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Strategic Asset Allocation and Portfolio Rebalancing with Anomalies: Evidence from Emerging Markets

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Abstract: This study explored the turn-of-the-year and portfolio-rebalancing effect in emerging markets by forming twenty equally weighted portfolios ranked by market equity and firm's risk. The medium-size firm quintile was the least risky and was strongly positively significant in risk-return relationship. Moreover, even in those Januaries for which the market return was negative, small firm returns were positive and they were more positive the lower the beta. However, there is no supportive evidence that portfolio-rebalancing effect occurs during the period.

Key words: Turn-of-the-year-effect, January effect, risk measurement, portfolio rebalancing

INTRODUCTION

The portfolio management has been considered as one of the most studied topics in finance area (Ahortor and Olopoenia, 2010; Angabini and Wasiuzzaman, 2011; Ferruz *et al*., 2007; Jasemi *et al*., 2011; Krishnasamy *et al*., 2006; Lye, 2011, 2012; Matallin-Saez, 2009; Ozun and Cifter, 2007; Rahman *et al*., 2006; Rhaiem *et al*., 2007). Especially, over the past years, researchers have turned their attention on studying the turn-of-the-year-effect or January effect which implies the average rate of return to stock in the month of January is higher than in any other month of the year. Whether, January effect exists or not would have significant implication to the portfolio management. Gultekin and Gultekin (1983) studied January return patterns in 17 countries including the United States. They documented that there were high returns in January than in non-January months for all the countries they studied. However, for the period they studied, the effect was bigger in the 16 non-United States markets. Kato and Shallheim (1985) examined excess return in January and the relationship between size and the January effect for the Tokyo stock exchange. They found no relationship between size and return in non-January months. However, they discovered excess returns in January and the strong relationship between returns and sizes, with the smallest firms returning 8% and the largest less than by 3%.

An explanation that has been arguing for the high returns in January is a tax-selling hypothesis by Chan (1986) and De Bondt and Thaler (1987). A popular suggestion of investment advisers, at the end, is to sell securities for which investors has incurred substantial losses before the end of the year and purchase a high beta security. This creates tax loss for investor. If the tax loss is substantial, it should more than cover transaction costs. Since the selling is in late December and the purchasing in early January, the argument is that prices are dispersed at the end of December and rebound in January, creating high returns in January. Reinganum (1983) and Branch (1977) found that the purchase of a security that has declined substantially by December has excess return in January. For example, Branch (1977) analyzed a trading rule that involved the purchase of a security that reached its annual low in the last week of trading in December. He found that these securities rose faster in the first four weeks of the New Year than the market as a whole, with very little difference in risk. He obtained average returns 8% above the market for a four-week-holding period. Reinganum (1983) found similar results.

For this to be partial explanation of the January seasonal, it needs to be true that small stocks are unusually high percentage of the stocks that are candidates for tax swapping. This is exactly what Reinganum (1983) discovered. However, Reinganum argued that it was not the full explanation since he still found a January effect for firms that show gains in the prior year. Securities that were being sold for tax-loss purposes were more likely to be at the bid in December. Thus, the tax-selling hypothesis explanations are likely to be partially measuring the same effect. Several studies

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have provided evidence that is difficult to reconcile with the tax-selling hypothesis. Jones *et al*. (1987) studied a period from 1821 to 1971 before the introduction of the income tax. They found a January effect that the affect is not significantly different from the January effect found after the introduction of the income tax. Similarly, Japan and Belgium, which were found to have a January effect, do not have a capital gain tax. Furthermore, Australia has a non-December tax year so that if the extra returns were tax related, the effect should be present in a different month.

Ritter and Chopra (1989) found patterns in small risky firm returns were high when comparing to the big firms and the risk-return relation has a January seasonal. Corhay *et al*. (1987) accepted this conclusion. Moreover, the January effect is postulated as portfolio rebalancing by investors at the end of the year. The portfolio rebalancing effect was hypothesized by Haugen and Lakonishok (1987) and Ritter (1988). This hypothesis states that the high returns on risky securities in January are caused by systematic shifts in the portfolio holdings of investors at the turn of the year. Producing observed high January returns on small and risky stocks.

Against this background, the objectives of this study were three folds as follows: In the first place, we investigated the existence of monthly pattern or seasonal effect in emerging markets, using a more extensive and latest data sets than any previous studies. Secondly, we examine the persistent of monthly effect in emerging market data by forming 20 portfolios according to size and risk dimension. Thirdly, was to investigate portfolio rebalancing effect. Moreover, this paper gives a substantial contribution to the seasonal anomalies literature in emerging market and gives expected benefits are: To provide the information and help investors (especially, emerging market investors) set up their investment and hedging strategies during hard times. To be able to provide the usefulness for investors who can use the evidence and invest on the stock market.

MATERIALS AND METHODS

The data used for this study are monthly rate of returns including dividends and capital gains adjusted for stock transactions through splits and stock dividend for all common stocks traded in 20 countries in emerging markets. The securities are classified by Morgan Stanley Capital International (MSCI) retrieved from Thompson Reuters Datastream system including alphabetically: Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Israel, Malaysia, Mexico, Pakistan, Peru, Philippines, Russia, South Africa, Sri Lanka, Taiwan, Thailand, Turkey and Venezuela covering the period of January 1999 through September 2007.

The risk-free rate is the Thai long-term government bond and the market index is emerging market price index retrieved from the datastream. Additionally, we collected the corresponded market value. Total asset in the twenty emerging countries are 8966 securities. There are several problems in dealing with returns when delisted company exists. Reasons for delisting are bankruptcy, merger and acquisition and liquidation which is very complicated in calculating returns when there are large numbers of assets (Vaihekoski, 2000). To avoid this error, we first simply screen to ensure that returns that are dead in three consecutive trading days are removed.

After the screening procedure is correctly adjusted, we then divide the assets into two sub-periods. The first period is from year 1999 to 2003 and the second period from 2004 to 2007. The two periods will applied in the regression model to test risk-return relation in regards of stock's market value and risk dimension. The reason behind why the period of 1999-2007 is selected is 1). The selected period is in the Global Financial Crisis period, which was derived from the liquidity shortfall of U.S. banking system and influenced all countries around the world; 2). The selected period is in the period of impact from Asian financial crisis in 1997; 3). The period of study is in the range of the beginning of the sub-prime crisis. These events may have a significant impact on the emerging markets, which are sensitive to the major events. Moreover, the reason of dividing the periods to be 2 sub-periods because we need to study more specifically on the January effect in the smaller section, not just only the overall period in order to find if there is any major impact or significant pattern that may affect the result of study.

The returns are calculated in percentage term as follows:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where:

R_t = Monthly return on a stock in period t
P_t = Current stock price in period t
P_{t-1} = Stock price at the end of the preceding month

The market returns are computed as follows:

$$R_{mt} = \frac{M_t - M_{t-1}}{M_{t-1}}$$

Where:

R_{mt} = Monthly return on the market index in period t
M_t = Current market price in period t
M_{t-1} = Market price at the end of the preceding month

Thai government long-term bond returns are computed as follows:

$$R_{ft} = \frac{RF_t - RF_{t-1}}{RF_{t-1}}$$

Where:

R_{ft} = Monthly risk free return in period t
RF_t = Current riskless rate in period t
RF_{t-1} = Riskless rate at the end of the preceding month

The portfolios will be used in this paper are formed by Market size quintiles and beta quartiles. In total, there will be twenty types of portfolio involved in the investigation. For example, a portfolio with the smallest size quintile with least-risky firm quartile and another portfolio could be the largest market size quintile with very risky firm. To examine the risk-return relation, the approach of Ritter and Chopra (1989) regression is applied. For each size quintile, we regress monthly equally weighted portfolio returns on a January intercept dummy variable D_t^{jan}, beta β_{pt} and a cross-product term $\beta_{pt}D_t^{jan}$ which produces a January slope dummy variable:

$$r_{pt} = \gamma_0 + \gamma_1 D_t^{jan} + \gamma_2 \beta_{pt} + \gamma_2 \beta_{pt} D_t^{jan} + \epsilon_{pt}$$

The January dummy variable, D_t^{jan}, takes on the value of one in January and zero in other months. The equally weighted portfolio betas, β_{pt}, have been estimated by using Fama and Macbeth (1973) two-step procedure. This model can evidently visualize the existence of January risk-return relation.

The turn of the year effect is caused by factors that have been argued from the previous literatures. The first hypothesis is tax-loss selling effects but may not have been fully interested in our simple measure. For example, Chan (1986) and De Bondt and Thaler (1987) have found that the effect appear to exist in January at least five year after a loss is incurred. A second hypothesis that has been arguably discussed by many authors is the high return on small firms in January that is the risk miss-measurement hypothesis Hillion and Sirri cited in Ritter and Chopra (1989) and Rogalski and Tinic (1986) found that there is January seasonal in the sensitivity of small firms to market risk, with the betas of small firms being higher in January than in non-January. A third hypothesis is the portfolio-rebalancing hypothesis of Haugen and Lakonishok (1987) and Ritter (1988). They argued that portfolio managers tend to "Window dressing" their stocks out during the fiscal year end. That is, they rebalance their portfolios prior to year end to remove securities which might be financially bad if they appeared on year-end balance sheet.

Portfolio-rebalancing hypothesis is tested. For each quartile of realized January market returns, there is a positive relation between beta and excess returns. The hypothesis predicts positive slope coefficients. Our regression model used by Ritter and Chopra (1989) is:

$$e_{pt} = \alpha_0 + \alpha_1 \beta_{pt} + \epsilon_{pt}$$

where, e_{pt} is the portfolio excess return and β_{pt} is portfolio betas. While the average portfolio beta is computed as the equally weighted average of the values for the 99 non-January months in 1999-2007, as follow:

$$\bar{\beta}_p = \frac{1}{99}\sum_{t=1}^{108}\left[\frac{1}{n_t}\sum_{i=1}^{n_t}\hat{\beta}_{it}\right]$$

where, n_t is the number of firms in portfolio p in month t and $\hat{\beta}_{it}$ is the estimated individual firm beta, calculated using a two-step procedure for the previous four calendar years, with January returns excluded. Betas are computed using non-January (Feb-Dec) monthly returns and the emerging market index with a one-year portfolio formation period and a three-year portfolio estimation period and the mean number of firm in each portfolios are formed based upon independent rankings of firms by beta and market equity value. These pooled time-series cross-section regressions each use nine observations of four beta quartile portfolio returns.

The average January return for portfolio p is calculated as:

$$\bar{r}_p = \frac{1}{9}\sum_{t=1999}^{2007}\left[\frac{1}{n_t}\sum_{i=1}^{n_t} r_{it}\right]$$

where, r_{it} is the return on security I in month t and n_t is the number of securities in portfolio p in month t.

Excess returns are calculated as:

$$e_{pt} = (r_{pt} - r_{ft}) - \hat{\beta}_{pt}(r_{mt} - r_{ft})$$

RESULTS AND DISCUSSIONS

Table 1 shows the average beta and the average number of firms in each of the twenty types of portfolio ranked by the basis of market value and beta. Because Fama and French (1992, 1993) and Banz (1981) found that firm's beta and size are negatively correlated, the twenty portfolios do not have the same amount of firms. As can be seen in Table 1, small and large firms are likely to have higher beta than the medium-size firms. In the small firm size has average beta of 0.604, 0.584, 0.770 and 0.935 in the first, second, third and forth beta quartile, respectively.

Table 1: Mean portfolio betas[a] and the mean number of firms in each portfolio[b], 1995-2007

Market value quintile	Beta quartile 1 (low)	2	3	4 (high)	Average beta[c]
MV1 (small)	0.604	0.584	0.770	0.935	0.723
	(142)*	(114)	(119)	(178)	
MV2	0.529	0.572	0.720	0.913	0.684
	(138)	(152)	(124)	(137)	
MV3	0.535	0.529	0.707	0.991	0.690
	(130)	(140)	(137)	(145)	
MV4	0.542	0.555	0.712	1.023	0.708
	(133)	(139)	(163)	(118)	
MV5 (large)	0.603	0.719	0.811	1.019	0.788
	(148)	(145)	(147)	(113)	
Average Beta[c]	0.563	0.592	0.744	0.976	

[c]The row and column averages are the equally weighted averages of the nine yearly row and column averages, where each year's row and column averages are equally weighted across firms. *Average number of firms in a portfolio are in parenthesis

Table 2: Average January returns (1999-2007) for emerging market firms ranked by market value quintile and beta quartile

Market value quintile	Beta quartile 1 (low)	2	3	4 (high)	All[a]
MV1 (small)	0.0865[b]	0.0493	0.1001	0.1300	0.0915
	(0.1469)[c]	(0.1492)	(0.2083)	(0.2101)	(0.1786)
MV2	0.2496	0.7498	0.1081	0.2028	0.3276
	(1.6262)	(8.3846)	(0.2087)	(0.3219)	(2.6353)
MV3	0.0945	0.0599	0.1068	0.0901	0.0878
	(0.1868)	(0.1064)	(0.3691)	(0.2190)	(0.2203)
MV4	0.7188	0.0733	0.0586	0.0615	0.2280
	(4.9684)	(0.1429)	(0.1277)	(0.1077)	(1.3367)
MV5 (large)	0.1074	0.0960	0.1164	0.1111	0.1077
	(0.1663)	(0.1220)	(0.1461)	(0.1396)	(0.1435)
All[b]	0.2513	0.2056	0.0980	0.1191	
	(1.4189)	(1.7810)	(0.2120)	(0.1996)	

[a]The returns in the "all" rows and columns are the equally weighted average returns over the nine Januaries, where each January's return is the equally weighted average return of the firms in the appropriated row or column. [b]A return of 0.0865 is 8.65 percent per month, [c]Standard deviation of the means for the nine portfolio returns are in parentheses

The average beta starts to decrease to medium-size portfolio at 0.535, 0.529, 0.707 and 0.991 in the first, second, third and forth beta quartile, respectively. Then the average beta increase to large firm size at 0.603, 0.719, 0.811 and 1.019 in the first, second, third and forth beta quartile, respectively. This is a surprisingly pattern, however, it is inconsistent with Ritter and Chopra (1989) findings where they found that small firms are more likely to have high beta than medium-size and large firms.

To analyze the relationship between beta and realized security returns, with keeping the size constant, we show the mean equally weighted returns on portfolios formed on the basis of market value quintiles and beta quartiles for the 1999-2007 period. Since the relationship had been previously studied by Keim (1983) and Rogalski and Tinic (1986), that for small-size firms in January returns behave substantially different from their non-January

Table 3: Average monthly returns for February-December (1999-2007) for emerging markets firms partitioned by market value quintile and beta quartile[a]

Market value quintile	Beta quartile 1 (low)	2	3	4 (high)	All
MV1 (small)	0.0447	0.0052	0.0053	0.0128	0.0170
	(0.4357)	(0.0124)	(0.0128)	(0.0211)	(0.1205)
MV2	0.0103	0.0097	0.0073	0.0346	0.0155
	(0.0164)	(0.0383)	(0.0103)	(0.1662)	(0.0578)
MV3	0.0123	0.0115	0.0142	0.0175	0.0139
	(0.0207)	(0.0126)	(0.0132)	(0.0096)	(0.0140)
MV4	0.2791	0.0115	0.0209	0.0195	0.0828
	(2.5379)	(0.0103)	(0.0540)	(0.0123)	(0.6536)
MV5 (large)	0.0899	0.0846	0.0162	0.0218	0.0531
	(0.5316)	(0.8405)	(0.0100)	(0.0234)	(0.3514)
All	0.0873	0.0245	0.0128	0.0212	
	(0.7084)	(0.1828)	(0.0201)	(0.0465)	

[a]The returns in the "all" rows and columns are the equally weighted average returns over the nine month, where each month return is the equally weighted average return of the firms in the appropriated row or column. [b]A return of 0.0447 is 4.47% month^{-1}, [c]Standard deviation of the means for the nine portfolio returns are in parentheses

(February-December) return months. Moreover, Ritter and Chopra (1989) found that January returns of the small firms are abnormally higher than non-January months.

Table 2 and 3 report the portfolio monthly average returns for January and February-December, respectively, by forming the twenty groups of portfolios by their ranked size and beta. Both Table 2 and 3, report that there is no systematic relation between realized returns and either beta and firm size during February to December months. However, the significant difference is for all twenty portfolios in Table 3, the average returns are approximately one to two percent per month, except for the forth and the fifth size quartile exceeding to approximately eight and five percent, respectively. These findings are quietly inconsistent with other authors that studied in the developed markets, for instance, Blume and Stambaugh (1983) and Tinic and West (1984) found that non-January returns have approximately one percent.

To examine the risk-return more carefully we follow Ritter and Chopra (1989) approach. For each size quintile, we regress monthly equally weighted portfolio returns as the dependent variables on a January intercept dummy variable, beta and a cross-product term which produces a January slope dummy variables:

$$r_{pt} = \gamma_0 + \gamma_1 D_t^{jan} + \gamma_2 \beta_{pt} + \gamma_2 \beta_{pt} D_t^{jan} + \epsilon_{pt}$$

The January dummy variable, D_t^{jan}, takes on the value of one in January and zero in other months. The equally weighted portfolio betas, β_{pt}, have been estimated by using Fama and Macbeth (1973) two-step procedure.

Table 4: Ordinary least regression results for size quintiles, with portfolio returns and betas computed using equal weights (1999-2007)

Size portfolio	Intercept	January dummy	Beta	Product of beta and January dummy
January 1999-December 2007				
MV1 (small)	0.00469	0.06170	0.00438	0.12023
	(0.67232)	(2.53551)*	(0.17258)	(1.25312)
MV2	0.01093	0.03002	0.07497	0.38887
	(1.64250)	(1.30102)	(1.68568)	(1.60359)
MV3	0.01373	0.02259	0.08967	1.11323
	(2.31884)*	(1.08829)	(2.00921)*	(2.10185)*
MV4	0.01518	0.00790	0.05915	0.33587
	(2.46901)*	(0.36393)	(1.83844)	(1.76346)
MV5 (large	0.02255	-0.00161	0.00761	-0.02354
	(3.28159)*	(-0.06657)	(0.31244)	(-0.15490)
January 1999-June 2003 sub-period				
MV1 (small)	0.01178	-0.05159	0.04534	0.57885
	(1.10101)	(-0.72386)	(1.21375)	(1.57256)
MV2	0.02054	0.04565	0.09308	0.49531
	(2.06084)*	(1.21265)	(1.38298)	(1.38734)
MV3	0.01764	0.03265	0.08010	1.04749
	(2.33586)*	(1.11966)	(1.16610)	(1.41136)
MV4	0.01492	-0.00782	0.03733	0.24948
	(2.13542)*	(-0.33275)	(1.15439)	(1.55373)
MV5 (large	0.01997	-0.02429	-0.01049	0.07812
	(2.36947)*	(-0.82858)	(-0.45615)	(0.54792)
July 2003-December 2007 sub-period				
MV1 (small)	0.01306	0.03994	0.05683	0.18416
	(1.20521)	(1.00378)	(0.95033)	(1.10138)
MV2	0.01264	0.08279	0.02561	-0.36421
	(1.29246)	(1.46633)	(0.39578)	(-0.50228)
MV3	0.01259	0.03480	0.02162	0.38135
	(1.71780)	(1.20720)	(0.44754)	(0.50720)
MV4	0.01176	0.05195	0.02323	-0.84976
	(1.70920)	(2.00395)*	(0.54998)	(-1.59827)
MV5 (large)	0.01307	0.03599	0.04008	-1.05265
	(1.68235)	(1.20224)	(0.83598)	(-2.24691)*

t-statistic is reported in parenthesis and *Statistically significant at 5%

The coefficient estimates are reported in Table 4. As can be seen, only for the medium-size quintile is the January risk-return relation strongly positive at 1.11323 with 2.10 t-statistics. Indeed for the largest size quintile, the sample January risk-return relation is actually negative -0.02354, although insignificantly so. The negative slopes for large firms in January result in a somewhat amazing phenomenon. The intercept terms are higher in January than in other months for all but the smallest quintile of firms. The bottom panels of Table 4 report the results from estimating the parameters in the two fifty-four month's sub-periods of 1999-2003 and 2004-2007. The results for each sub-period are qualitatively similar. An important issue is raised by Table 4 finding is that there is a statistically significant positive risk-return relation in January for medium-size firm but not for the small and large firms. For the first hypothesis, however, that tax-loss selling effects may not have been fully discerned by our simple measure. For example, Chan (1986) and De Bondt and Thaler (1987) have found that the effects appear to persist in January at least five years after a loss is incurred.

To investigate and test both portfolio-rebalancing and risk-mismeasurement hypothesis we used the smallest size quintile portfolios. Within this quintile, we form beta quartile portfolios each year, using the same two-step procedure for calculating betas that we have used throughout the paper. In Table 5, we report evidence both the portfolio rebalancing and risk-mismeasurement hypothesis by using realized January equally weighted market return.

Panel A of Table 5 reports the average raw January returns on the small firm beta quartile portfolios. For the nine years in 1999-2007, the top row reports the average portfolios returns in the three Januaries with the highest realized market returns. The third row reports the average portfolio returns in the three Januaries with steepest market decline. We find that, even in the years when the market drops in January, the average return on the portfolios of small firms is positive, whether the portfolio betas are high or low. Importantly, they have high average returns with the low-beta portfolio having the highest average returns.

Panel B of Table 5, we report the excess return, defined for each portfolio as:

Table 5: Mean January returns and excess returns for equally weighted small firms[a], Portfolios formed with an equal number of firms in each beta quartile in period (1999-2007)

	Beta quartile			
Realized January equally-weighted market return quartile[b]	1 (Low)	2	3	4 (High)
Panel A: Raw returns (standard deviation of means)				
0.1635-0.0821	0.032[c]	0.035	0.036	0.040
	(0.039)	(0.042)	(0.042)	(0.043)
0.0731-(0.0285)	0.026	0.028	0.030	0.030
	(0.013)	(0.012)	(0.012)	(0.010)
(0.0345)-(0.0959)	0.060	0.051	0.051	0.047
	(0.029)	(0.023)	(0.022)	(0.027)
Panel B: Excess returns[d] (standard deviation of means)				
0.1635-0.0821	0.015	0.015	0.014	0.017
	(0.073)	(0.097)	(0.104)	(0.111)
0.0731-(0.0285)	0.011	0.010	0.011	0.010
	(0.057)	(0.080)	(0.088)	(0.096)
(0.0345)-(0.0959)	0.035	0.021	0.018	0.013
	(0.107)	(0.122)	(0.129)	(0.137)

Panel C: Regression of excess returns on portfolio betas $e_{pt} = \alpha_0+\alpha_1\beta_{pt}+\epsilon_{pt}$	Intercept (t-statistic)	Slope (t-statistic)	R^2 adjusted
0.1635-0.0821	0.097	-0.102	-0.028
	(1.081)	(-0.883)	
0.0731-(0.0285)	0.076	-0.065	-0.111
	(0.549)	(-0.449)	
(0.0345)-(0.0959)	0.068	-0.053	-0.121
	(0.459)	(-0.372)	

[a]Portfolios are formed from the smallest quintile firms. Size is measured as firm's market capitalization. [b]The January market returns are divided into three boundaries. The boundaries are, respectively, 8.21%, -2.85% and -9.59% for the monthly returns. Negative monthly returns are put in parenthesis. [c]A return of 0.032 corresponds to a 3.2%, [d]Excess returns are calculated as:

$$e_{pt} = (r_{pt} - r_{ft}) - \hat{\beta}_{pt}(r_{mt} - r_{ft})$$

$$e_{pt} = (r_{pt} - r_{ft}) - \hat{\beta}_{pt}(r_{mt} - r_{ft})$$

where, r_{pt} is the return in January t on portfolio p, r_{ft} is the risk-free rate of interest, measured as the monthly yield on long-term government Thai bond, r_{mt} is the emerging market index return and $\hat{\beta}_{pt}$ is the portfolio beta, estimated over the prior one year excluding Januaries. The same results are present in the excess returns as are present in the raw returns.

The risk miss-measurement hypothesis predicts that, if the true betas in January are higher than the February-December betas, when the market return is lower than the risk-free rate, excess returns computed using February-December betas should be negative for small firms. As can be seen from inspection of the bottom row of Panel B, the data clearly reject the hypothesis that underestimated betas are causing the patterns.

In panel C of Table 5, we test hypothesis that, for each groups of realized January market returns, there is a negative relation between beta and excess returns. The portfolio-rebalancing hypothesis predicts positive slope coefficients. For all three market return groups, the slope coefficients are negative and all of them are insignificant. Thus, we interpret this evidence as not supporting the portfolio rebalancing explanation of the turn of the year effect.

This study investigated the existence of monthly pattern or seasonal effect in emerging markets, using a more extensive and latest data sets than any previous studies. Moreover, Risk-return relation, risk miss-measurement and portfolio rebalancing effect have been explored. We form portfolios into twenty groups of portfolio ranked on firm size and beta dimension. We found only medium-size firm quintile has the least risky beta, however, the finding is different from Ritter and Chopra (1989) where they found only the smallest firm size quintile that has the least risky beta. In Table 2 and 3, we found that there is no systematic relation between realized return and either beta or firm size during February to December months.

CONCLUSION

From our result, it could be explained that the January seasonal for the small firms is also exist in the emerging market but there is no sign of risk-return relation accorded to the result and there is no evidence of portfolio-rebalancing effect that causes the January seasonal for small firms. Therefore, since the risk-mismeasurement hypothesis and the portfolio rebalancing hypothesis have been rejected as the root cause for January seasonal, the further study may need to be conducted in order to find out the evidence or it is just the normal market mechanism.

Furthermore, the book-to-market value may be applied instead of the market value to detect the significant differences and also the data set and period of study may be adjusted in order to display the clearly and stronger results.

However, another point of interest for further study is that we found on the January's risk-return relation on the medium size firms. The portfolio rebalancing and risk-mismeasurement hypothesis may have to be examined specifically among medium size firms rather than small firms. The different result may be caused by the different perspective and strategy of investors among countries.

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