Thailand: July 1988 - June 1993					
Portfolios					
	Model	Intercept	Beta	SZ	BM
OLS	January	40.89	-11.78	-0.69	4.58
		(1.05)	(-0.89)	(-0.37)	(-1.36)
OLS	Non-January	3.90	-1.30	-0.34	0.37
		(-0.98)	(-1.09)	(-1.51)	(0.59)
Individual Stocks					
	Model	Intercept	Beta	AdjSZ	BM
MLE	January	2.88	6.39	-0.08	-0.57
		(0.18)	(1.38)	(-0.07)	(-0.35)
MLE	Non-January	7.94	-1.16	-0.54	0.13
		(1.64)	(-1.07)	(-2.05)	(0.16)
OLS	January	11.09	2.58	-0.10	-1.62
		(0.59)	(0.93)	(-0.07)	(-1.67)
OLS	Non-January	6.01	-0.74	-0.65	0.70
		(1.33)	(-1.21)	(-2.06)	(1.06)

Table 11
Relationship between the excess returns and the beta, size, book-to-market ratio and liquidity in the Taiwanese stock market before and after 1987

The whole sample is divided into two sub-samples: months before December 1987 and months after December 1987. Using the Fama-MacBeth procedure, monthly excess returns on portfolios/individual stocks are regressed on the beta, size (SZ, the logarithm of market value), the logarithm of book-to-market ratio (BM) and the logarithm of turnover (TN, turnover is computed as the ratio of the average monthly trade volume during the 12 months before July of year t to the total number of shares outstanding at the end of June in year t) for each month in these sub-samples. For individual stocks, monthly excess returns are regressed on beta, adjusted size (AdjSZ, size adjusted for its correlation with BM and beta), BM, and TN for each month in these sub-samples. The coefficients are the averages of the time series MLE and OLS estimates. The corresponding t-values are in parentheses.

Portfolios						
Model		Intercept	Beta	SZ	BM	TN
OLS	Before	0.18	1.46			
		(0.15)	(1.32)			
OLS	After	3.66	-1.45			
		(1.13)	(-0.48)			
OLS	Before	-2.14		0.46		
		(-1.08)		(2.09)		
OLS	After	9.70		-0.77		
		(1.88)		(-1.94)		
OLS	Before	1.53			-0.02	
		(0.48)			(-0.03)	
OLS	After	5.31			-0.72	
		(1.38)			(-0.79)	
OLS	Before	4.11				-0.90
		(2.47)				(-2.45)
OLS	After	-2.17				1.16
		(-0.93)				(1.67)
OLS	Before	-1.34	1.81	0.43	-0.51	
		(-0.30)	(1.33)	(1.61)	(-0.51)	
OLS	After	13.81	0.37	-0.82	-1.10	
		(2.06)	(0.16)	(-1.88)	(-1.21)	
OLS	Before	12.75	2.44	-0.87	-0.34	-2.02
		(1.83)	(1.63)	(-1.53)	(-0.3957)	(-2.09)
OLS	After	23.61	3.15	-1.66	-0.55	-1.64
		(2.23)	(1.33)	(-2.11)	(-0.54)	(-1.59)

Table 11 (continued)

Panel B: Individual Stocks						
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**	**TN**
MLE	**Before**	2.17	0.18			
		(1.73)	(0.14)			
MLE	**After**	1.21	0.60			
		(0.57)	(0.35)			
OLS	**Before**	1.58	-0.15			
		(1.31)	(-0.32)			
OLS	**After**	2.46	0.07			
		(1.12)	(0.06)			
OLS	**Before**	-5.28		0.71		
		(-1.63)		(2.45)		
OLS	**After**	11.50		-1.01		
		(1.90)		(-2.08)		
OLS	**Before**	2.08			-0.17	
		(0.79)			(-0.25)	
OLS	**After**	4.55			-0.57	
		(1.35)			(-0.74)	
OLS	**Before**	2.71				-0.48
		(2.20)				(-2.37)
OLS	**After**	0.23				0.56
		(0.14)				(1.27)
MLE	**Before**	-6.77	-0.15	0.59	0.76	
		(-2.03)	(-0.12)	(2.65)	(0.90)	
MLE	**After**	13.25	0.71	-1.00	-0.68	
		(2.12)	(0.50)	(-2.10)	(-0.93)	
OLS	**Before**	-4.64	-0.05	0.71	-0.15	
		(-1.34)	(-0.11)	(2.45)	(-0.21)	
OLS	**After**	13.50	-0.01	-1.01	-0.58	
		(2.13)	(-0.01)	(-2.08)	(-0.85)	
MLE	**Before**	-4.86	0.99	0.24	1.19	-0.40
		(-1.37)	(0.61)	(0.79)	(1.33)	(-1.94)
MLE	**After**	14.43	1.71	-1.25	-0.23	-0.38
		(2.08)	(1.05)	(-2.22)	(-0.30)	(-1.09)
OLS	**Before**	-2.11	0.19	0.38	0.17	-0.32
		(-0.59)	(0.36)	(1.18)	(0.23)	(-1.72)
OLS	**After**	14.57	0.10	-1.11	-0.48	-0.24
		(2.41)	(0.13)	(-2.20)	(-0.69)	(-0.80)

Table 12
Turn-of-the-year effect in the Taiwanese stock market before and after December 1988

The whole sample is divided into four sub-samples: (i) January months before 12/1987, (ii) non-January months before 12/1987, (iii) January months after 12/1987 and (iv) non-January months after 12/1987. Using the Fama-MacBeth procedure, monthly excess returns on portfolios are regressed on the beta, size (SZ, the logarithm of market value), the logarithm of book-to-market ratio (BM), and the logarithm of turnover (TN, turnover is computed as the ratio of the average monthly trade volume during the 12 months before July of year t to the total number of shares outstanding at the end of June in year t) for each month in these sub-samples. For individual stocks, monthly excess returns are regressed on beta, adjusted size (AdjSZ, size adjusted for its correlation with BM and beta), BM, and TN for each month in these sub-samples. The coefficients are the averages of the time series MLE and OLS estimates. The corresponding t-values are in parentheses.

Before December 1987						
				Portfolios		
		Intercept	**Beta**	**SZ**	**BM**	**TN**
January		43.30	7.47	-5.94	5.06	-9.84
		(5.14)	(2.19)	(-5.90)	(1.30)	(-2.90)
non-January		10.21	2.02	-0.45	-0.79	-1.37
		(1.37)	(1.27)	(-0.77)	(-0.92)	(-1.40)
				Individual Stocks		
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**	**TN**
MLE	**January**	-9.62	-1.66	-0.85	5.65	-0.58
		(-1.49)	(-0.61)	(-0.91)	(2.93)	(-1.37)
MLE	**non-January**	-4.46	1.21	0.33	0.82	-0.38
		(-1.17)	(0.70)	(1.05)	(0.86)	(-1.74)
OLS	**January**	-6.23	-1.35	-1.25	5.90	-1.22
		(-0.48)	(-0.64)	(-1.10)	(3.80)	(-3.31)
OLS	**non-January**	-1.76	0.32	0.52	-0.32	-0.24
		(-0.47)	(0.59)	(1.55)	(-0.42)	(-1.23)
After December 1987						
				Portfolios		
		Intercept	**Beta**	**SZ**	**BM**	**TN**
January		20.06	1.22	-0.30	-4.94	2.66
		(0.65)	(0.12)	(-0.11)	(-1.47)	(0.88)
non-January		23.97	3.34	-1.80	-0.11	-2.08
		(2.12)	(1.36)	(-2.18)	(-0.11)	(-1.91)
				Individual Stocks		
Model		**Intercept**	**Beta**	**AdjSZ**	**BM**	**TN**
MLE	**January**	15.94	17.76	-1.24	-2.19	0.54
		(0.68)	(2.68)	(-0.61)	(-1.42)	(0.73)
MLE	**non-January**	14.28	0.13	-1.25	-0.04	-0.47
		(1.95)	(0.08)	(-2.12)	(-0.05)	(-1.26)
OLS	**January**	20.86	8.45	-0.69	-2.87	0.56
		(0.90)	(4.28)	(-0.34)	(-1.40)	(0.98)
OLS	**non-January**	13.95	-0.72	-1.15	-0.25	-0.32
		(2.21)	(-0.89)	(-2.21)	(-0.33)	(-0.98)