The Capital Asset Pricing Model (CAPM) of Sharpe (1964), Lintner (1965), and Black (1972) (SLB) states that, in equilibrium, the expected return on a security is a positive linear function of its beta, and beta suffice to describe the cross-section of expected returns. The empirical studies on the validity of the positive beta-return relationship of the SLB model have been extensively carried out for the past four decades using average realized stock returns and an index of security returns to proxy for expected returns of stocks and market portfolio respectively.

Early studies have supported the positive linear relationship between beta and return (e.g., Lintner (1965)). However, studies conducted after Fama and MacBeth (1973) (FM) have found inconsistent evidence on this relationship. For example, Fama and French (1992) conclude that the relationship between beta and average return is flat. In the Tokyo Stock Exchange (TSE), Nimal and Horimoto (2005) report that the beta and average return relationship is not significant in all months and even it is negatively significant in non-January months in some periods. Also in Sri Lankan context Samarakoon (1997) finds negative beta-return relationship and Anuradha (2008) reports insignificant beta-return relation in the Colombo Stock Exchange (CSE).

The question is whether the inconsistent evidence on the relationship between beta and average return is sufficient to conclude that the movements of realized return are not systematically related with their betas

---

1) For ex. Fama (1991) says that “indeed, in spite of the evidence against the SLB model, market professionals (and academics) still think about risk in terms of market beta” (pp.1593).

2) Up markets are the months with higher market return than the risk-free rate and down markets are the months with lower market return than the risk-free rate.
Sundaram and Mathur (1995) argue that the contradictory results to the relationship between beta and average return may have led by the aggregation of returns during up and down market periods. They argue that the beta-return relationship should be positive during up markets and negative during down markets. Consistent with this argument, they find that the relationship between beta and realized return is significant and positive (negative) during up (down) markets. This conditional relationship between beta and realized return has been supported in different markets (Fletcher (1997) in UK stock returns, Hodoshima, Garza-Gómez and Kunimura (2000) in Japanese stock returns, Lam (2001) in Hong Kong stock returns and Anuradha (2008) in the CSE).

However, none of these studies suggest a direct link between beta-return relationship and the value of the realized market excess return (i.e., market premium). In this paper, we argue that if the movements of market premiums are driven by systematic information surprises to the market, the estimated market premiums in the FM cross-sectional regressions should be positively related with the realized market premiums. Accordingly, the main focus of this study is to examine whether the slope in the FM cross-sectional regression (in other words the estimated market premium) is positively related with the realized market premium.

We examine this conditional beta-return relationship in the first section of the TSE from 1962 to 2003 and in the CSE from 1996 to 2006. Consistent with our argument, the test reveals that the estimated market premiums in the FM cross-sectional regressions are positively related with the realized market premiums. Therefore, our tests results suggest that, given the market premium, beta has a systematic relationship with realized return. This justifies the continued use of beta as the measure of market risk.

Furthermore, consistent with Pettengill et al. (1995), Fletcher (1997), Hodoshima et al. (2000), and Anuradha (2008), we find significant positive (negative) relationship between beta and realized returns during up (down) markets.

The paper proceeds as follows. In the next section, we explain the SLB model, its empirical tests and conditional relationship between beta and realized return. Section III, describes data for the study. In Section IV, our empirical tests and results are presented. We present summary and conclusion in Section V.

II SLB MODEL, EMPIRICAL TESTS AND CONDITIONAL RELATION

2.1. SLB MODEL

The equilibrium risk-return relationship of the SLB model is represented as

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f).$$

Where $E(R_i)$ is the expected return for stock $i$, $R_f$ is the risk-free rate (in the Black (1972) version, it is the return of the zero beta portfolio), $\beta_i$ is the covariance between stock $i$’s return and the market portfolio’s return divided by the variance of the market portfolio, and $E(R_m)$ is the expected return of the market portfolio. In equilibrium, investors should only

3) In Hodoshima et al. (2000), Estimation of portfolio betas are done on the equally weighted index return and use equally weighted portfolio returns in their cross-sectional regressions. But, since there is evidence on size effect in the TSE, we use value weighted index for the estimation of portfolio betas and value weighted portfolio returns in the cross-sectional regressions to reduce any bias due to size effect. Moreover, their portfolio formation period is 24 months, portfolio beta estimation period is 24 months and testing period is also 24 months (i.e., 24 months, 24 months and 24 months) but in our study, they are 60 months, 60 months and 12 months respectively.
be compensated for bearing beta risk (systematic risk) because the unsystematic (firm specific) risk can be diversified away by holding the market portfolio. The model asserts that the expected market premium (E(Rm)–Rf) for risky assets is positive. Therefore, the expected return for risky assets is a positive linear function of their betas.

2.2. EMPIRICAL TESTS

Most of the empirical tests on the positive beta-return relationship of the model have been carried out by two-pass regression approach. First, betas of portfolios are estimated as shown bellow,

\[ (R_p - R_f) = \beta \hat{\beta} (R_m - R_f) + e_p, \]  (2)

followed by the cross-sectional tests for a positive beta-return tradeoff,

\[ (R_p - R_f) = \hat{\gamma}_0 + \hat{\gamma}_1 \beta + e_p. \]  (3)

If the mean value of \( \hat{\gamma}_1 \) is greater than zero, a positive relationship is supported. Early studies seem to support this relationship (for example, Lintner (1965), Black, Jenson and Scholes (1972) (BJS) and FM (1973)). In the TSE, Maru and Royama (1974) employed BJS approach and find that the beta-return relationship is significant and positive. However, studies conducted after FM (1973) provide little evidence on the positive linear relationship between beta and average returns (Ex. in the USA, Reinganum (1981), Fama and French (1992) in the Japanese market Sakakibara (1981), Nimal and Horimoto (2005), and Samarankoon (1997) in the Sri Lankan context).

In the next section, we argue that these contradictory results for the relationship between beta and average returns seem to have led by the aggregation of positive and negative relationships during up and down market periods.

2.3. CONDITIONAL BETA-RETURN RELATION

Beta of the SLB model, which is estimated by using realized return, measures the variation in stock returns on the variation in market returns. Therefore, it is important to examine whether the variation in realized stock returns are sufficiently explained by the variation in realized market returns. In other words, if the beta estimation is significant and market portfolio has sufficient explanatory power, the measure of the market risk (i.e., beta) should exhibit a systematic relationship with realized returns. These two conditions are satisfied to a greater extent in both the USA and Japan. If that is so, why does beta-return relationship not observed in estimated premium, even when the realized premium is positive (for example panel A and D of Table 01). One possible explanation is well-known errors-in-variables problem, which underestimates the premium in FM approach. Another possible reason is having higher variance of market premium, which make the t-statistic smaller, ultimately leading to insignificance of the estimated premium. Or simply this may be because there is no relation between estimated premium and realized premium.

However, this latter reason is easily challenged with the findings of Pettengill et al. (1995). They argue that beta-return relationship should be positive during up markets and negative during down markets and the aggregation of up and down market periods have made the relationship is significant in each portfolio with high R² values. R² values are in the range of 0.61 to 0.92 with an average of 0.78 (See Table 4 in Fama and French (1993) for their results). In the TSE, we test the explanatory power of the market index in explaining variations in 20 beta-sorted portfolio returns.
inconsistent empirical results on the positive relationship between beta and average returns. They report that over the period 1936 through 1990, the T-bill rate exceeds the CRSP equally weighted index return in 280 out of 660 months (42.42%). In the TSE, we find that over the period 1962 through 2003, call money rate exceeds the value weighted index return in 239 out of 504 months (47.42%). Further, Anuradha (2008) reports during 1997 through 2008, the T-bill rate exceeds return on All Share Price Index of CSE in 55 out of 108 observations (50.93%).

Though the SLB model does not rule out the possibility of realizing negative market premiums, it does not provide direct relation in such unexpected realizations. However, as Pettengill et al. (1995) argue, the market model, which is used for beta estimation provides relationship between beta and returns on market premiums. When the market premium is positive there should be a positive relationship between beta and realized returns and when it is negative the relationship should be negative. However, they do not provide any relationship between the measure of beta-return relationship (i.e., the estimated market premium, \(\hat{\gamma}_1\) of equation 3) and the value of the realized market premium. In this paper, we extend their argument and explain that if the movements of the market premium are driven by systematic factors, the measure of the beta-return relationship should be conditional on the value of the realized market premium.

The movements of realized return can be viewed as coming from either systematic factors or unique firm specific events. However, when the movements of realized returns are due to systematic factors, it will reflect on the market. Therefore, the movements of the market can be viewed as coming from systematic forces.

In general, beta-return relationship of CAPM version of the market model is represented in equation (2). When the expected market return is affected by a systematic factor, the realized returns of portfolios in that particular period \(t\) would be given by Equation 4.

\[
(R_{pt} - R_f) = \beta_p (E(R_{mt}) + I_t - R_f) + \epsilon_{pt}.
\]

(4)

Where \(I_t\) is a significant information surprise at period \(t\). \((E(R_{mt}) + I_t)\) is the realized return of the market at period \(t\). \(\beta_p\) is the beta of the portfolio \(p\) and \(\epsilon_{pt}\) is the portfolio specific return at period \(t\). Suppose that \(I_t\) is systematic and \(\beta_p\) captures the total systematic variation in portfolio returns, then the effect of the \(I_t\) on realized excess returns of each portfolio \((R_{pt} - R_f)\) would be proportional to their respective betas (i.e., when \((E(R_{mt}) + I_t) - R_f\) is positive higher beta portfolios will have higher returns and when it is negative higher beta portfolios will have lower returns). If these conditions on \(I_t\) and \(\beta_p\) are satisfied, the estimation of the market premium in the cross-sectional regression of realized portfolio excess returns on portfolio betas in that period will be equal to the realized market premium of the period.

However, we have evidence that the beta does not capture the total systematic variation in portfolio returns. Thus, our argument is that if beta captures a considerable portion of the systematic variation in portfolio returns, the estimated market premium should be positively related to the realized market premium. That

---

When we regress monthly 20 beta sorted portfolio returns on the market index returns from January 1962 to December 2003 (i.e., 504 months), all regression slope coefficients are significant at 0.01 levels with high \(R^2\) values. \(R^2\) values range from 0.49 to 0.75 with an average of 0.69.

---

5] In addition to the expectation of positive market premium, investors must perceive a nonzero probability that the realized market return will be less than the risk-free rate. If investors were certain that the market return would always be greater than the risk-free rate, no investor would hold the risk-free security.
is, when realized market premium is higher the estimated market premium should be higher and when it is lower estimated market premium should be lower. Therefore, if beta has a systematic relationship with realized returns, the estimated market premiums would be positively related with the realized market premiums. We test this relationship by

$$\gamma_{1t} = a + b(R_{mt} - R_{ft}) + \epsilon_t.$$ 

(5)

If b is greater than zero, the estimated market premium ($\gamma_t$) is positively related with the realized market premium. We run two tests to ascertain this relationship using Equation 5.

One is regressing realized market premiums ($R_{mt} - R_{ft}$) on estimated market premiums ($\gamma_{1t}$) of 504 pairs of observations in TSE and 60 pairs of observations in CSE separately. With this test we can deduce whether estimated market premium (which has been calculated on ex-ante basis as explain in Section 4.1) and realized premiums are linearly related as in the Equation 5. To further strengthen the findings we create realized market premium-sorted groups of observations, and test whether groups of observations with higher realized market premiums are associated with higher estimated market premiums (explain in Section 4.2.2).

III DATA DESCRIPTION

The study focuses on two markets. One is a developed market, Tokyo Stock Exchange (TSE) and the other is an emerging market, Colombo Stock Exchange (CSE). The sample period of TSE for this study extends from January 1952 through December 2003. We use data for all listed companies on the 1st section of the TSE during this period. In the case of CSE the sample period is July 1996 through June 2006 and most frequently traded 100 stocks are used. The reason for filtering stocks is high frequency of missing values observed in some stocks. Percentage of missing value ranged from 93\% to 0\% of 120 observations (the research use monthly return). More than 50\% of stocks have missing values greater than 20\%. Thus it is misleading to use all stocks in the study as they have higher chance of being affected by survivorship bias and non-synchronizing errors.

Our data are from several sources. Monthly stock prices are from the TSE and CSE. Data for stock dividends, stock splits, and rights issues are taken from the monthly statistics report of the TSE. Monthly return data for common stocks are adjusted for dividends, stock splits and rights issues. We obtain monthly dividend adjusted return data for the market portfolio index of the 1st section of the TSE from the annual report of rates of return on common stocks of the TSE. The number of stocks for the calculation of market values of firms is extracted from the monthly statistics report of the TSE. The data corresponding to CSE are retrieved from Data Library CD published by the CSE and use the methodology as for TSE, to calculate return. The risk-free rate is the call money rate for Japanese context. And for which T-bill rate is used in Sri Lankan context.

We carry out tests for total sample period and sub sample periods on TSE. However, we do not divide the sample from the CSE into sub periods, since the sample period is not large enough to create sub periods.

Total testing period (January-1962 to December-1996) As noted in Chan et al. (1991), stocks listed on the TSE account for more than 85\% of the total market capitalization of Japanese equities in December 1988.

6) As noted in Chan et al. (1991), stocks listed on the TSE account for more than 85\% of the total market capitalization of Japanese equities in December 1988.
cember-2003) in TSE context is divided into three sub periods namely, period 1 is from January-1962 to December-1974, period 2 is from January-1975 to December-1989 and period 3 is from January-1990 to December-2003. As Nimal and Horimoto (2005) point out that the characteristics of the market are quite different in 1975-1989 and 1990-2002 periods\(^7\), we have divided the total period into three periods, 1, 2 and 3.

### IV Empirical Tests and Results

First, we explain our data preparation procedure in Section 4.1. In Section 4.2, we test the conditional relationship between beta and portfolio realized return to examine whether the beta-return relationship is conditional on the realized market premium.

#### 4.1. Data Preparation Procedure

We employ FM three-step approach to form portfolios, estimation of portfolio betas and calculation of portfolio returns. Following data preparation steps are performed in the case of TSE. Step I: stock betas are estimated by regressing first five years (i.e., from January of year \(t-10\) to December of year \(t-6\)) monthly stock’s return on monthly market index’s return, and then stocks are sorted into 20 portfolios on the rankings of these betas at the end of December of year \(t-6\) (\(t=1962-2003\)). Step II: betas of these 20 portfolios are estimated by the average sum of the value weighted stock betas, estimated by using second five years monthly return data, (i.e., from January of year \(t-5\) to December of year \(t-1\)) in the portfolio. These portfolio betas are constant throughout the next one year holding period i.e., from January to December of year \(t\). Step III: we then calculate value weighted\(^8\) average excess returns for each portfolio for each month from January to December of year \(t\) to evaluate the performance of these portfolios. We readjust these portfolios at the end of December of each year and continue the same procedure until the end of 2003.

Since we use data from January-1952 to December-2003, the first portfolio formation period is from January-1952 to December-1956. Portfolio beta estimation period is from January-1957 to December-1961. Then the value-weighted portfolio returns for these portfolios are calculated for each month of the one year holding period i.e., from January to December of 1962. We then start from January of 1953 and follow the same procedure to calculate the value weighted portfolio returns for January to December of 1963 and so on. Thus, we have portfolio beta estimations and value weighted portfolio returns for each month from January 1962 to December 2003, i.e., we have 504 observations of monthly estimated portfolio betas and portfolio returns.

In CSE context the same data preparation procedure is applied as for the TSE with following modifications. Duration of portfolio formation and beta estimation are set at two and three years respectively in contrast to five years in TSE context.

The intention behind this shortened portfolio formation and estimation period is to leave sufficient number of estimated market premiums to test its significance. Since the sample selected on CSE consists only ten years (1996 July to 2006 June), if both portfolio formation

\(^7\) The average monthly return of the market portfolio, from January-1975 to December 1989, is 1.51 (Std. 3.87) percent but from January-1990 to December-2002, it is -0.52 (Std. 6.10) percent.

\(^8\) Weights are the sizes (market capitalizations) of firms at the end of December of year (\(t-1\)), to make sure that the procedure can be used to make investment decisions for the next year.
and estimation periods are set at five years, nothing is left for estimating market premiums. Therefore, in CSE context first portfolio formation period is July 1996 to June 1998. The first beta estimation period is July 1998 to June 2001, and premium estimation period is July 2001 to June 2002. The process reiterates starting from July 1997 through July 2000, which generates 60 estimated monthly market premiums for the period of July 2001 to June 2006.

\[(R_p - R_f) = \hat{\gamma}_{0t} + \hat{\gamma}_{1t}\beta_{pt} + \epsilon_{pt}, \ p = 1, 2, \ldots, 20.\]

The significance of the estimated market premiums is tested for all months, up markets and down markets separately, and their results are reported in Panel A, B and C respectively. Mean is the mean of the slopes, Std is its standard deviation, and \(t(Mn)\) is mean divided by its standard error.

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (1962−2003)</td>
<td>-0.592</td>
<td>7.357</td>
<td>-1.806</td>
<td>0.072</td>
</tr>
<tr>
<td>Period 1 (1962−1974)</td>
<td>-0.694</td>
<td>5.604</td>
<td>-1.546</td>
<td>0.124</td>
</tr>
<tr>
<td>Period 2 (1975−1989)</td>
<td>0.062</td>
<td>6.355</td>
<td>0.131</td>
<td>0.896</td>
</tr>
<tr>
<td>Period 3 (1990−2003)</td>
<td>-1.197</td>
<td>9.474</td>
<td>-1.638</td>
<td>0.103</td>
</tr>
</tbody>
</table>

**Panel B: Up Markets − TSE**

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (1962−2003)</td>
<td>1.493</td>
<td>7.166</td>
<td>3.391</td>
<td>0.001</td>
</tr>
<tr>
<td>Period 1 (1962−1974)</td>
<td>1.325</td>
<td>5.082</td>
<td>2.390</td>
<td>0.019</td>
</tr>
<tr>
<td>Period 2 (1975−1989)</td>
<td>1.479</td>
<td>6.783</td>
<td>2.245</td>
<td>0.027</td>
</tr>
<tr>
<td>Period 3 (1990−2003)</td>
<td>1.699</td>
<td>9.429</td>
<td>1.561</td>
<td>0.123</td>
</tr>
</tbody>
</table>

**Panel C: Down Markets − TSE**

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (1962−2003)</td>
<td>-2.903</td>
<td>6.872</td>
<td>-6.350</td>
<td>0.000</td>
</tr>
<tr>
<td>Period 1 (1962−1974)</td>
<td>-3.049</td>
<td>5.283</td>
<td>-4.897</td>
<td>0.000</td>
</tr>
<tr>
<td>Period 2 (1975−1989)</td>
<td>-1.969</td>
<td>5.074</td>
<td>-3.318</td>
<td>0.001</td>
</tr>
<tr>
<td>Period 3 (1990−2003)</td>
<td>-3.533</td>
<td>8.893</td>
<td>-3.832</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (2001/02−2005/06)</td>
<td>0.0062</td>
<td>0.0733</td>
<td>0.6533</td>
<td>0.5161</td>
</tr>
</tbody>
</table>

**Panel E: Up Markets − CSE**

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (2001/02−2005/06)</td>
<td>0.0162</td>
<td>0.0861</td>
<td>1.8231</td>
<td>0.0768</td>
</tr>
</tbody>
</table>

**Panel F: Down Markets − CSE**

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>Std.</th>
<th>(t(Mn))</th>
<th>(P)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total period (2001/02−2005/06)</td>
<td>-0.0238</td>
<td>0.0309</td>
<td>-3.7330</td>
<td>0.0011</td>
</tr>
</tbody>
</table>
4.2. TEST RESULTS

In this section, we discuss evidence on both unconditional and conditional relations between beta and realized returns. First we focus on FM type cross-sectional regression tests. We then make a comparison of average estimated market premiums during up and down markets.

4.2.1. FM CROSS-SECTIONAL REGRESSION

In this test, we use 20 beta-sorted portfolio betas and value weighted portfolio excess returns that are obtained through the procedure explained in Section 4.1. We carry-out cross-sectional regression (equation 3) and test for each month from January 1962 through December 2003 in the TSE and July 2001 to June 2006 in the CSE resulting 504 and 60 market premium estimations for the TSE and CSE respectively.

The economical importance of the mean of estimated market premiums ($\gamma_{it}$) is tested as done by FM (1973). As reported in Table 01, Mean is the time-series average of $\gamma_{it}$, Std is the time-series standard deviation of $\gamma_{it}$ and $t(Mn)$ is the $t$-statistics of the mean (i.e., mean divided by the standard error of the mean). As reported in Panel A and D of Table 01, the evidence shows that the averages of the slope coefficients are not significant in any period, though some of them are positive. This suggests that beta and average returns are not related both in TSE and CSE. This is a typical finding of the FM type empirical tests of the SLB model.

We then examine the conditional relationship suggested by Pettengill et al. (1995) to evaluate whether the results of Panel A and D of Table 01 are affected by the up and down market effects. For this purpose, all observations are divided into two groups on monthly realized market premiums. First group is the months with positive market premiums (up markets), panel B and E, and second group is the months with negative market premiums (down markets), panel C and F. We then evaluate the significance of means of the estimated market premiums of these two groups separately. As reported in Panels B, C, E, and F of Table 01, a positive relationship between beta and realized return is observed during up markets and a negative relationship is observed during down markets in all periods. All these estimated market premiums of up and down markets, except up markets in the period 3 (1990-2003) of TSE, are statistically significant at 10%.

4.2.2. THE RELATION OF ESTIMATED MARKET PREMIUM AND REALIZED MARKET PREMIUM

Then, as argued in Section 2.3, two tests are carried out to examine whether the estimated market premiums are positively related with the realized market premiums. In the first test, monthly estimated market premiums are regressed on monthly realized market premiums. As reported in Panels A and C of Table 02, the slope coefficients are positive and significant in all periods.

Second test is for 20 groups of months sorted on the realized market premiums. We sort 504 monthly estimated market premiums into 20 groups on the ascending order of realized market premiums (we exclude lowest 2 and largest 2 observations and divide only 500 observations into 20 groups) for TSE. We then take averages of estimated market premiums and realized market premiums for these 20 groups, and regress the averages of group's estimated market premiums on the averages of group's re-
We use estimated market premiums of the previous test and the realized market premiums for all months (504 in TSE and 60 in CSE). We run two regression tests. First, monthly estimated market premiums are regressed on the monthly realized market premiums. Second is for the averages of groups of months. We sort estimated market premiums on the realized market premiums and divide total sample into 20 groups and 15 groups in TSE and CSE respectively (each group has 25 months and we exclude lowest 2 and largest 2 realized market excess return observations in TSE and each group has 4 months in CSE context). We then calculate average realized and estimated market premiums for these groups, and then the group averages of estimated market premiums are regressed on the group averages of realized market premiums. Results for monthly observations and groups are reported in Panel A and B for TSE and Panel C and D for CSE respectively.

### Table 02: Estimated and realized market premiums

<table>
<thead>
<tr>
<th>Period</th>
<th>a</th>
<th>b</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Monthly Observations – TSE</strong></td>
<td>γₜᵣ = a + b(Rₑᵣ - Rₑ) + eᵣₜ, t = 1,2,..., T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total period (T=504)</td>
<td>-0.782</td>
<td>0.539</td>
<td>0.138</td>
</tr>
<tr>
<td>1962−2003</td>
<td>(−2.562)</td>
<td>(8.955)</td>
<td></td>
</tr>
<tr>
<td>Period 1 (T=156)</td>
<td>-0.971</td>
<td>0.520</td>
<td>0.221</td>
</tr>
<tr>
<td>1962−1974</td>
<td>(−2.431)</td>
<td>(6.615)</td>
<td></td>
</tr>
<tr>
<td>Period 2 (T=180)</td>
<td>-0.650</td>
<td>0.715</td>
<td>0.191</td>
</tr>
<tr>
<td>1975−1989</td>
<td>(−1.473)</td>
<td>(6.473)</td>
<td></td>
</tr>
<tr>
<td>Period 3 (T=168)</td>
<td>-0.965</td>
<td>0.464</td>
<td>0.087</td>
</tr>
<tr>
<td>1990−2003</td>
<td>(−1.373)</td>
<td>(3.972)</td>
<td></td>
</tr>
</tbody>
</table>

| **Panel B: 20 Groups Averages – TSE** | γ₁₉ = a + b(Rₑᵣ - Rₑ) + eᵣ₉, g = 1,2,..., 20 |           |   |
| Total period           | -0.810    | 0.600     | 0.849 |
| 1962−2003              | (−2.832)  | (10.071)  |       |

| **Panel C: Monthly Observations – CSE** | γₜᵣ = a + b(Rₑᵣ - Rₑ) + eᵣₜ, t = 1,2,..., T |           |   |
| Total period (2001/02−2005/06) | -0.003    | 0.4312    | 0.1296 |
| 2001/02−2005/06          | (−0.3882) | (4.1581)  |       |

| **Panel D: 15 Groups Averages – CSE** | γ₁₅ = a + b(Rₑᵣ - Rₑ) + eᵣ₅, g = 1,2,..., 15 |           |   |
| Total period (2001/02−2005/06) | -0.0029   | 0.40845   | 0.6431 |
| 2001/02−2005/06          | (−0.4105) | (4.8398)  |       |
alized market premiums. For the CSE where we have only 60 estimated market premiums, 15 groups are formed using the same sorting procedure as for TSE with 4 observations per group. As seen in Panels B and D of Table 02, results are in consistent with our argument that the estimated market premiums are positively related with the realized market premiums.

These results suggest that the movements of the realized portfolio returns are conditional on the value of the realized market premium. That is higher (positive) the realized market premium higher the realized returns for high beta portfolios and lower (negative) the realized market premium lower the realized return for high beta portfolios. Thus, it is evident that given the market premium, beta is systematically related with portfolio realized returns. Hence, the finding of Pettengill et al. (1995) that the beta-return relationship is positive during up markets and negative during down markets can be extended because our results suggest that the measure of the beta-return relationship, i.e., the estimated market premium is positively related with the realized market premium.

Therefore, as observed in Panels, A and D, of Table 1, it seems that the negative or insignificant beta-return relationships may have been driven by positive and negative impacts of up and down markets.

V SUMMARY AND CONCLUSION

Most of the previous empirical studies on positive beta-return relationship of the SLB model have created doubts on beta as a useful measure of market risk. We observe that the aggregation of positive and negative relationships during up and down markets seem to have contributed for these doubts.

We argue that if the market movements are driven by systematic forces, the beta-return relationship in realized returns should be conditional on the realized market premium and the estimated market premiums of the FM cross-sectional regressions would therefore be positively related with the realized market premiums.

Consistent with this argument, we find that the estimated market premiums are positively related with realized market premiums suggesting that beta-return relationship is conditional on the realized market premium. Furthermore, consistent with Pettengill et al. (1995) in the USA, Hodoshima et al. (2000) in the TSE, and Anuradha (2008) in the CSE, our tests reveal that beta-return relationship is significant and positive during up markets and significant and negative during down markets in both TSE and CSE. Also both tests on relation of realized market premium and estimated market premiums support our argument that beta calculated on ex-ante basis can be used as a measure of systematic risk of a stock. Therefore, in conclusion our results suggest that, given the market premium, there is a systematic relationship between beta and portfolio realized return justifying the continued use of beta as a measure of market risk.

REFERENCES


We argue that the cross-sectional relationship between beta and realized returns should be conditional on the realized market premium. Our test results in both the Tokyo Stock Exchange (TSE) and the Colombo Stock Exchange (CSE) reveal that the slopes in the FM cross-sectional regressions are positively related with the realized market premiums. Furthermore, consistent with previous findings, we find significant positive (negative) relationship between portfolio beta and portfolio returns during up (down) markets in both TSE and CSE. Therefore, our findings are supportive to the fact that beta has a systematic conditional relationship with portfolio returns and beta can explain variations in realized market premiums in both TSE and CSE.

Keywords: TSE, CSE, Beta, Conditional relation, Market Premium