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THE PERFORMANCE OF INITIAL PUBLIC OFFERINGS: AN EMPIRICAL STUDY OF BURSA MALAYSIA

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ABSTRACT – This paper investigates the short-run (first-day and first-week) returns of IPOs listed on the Bursa Malaysia (BM) in order to provide a more recent case of performance of IPOs in Malaysia. A total number of 166 firms listed and traded on Bursa Malaysia (BM) for a period of three years starting from 2004 to 2007 were thoroughly analyzed in this paper. The findings of this research show that the average market-adjusted return of IPOs for the first day and first week are 8.6% and 4.2%, respectively. These results are statistically significant and consistent with the findings of other international papers on IPOs. The regression models for the short-run returns (first-day and first-week) consist of market volatilities, book value to market value ratio, underwriter reputation, operating history of a company prior to going public, gross proceeds, total assets of a company prior to going public or size variable, hot or cold market period, and industries. Book value to market value ratio and operating histories of a company are two factors influencing the initial underpricing of Malaysian IPOs; however, market volatility is an additional predictor to the initial return model in order to build the model for the first-week return.

Keywords: Initial Public Offerings (IPOs), underpricing, Returns, Bursa Malaysia

I. INTRODUCTION

Initial public offering refers to the first public equity issue that is made by a firm. Sundarasen and Rajangam (2008) state that initial public offering plays a crucial role in development of entrepreneurial firms, since substantial contribution to the evolvement of equity financing is supplied through the IPOs. Abundant literatures have empirically demonstrated that the Initial public offerings offer large positive abnormal returns for the investors in the initial aftermarket period of trading. This engaging phenomenon of extraordinary short-run returns has been documented in various countries with stock markets around the world with different returns spectrums from one market to another (Ritter, 1984; Loughran, Ritter, and Rydqvist, 1994; Kim, Krinsky, and Lee, 1995; Kooli & Suret, 2002). The puzzling return observations of initial public offerings have encouraged scholars in the past to investigate the determinants of both short and long run returns. The findings of their research imply that in a more developed market, IPOs are underpriced by 6% to 20%; while the level of underpricing in an undeveloped market can vary from 100% to 500%. Firth (1997) asserts that these abnormal initial returns sometimes seem to be the consequence of IPO firms', IPO underwriters', and IPO advisers' decision on choosing an offering price which they believe undervalues the stock. Thus, new issues are deliberately underpriced. Although a number of research internationally and locally have investigated the performance of initial public offerings, this paper makes a major contribution to the expansion of the IPO literature by providing additional evidence on the short run returns of more recent new issues on the Bursa Malaysia (BM) and therefore, examining the level of development of BM. As mentioned earlier, the performance of initial public offerings is vital for both investors and firms.

The results of this study can be used as a more precise guidance to help the investors in order to optimize their investment decision in initial public offerings, particularly in the Bursa Malaysia, through a better understanding of price variation and IPOs profitability. In addition, this paper investigates a more recent sample of newly issued stocks in Malaysia during more stable periods. While previous studies on the BM show unexpectedly high initial returns, which could be due to immature, undeveloped market, this study expects to observe lower level of initial return compared to those of past studies; this could be a sign of development and maturity of the stock market in Malaysia.

This paper is organized as follows. A thorough revision of previous literatures along with determinants of IPOs is provided in chapter 2. In chapter 3, the data collection process, sample size, and model specification for short run return are presented. Chapter 4 reports the empirical findings of the short run return analyses. This is followed by the limitations, conclusion, and recommendations of this study.

II. LITERATURE REVIEW

A. International Evidences on IPOs Performance

Extensive studies have rigorously examined the short and long term performance of initial public offerings in many countries around the world. The findings of literature on IPOs pricing in both developed and developing countries' stock markets propose an obvious early underpricing. Table I presents a summary of those studies as follow.

Gounopoulos, Nounis, and Stylianides (2007) summarize the most recent findings of international evidence on the short run performance of IPOs in several countries around the world. **Error! Reference source not found.** represents the international empirical evidence as shown in Gounopoulos et al. (2007). Kim, Krinsky, and Lee (1995) investigate the Korea Stock Exchange with a sample size of 169 firms within 4 years (i.e., 1985-1989). According to Kim et al., the first day of trading is immensely promising for the investors in Korea with a market-adjusted return of 57.56 percent which is consistent with the international evidence of underpricing of IPOs in other countries. Their study also implies that "Korean IPOs outperform seasoned firms with similar characteristics." In contrast to previous studies, the findings of their study suggest "lower degree of underperformance or perhaps no underperformance at all" and, therefore, increased likelihood of more established Korean IPOs than other countries (Kim et al., 1995). Firth (1997) examined the New Zealand Stock Exchange during the period of 1979 to 1987. According to his study, the first day returns of IPOs were significantly averaged, "a 26 percent over the issue price." Similar to other countries, average initial returns of the UK market with a huge sample of 3,122 new issues from 1959 to 2001 is 17.4 percent. Furthermore, the average first day returns of British IPOs is 14.3 percent in a sample of 712 IPOs listed on the London Stock Exchange from the year 1980 to 1988 as discussed by Levis (1993). The findings of his study shows that de-listed IPOs account for 30 percent in the UK within a 3-year period subsequent to the listing on the London Stock Exchange (LSE). Moreover, a sample consisting of 163 firms listed on the Istanbul Stock Exchange had been investigated by Kiymaz (2000) during the period of 1990 to 1996. The average abnormal market adjusted under-pricing on the first trading day was 13.6 percent for the whole sample. However, the early trading returns differ slightly from one industry to another. The major determinants of the initial under-pricing is substantially influenced by size of issuers, rising stock market between the time of price fixing and first trading day, and self issued offerings. On the contrary, there is an insignificant relation between the institutional ownership and initial under-pricing (Kiymaz, 2000).

Extensive previous studies have also documented the performance of new issues in emerging markets. For instance, Lyn and Zychowicz (2003) find a significant first-day under-pricing of 15.12 and 54.45 percent in Hungary and Poland, respectively. The results of their paper demonstrated the market momentum as an indisputable determinant of early returns in both nations. The IPOs market in the United States has been immensely examined over the past few decades. Loughran, Ritter, and Rydqvist (2006) declared that the first day return was 18.1 percent for 15,333 IPOs listed in the period of 1960 to 2005. Another study conducted by Ritter and Welch (2002) found the initial returns of 18.8 percent in the United States for the time period of 21 years starting from 1980 to 2001.

Based on the integrated findings of the German Market in the studies done by Ljungqvist (1997) and Rocholl (2004), an initial return of 31.1 percent was reported for the 571 new issues of common stock. By using a sample of 75 IPOs in Cyprus within 1999 to 2002, Gounopoulos et al. (2007) found 20.81 percent of initial returns consistent with results from previous literature. Table I presents the international empirical evidence of IPOs based on the period of study, sample size, short term returns in different countries.the current designations.

B. Justification of Underpricing

Underpricing phenomenon of new issues has theoretically been attributed to a multitude of reasons. A number of theories have investigated various aspects of the association between investors, issuing firms, and underwriters taking the firms public. In this section, major theories are evaluated and shown as follows. Information asymmetry among investors divides investors into two groups of winners and losers. While winners are informed investors enjoying the most abnormal returns of IPOs, losers are simply uninformed investors without being beneficiaries of information in the market of IPOs. Indeed, losers are allocated substantial proportion of overpriced issues. This notion is named as the "*winners curse hypothesis*" (Rock, 1986; Beatty & Ritter, 1986; Barry & Jennings, 1993).

C. The Process and Requirements of Going Public in Malaysia

The Malaysian IPO market is different from other IPO markets in several aspects. The major distinction is the allocation of 30 percent of total issued shared for the Malays (Bumiputera) investors by the firm issuing IPO which is in compliance with the law (New Economic Policy), which was first introduced in 1970 (Paudyal, Saadouni, and Briston, 1998; Jelic, Saadouni, and Briston, 2001). This action taken by the Malaysian government increased the participation and ownership of Malays in the corporate sector from 4% in 1970 to 30% in 1990 (Jelic et al., 2001). Furthermore, "30 percent of the proportion allocated to Malaysian citizens is reserved for Bumiputera investors." Indeed, the prominent purpose of this allotment process is to ensure the minimum requirement of 33 percent Bumiputera investors' shareholding upon the listing of new issues (Paudyal et al., 1998). Paudyal, Saadouni, and Briston (1998) discussed that the process of going public in Malaysia is extensive in comparison to the other countries in the world. In addition, the Securities Commission regulates the pricing mechanism in the Malaysian new issues market whereas it is basically market driven in other markets (Paudyal et al., 1998). According to Jelic et al. (2001), an examination of shares allotment implied that small investors ordinarily receive a higher proportion of offerings than do the investors applying for 11,000 shares or more. Indeed, this allocation is not more than 5% of the total new

issued shares (Jelic et al., 2001). Sundarasen and Rajangam (2008) demonstrated that the Securities Commission (SC) used to sustain the offer price with a "price-earnings ratio in between 3.5 to 8.0 times of the forecasted earnings per share of new issues" up to 1995. Despite the withdrawal of offer price restriction in 1996, Securities Commission (SC) still holds the final authority to concur an offer price (Sundarasen & Rajangam). Paudyal et al. (1998) argued that the ceiling and floor price to earnings ratio (P/E) differs from one sector to another. While in the US market the IPO offer price depends upon the lead underwriter and the issuer's decision, underwriter and issuers can only recommend on the offer price in Malaysia (Sundarasen & Rajangam, 2008).

D. The Aftermarket Performance of Malaysian IPOs

The study done by Paudyal et al. (1998) confirms that Malaysian IPOs experience short term excess returns. Their study also declares that there is no significant difference between the performance of IPOs in Malaysia and the performance of market portfolio; new issues with low short term returns outperform the market whereas those with higher early returns underperform in comparison to the market. By using a sample comprising of 182 IPOs on the Bursa Malaysia (BM) during the period of 1980 to 1995, Jelic et al. (2001) suggested that, on average, new issues were underpriced by 99 percent in Malaysia. The greatest underpricing occurred in the early 1980s and within the 'hot issue' period of 1993-1995 (Jelic et al.). Their research also reveals the fact that there is a significant direct relation between the market-adjusted initial returns with both the reputation of underwriters and cautious earnings forecasts. Sundarasen and Rajangam (2008) investigated the aftermarket performance of Malaysian IPOs after the Asian financial crisis. Their study found that the level of underpricing in the crisis period had considerably decreased from 135% to 25.7%. The findings of their work suggest that this drops in short term returns might be the indicators of a more mature and efficient market in line with more informed and rational investors.

E. The determinants of IPOs

1) Ex-ante Uncertainty

Miller (1977) documents the divergence of opinion hypothesis to shed light on underperformance of IPOs. He proposed that high certainty, which is the level of optimism of investors about the value of an IPO, influences positively their decision to purchase the newly issued common stock. On the contrary, differences of attitudes between the optimistic and pessimistic investors will emerge if the uncertainty towards the value of an IPO rises among investors. An increase in the flow of information with time causes a decrease in the divergence of expectations; as a result, a downward adjustment of prices occurs. Indeed, Miller (1977) anticipated that higher preliminary divergence of opinion and uncertainty caused higher "diminution over time", which, in turn, created greater underperformance of security compared with the market (Miller 1977; Mohammad & Nasir, 1997; Kooli & Suret, 2002). According to Beatty and Ritter (1986), "the greater the ex-ante uncertainty, the greater would be the expected under-pricing of the IPO." An existence of a negative association between the performance and the ex-ante uncertainty is expected in this research. Size is one of the proxies to test the ex-ante uncertainty (Fama & French, 1992; Kooli & Suret, 2002; Gounopoulos et al., 2007). Another contributing factor to examine ex-ante certainty is the age of the firm prior going public (Kooli & Suret, 2002; Gounopoulos et al., 2007). It is evident that for firms with a great operating history, there would be a great deal of certainty. On the other hand, the lesser the operation history of a firm, the higher would be the level of uncertainty (Kooli & Suret, 2002). Finally, the total asset of the issuing firm in the year prior to going public is the last proxy used by this paper to measure ex-ante uncertainty.

2) Underwriters' Reputation

Extensive papers have documented roles and reputations of underwriters in the aftermarket performance of initial public offerings (Beatty & Ritter, 1986; Rock, 1986; Carter & Manaster, 1990; Paudyal et al., 1998; Jelic et al., 2001; Loughran & Ritter, 2002; Kooli & Suert, 2002). According to Carter and Manaster (1990), highly reputable underwriters and anticipated risk level of new issues are related. The higher the reputation of an underwriter, the lower will be the risk of offerings. As a result, "prestigious underwriters are associated with IPOs that have lower returns" (Carter & Manaster, 1990, p. 18). It is obvious that lower return is an indication of lower risk. When the risks of offerings are low, investors are not interested in acquiring information and, as a result, there will be fewer informed investors. Paudyal et al. (1998) stated that highly prestigious underwriters set the offer price close to the equilibrium price and hence assist in reducing the preliminary underpricing of new issues. Previous research had used a variety of proxies to measure the reputation of underwriters. This paper uses this proxy; the frequency of involvement in underwriting of IPOs in the Bursa Malaysia starting from 2004 to 2007. Since the highly reputed underwriter would underwrite more IPOs, the size of initial returns and the reputation of underwriters are expected to be related inversely.

Having advanced a new method, Kirkulak and Davis (2005) conducted a study to determine whether the underpricing of IPOs and the reputation of underwriters in the Japanese IPO market from 1998 to 2002 are related negatively or positively. The findings of their paper registered that the higher reputations of underwriters indicated a higher level of underpricing for the entire sample. By setting the offer price too low, investment banks acted in investors' favor when pricing an IPO. Kirkulak and Davis (2005) also investigated the high and low level of demand for a newly issued common stock. The result of their study suggested that since underwriters are ought to maintain the offer price within the initial offer price, an increase in the level of mispricing is

observed in the existence of high investor demand for an IPO. However, firm-specific risk is of greater concern for highly reputed underwriters when the demand for an IPO is low. According to Kirkulak and Davis (2005, p. 16), "*for lower limit IPOs more prestigious underwriters are associated with lower levels of underpricing.*" Bouis (2009) posits that a negative relation exists between the reputation of the lead underwriter of an IPO and the duration of the registration period. He also claims that this negative link exists because of higher familiarity of highly reputed investment banks with the tasks of the IPO process and because of greater potential of highly reputed underwriters to market and to publicize the offer more successfully.

3) Market Volatility

Paudyal et al. (1998) argue that market volatility has an impact on the offering price of a newly issued common stock. When the market condition is highly volatile, the underwriters are likely to set the offering price lower than that of a stable market. In doing so, the underwriters safeguard a minimum possible profit margin for the issuing firm even if the market is at its worst condition. Indeed, the underwriters ensure that the 'true value' of an IPO would not fall below the issuing price. From the investor's perspective, this price setting trend may lead to a higher initial return. Based on these premises, the perceived market condition is one of the vital factors at the time of price setting (Paudyal et al., 1998). Standard deviation of daily market returns over two months measures market volatility in the Paudyal et al. (1998) method. These two months basically indicate the 40 days before application closing date.

4) Book Value to Market Value Ratio

Firth (1997) in his study, "An analysis of the stock market performance of new issues in New Zealand", asserted that one of the independent variables to model cumulative adjusted return of IPOs for one year after listing is the log of book value to market value ratio. He measured this ratio by using net tangible asset per share as given in the prospectus divided by the price of newly issued stocks at the end of the first day's trading. One of the indicators used to model short-term performance of initial public offerings is book to market value ratio. Jelic et al. (2001) evaluated the association between natural logarithm (Ln) of book value to market value ratio and initial return of IPOs. In their study, net tangible asset per share is a representative of book value and first day closing price is used to define the market value of initial public offerings.

5) Hot/Cold Market

Ibbotson and Jaffe (1975) investigated the "hot issue" market for the first time in their study. On the one hand, investors want to know the best timing to buy an IPO so that they can gain above average returns than the offering prices of new issues. On the other hand, firms are keen to learn when to issue their securities so that they can achieve maximum profit. Accordingly, it is vital to analyze the role of hot or cold market in Malaysia in order to provide better decision making tools for both issuing firms and investors. "Hot issue" market refers to a period in which an anomaly aftermarket performance is yielded.

6) Industry

Several studies have investigated the impact of industry on the short-term returns (Kim et al., 1995; Cai & Wei, 1997; Agarwal et al.; 2004). This study engages a series of industry dummy variable in order to investigate the industry effects of firms issuing IPOs.

III. RESEARCH METHODOLOGY

A. Theoretical Framework

1) Short term underpricing

This study aims to investigate short term performance of Malaysian IPO firms listed on Bursa Malaysia. The short term underpricing is computed by the IPOs returns at the end of the first trading day (Gounopoulos et al., 2007; Sundarasen and Rajangam, 2008). The short term performance in this study covers the period of one day and one week returns. The extent to which that IPOs listed on the BM are underpriced is evaluated using conventional method proposed by previous IPO's literature. Based on the conventional method, the raw initial return (RIR) on the first trading day is measured as follows (Gounopoulos et al., 2007):

$$RIR_{i,t} = \frac{P_{i,1} - P_{i,0}}{P_{i,0}} \qquad (1)$$

where $P_{i,1}$ is the price at the end of the first day of trading and $P_{i,0}$ is the offering price.

Since the raw initial return (RIR) lack a time lag between the closing day and the first day of trading return in the market, the initial adjusted return is engaged in this study. In addition, market conditions may experience abundant changes within this period of time lag, and consequently, the initial return could be an outcome of those changes. To better monitor the initial return, the difference between the initial raw return and the corresponding market return (market adjusted initial returns) is calculated as follows (Kiymaz, 2000; Gounopoulos et al., 2007)

$$MAIR_i = \left(\frac{P_{i,1} - P_{i,0}}{P_{i,0}}\right) - \left(\frac{MI_{i,1} - MI_{i,0}}{MI_{i,0}}\right) \qquad (2)$$

where $MI_{i,1}$ is the general index price at the end of the IPO first day of trading and $MI_{i,0}$ is general index price at the last day of IPO public offering period (Gounopoulos et al., 2007; Lyn and Zychowicz, 2003). The short term performance of new issues is calculated through measuring the returns of each IPO for first day and first week. If $r_{i,t}$ is the raw return for company i in month t, and $r_{b,t}$ is the benchmark return in month t, the excess return for company i in month t can be calculated as follows (Firth, 1997; Gounopoulos et al., 2007; Ritter, 1991; Kooli and Suret, 2002):

$$AR_{i,t} = r_{i,t} - r_{b,t} \qquad (3)$$

The average benchmark-adjusted return on a portfolio of N stocks for month t is actually the equally-weighted arithmetic average of the benchmark-adjusted returns measured as follows:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{n} AR_{i,t} \qquad (4)$$

According to Ritter (1991); Firth (1997); and Gounopoulos et al. (2007) the cumulative adjusted returns from month q to month s is defined as the summation of the average abnormal returns. The following equation illustrates the calculation of the cumulative adjusted returns:

$$CAR_{q,s} = \sum_{t=q}^{s} AAR_t \qquad (5)$$

As it was mentioned, in order to investigate the short term aftermarket performance of listed IPOs on the BM, the following regression equation was developed and engaged by previous studies in order to operationalize the determinants of short-term outperformance of IPOs (Paudyal et al., 1998; Jelic et al., 2001; Kooli and Suret, 2002):

$$R_i = \alpha + \beta_1 MKT.Vol_i + \beta_2 BV_i/MV_i + \beta_3 UR_i + \beta_4 LnAGE_i + \beta_5 LnGrossProceeds_i + \beta_6 LnSIZE_i + \beta_7 HC_i + \beta_8 IND_i \qquad (6)$$

where,

- R_i is the market-adjusted initial return for each company, and it represents the dependent variable in this study.
- $MKT.Vol_i$ represents the standard deviation daily market returns over two months before going public.
- BV_i/MV_i is book value of per share divided by market value of that share.
- UR_i introduces a dummy variable, taking the value of 1 for more reputed underwriter and 0 for less reputable underwriter
- $LnAGE_i$ exhibits the calendar year of going public minus calendar year of founding
- $LnGrossProceeds_i$ is the value of the gross proceeds for company i (The number of shares outstanding multiplied by the offering price of IPO)
- $LnSIZE_i$ represents totoal assets of the firm prior going public
- HC_i is equal to 1 for hot issues and 0 otherwise
- IND_i is the industry in which company i performs its activities

2) Research Design

This paper, which is an explanatory study, investigates the causal and correlational relationship among dependent and independent variables to investigate the short-term performance of Malaysian IPOs. Data for each company are gathered from secondary sources of data. The secondary data are collected through online databases such as Bursa Malaysia, securities.com and DATASTREAM. In addition, other secondary databases including the annual reports of IPO firms and their prospectus are used in order to provide sufficient and accurate information in hypotheses testing.

3) Data Collection

A sample consisting of 166 IPOs listed on Bursa Malaysia from January 2004 to December 2007 are selected for analysis in this study. The rationale behind this selection of sample is to closely investigate a more recent, consolidated financial period. Following data collection step, the data are statistically analyzed in order to thoroughly investigate into determinants and trend of the short term aftermarket price performance of IPOs in Malaysia. The method of analysis in this study is regression using Statistical Package for Social Science (SPSS) software. Firstly, the measurement model is analyzed by ordinary least square regression method.

IV. DATA ANALYSIS

Discriptive Statistics

The sample of this paper consists of 166 initial public offerings issued between 2004 and 2007. The result of descriptive statistics indicates the first-day and first-week returns used in this study. The average return of 166 Malaysian IPOs for first-day return is 8.6% and is statistically significant at 5% confidence level confirming positive return for initial return of first trading day. These results are consistent with initial returns both in other countries and in Malaysia. However, the average first-day return in this study is smaller than other studies conducted in Malaysia. First-week and first-month returns are 4.1% and 3.1%, respectively, which are not statistically significant.

1) The Results of Multiple Regression Models, Shor-Term Returns

a) Analysis of the Model for the First-Day Return (Stepwise Method)

According to the ANOVA table (Table III), the software (SPSS) has built two models. The findings of stepwise regression method show that only BV/MV (book value to market value ratio) and LnAGE are significant and other dependent variables were eliminated from the model. In the first model, BV/MV is taken into account as the predictor of first-day return. The second model is built based on two dependent variables which are BV/MV and LnAGE. In addition, the result of ANOVA analysis (Table III) also shows that the P-values of both models are .000 which is less than alpha (5% level). Therefore, it could be concluded that at least one of the independent variables is a predictor for first-day return of initial public offerings in Malaysia.

The two models are therefore valid for further investigation in this study. The best model between the two models is the second model with R and R-square equal to 34.7% and 12% respectively; this model is also significant at 1% confidence level and includes two independent variables. Table 11 shows the excluded independent variables from the models. None of these variables could be considered in regressing first-day return because their P-value exceeds the acceptable limits (5% level). Table IV shows if the coefficient for each independent variable in the model is significantly different from zero. The outcomes show that the P-values for BV/MV ratio and LnAGE are .000 and 0.026 less than 5%; hence, it is concluded that these two variables are indeed predictors of first-day return. When the independent variables in a multiple regression model are highly associated, multicollinearity occurs. Multicollinearity can seriously distort the validity of a model by creating inflation in the variances of the parameter estimates. This effect could become more severe when the sample size is small or medium; in this case, while the overall model may be highly significant, each of the dependent variables might not be significant. In general, multicollinearity can cause serious damage in interpreting the correlations between variables and therefore in rendering invalid conclusions and results. Variance Inflation Factor (VIF) is the well-known statistics to diagnose the multicollinearity; a VIF greater than 5 indicates serious multicollinearity in the model. However, Table 9 and Table 11 register acceptable VIF for all the variables used in the models. As a result, no serious multicollinearity is observed among the dependent variables in the model.

The measure to investigate the association between the actual dependent variable and the predicted independent variable is R. Based on the findings of the model summary (Table 3), these correlations are 30.4% and 34.7% for the first and second models respectively. Since the correlation coefficient for the second model (34.7%) is higher than first model (30.7%), this study uses the second model as the best model to explain the first-day return. The R-squares of models 1 and 2 are 0.093 and 0.12 respectively (Table 3). This is to say that for the first model 9.3% of variation in the model is explained by the BV/MV ratio and that for the second model 12% of variation in the model is explained by BV/MV ratio and LnAGE. Thus, the second model is the best model in this study because of maximum R-square. According to Durbin and Watson (1950, 1951), if the Durbin-Watson statistics is between 1.5 and 2.5, the independence of observations are met. According to Table 7, the Durbin-Watson statistics is 1.5 and within the acceptable range. Therefore, the residual in the model does not have serious auto correlation.

b) Final Unstandardized Model (First-Day Return)

According to Table 9, the final unstandardized model for the first-day return could be formularized as follows:

$$\text{First} - \text{Day Return} = -0.109 - .403\frac{BV}{MV} + 0.062\ \text{LnAGE}$$

According to the above equation for unstandardized model, it can be interpreted that for every unit increase in BV/MV ratio, first-day return is expected to decrease by -.403 units, provided that other variables remain unchanged. In addition, for every unit increase in LnAGE, the first-day return is expected to increase by 0.062 units, provided that other variables remain unchanged. This is to say, companies with greater operation history are considered to be more profitable in Malaysia.

c) Final Standardized Model (First-Day Return)

The final standardized model which is based on standardized coefficients (Table 9) is presented as follows:

$$\textit{First} - \textit{Day Return} = -0.313\frac{BV}{MV} + 0.166\ \textit{LnAGE}$$

The equation above asserts that BV/MV ratio with standardized coefficient of -0.313 have the highest impact on the first-day return. The next important variable is LnAGE with standardized coefficient of 0.166. Thus, the investors who are interested in investing in Malaysian IPOs should consider book value to market value ratio (BV/MV) and the operating history of a company (LnAGE) as two crucial variables in their investment decisions. Analysis of Residuals shows that almost all the standardized residual values are normally distributed (within -3 and +3). In addition, residuals are tightly clustered around the lines and scattered almost evenly above and below zero, thus the pattern is independent. If a pattern is independent, it is also Linear. There was no non-linear or quadratic pattern among the residuals. Showing an average , which is a line around zero, it can be concluded that the residuals are independent. If the skewness is within -2 and +2 the data are normally distributed (Schumacker et al., 2004). The skewness of residuals is 1.002 which falls within the acceptable limits. Since no funnel shape is observed, it could be concluded that homoscedascity assumption is satisfied. Based on the sample size (Central Limit Theorem) and L.I.N.E assumptions in testing residuals in the model, it can be concluded that the model is valid.

2) Analysis of the Regression Model for the First-Week Return (Stepwise Method)

The findings of stepwise analysis are presented in Table 5. The removed variables from each model and the multicollinearity diagnostics of variables (Table 5) are also demonstrated.

The best model among the three models is the third model with R and R-square equal to 35% and 12.3% respectively; this model is also significant at 1% confidence level and consists of three independent variables. Table 5 shows whether the coefficient for each independent variable in the model is significantly different from zero. The outcomes show that the P-value for BV/MV, LnAGE, and MKT.Vol are .000, 0.016, and 0.049 which are less than 5%; hence, it can be concluded that these three variables are indeed predictors of first-week return. As mentioned earlier, Variance Inflation

Factor (VIF) is the well-known statistics to diagnose the multicollinearity; a VIF greater than 5 indicates serious multicollinearity in the model. However, this paper registers acceptable VIF for all the variables used in the models and hence no serious multicollinearity is observed among the dependent variables in the model.

a) Final Unstandardized Model (First-Week Return)

According to Table 5, the final unstandardized model for the first-week return could be shown as follow:

$$\text{First} - \text{Week Return} = -0.380 - .387\,\frac{BV}{MV} + 0.07\,\text{LnAGE} + 26.028\,\text{MKT.Vol}$$

According to the above equation for unstandardized model, it can be interpreted that for every unit increase in BV/MV ratio, first-week return is expected to decrease by -.387 units, provided that other variables remain unchanged. In addition, for every unit increase in LnAGE, the first-week return is expected to increase by 0.07 units, provided that other variables remain unchanged. Last but not least, the final unstandardized model show that for every unit increase in MKT.Vol, first-week return is expected to increase by 26.028 units, provided that other variables remain constant.

b) Final Standardized Model (First-Week Return)

The final standardized model which is based on standardized coefficients (Table 5) is presented as follows:

$$First - Week\ Return = -0.288\,\frac{BV}{MV} + 0.181\,LnAGE + 0.148\,MKT.Vol$$

The equation above indicates that BV/MV ratio with standardized coefficient of -0.288 has the highest impact on the first-week return. The next important variables are LnAGE and MKT.Vol with standardized beta of 0.181 and 0.148 respectively. Thus, the investors who are interested in investing in Malaysian IPOs should consider book value to market value ratio (BV/MV), the operating history of a company (LnAGE), and market volatility (MKT.Vol) as three crucial factors in their decisions.

c) Analysis of Residuals

By thoroughly investigating the residuals statistics and plots, it is observed that the model and its assumptions are suitable. The residual plots show that dots are tightly clustered around the lines and scattered almost evenly above and below zero, thus the pattern is independent. If a pattern is independent, it is also linear. In other word, the residuals are normally distributed and are independent of each other with a mean of zero and some constant variances.

V. LIMITATIONS, CONCLUSION, AND RECOMMENDATIONS

By investigating the determinants of short-term returns, this explanatory study provides empirical evidence on aftermarket performance of newly issued stocks on the Bursa Malaysia (BM). The phenomenon that IPOs are underpriced has been investigated in many countries around the world. The findings of numerous researches prove that subscribing for an IPO will basically lead to profit for investors as well as underwriters.

A. Conclusion

The underpricing of IPOs is well-documented in many countries suggesting that investors purchasing newly issued common stocks earn abnormal return, especially at the end of the first trading day of the market. This paper intended to evaluate the short-term performance of Malaysian IPOs by choosing a more recent sample. For the purpose of this paper, a total number of 166 IPOs were thoroughly evaluated. The average market-adjusted return of IPOs for the first day and first week are 8.6% and 4.2%, respectively. These results are statistically significant and consistent with the findings of other international papers on IPOs. Book value to market value ratio and LnAGE are two factors influencing the initial underpricing of Malaysian IPOs; however, MKT.Vol is an additional predictor to the first day return model that constructs the model for the first-week return.

B. Limitations and Suitability

Among many models of short-term returns with different independent variables, this study uses the model proposed by Jelic et al. (2001) which has been used in different studies. However, there could be other models that scrutinize the nature of underpricing in Malaysia better. Thus, one of the limitations of this study is using only the abovementioned model. The data discrepancies were another limitation of this study.

C. Recommendations

Future studies could be conducted based on the following recommendations: adaptation of different models of short term returns that more accurately explains the nature of businesses in Malaysia, conducting a research with a larger sample of Malaysian IPOs with a broader time period in order to understand the aftermarket performance of IPOs better, combination of various models and consideration of all predictors in various studies in order to reach a comprehensive, accurate model to model the determinants of Malaysian IPOs, development of more reliable standards for prestigious and non-prestigious underwriters, and segregation of companies in terms of their ownership (private-held or government-held).

D. Figures and Tables

TABLE I. INTERNATIONAL EMPIRICAL EVIDENCE

COUNTRY	STUDIES	PERIOD	SAMPLE	SHORT TERM RETURNS

Australia	Lee et al. (1996)	1976-1995	381/266	12.1%
Austria	Ausenegg (2000)	1965-2002	83/57	6.3%
Brazil	Aggarwal et al. (1993)	1979-1990	62	78.5%
Canada	Loughran et al. (2006)	1971-2002	540	7.0%
	Kooli & Suret (2002)	1991-1998	445	-
Chile	Aggarwal et al. (1993)	1982-1990	55/28	8.8%
Finland	Keloharju (1993)	1984-1989	99/79	10.1%
France	Loughran et al. (2006)	1983-2000	571/87	11.6%
Germany	Ljungqvist (1997), Rocholl (2004)	1983-2000	545/145	31.1%
Greece	Thomadakis et al. (2006)	1994-2002	254	42.12%
Hong Kong	Loughran et al. (2006)	1980-2001	857	17.3%
	McGuiness (1993)	1980-1990	72	-
Hungary	Lyn and Zychowicz (2003)	1991-1998	33	15.12%
Japan	Loughran et al. (2006)	1970-2001	1689	28.4%
	Cai and Wei (1997)	1971-1990	172	-
Korea	Dhatt et al. (1993)	1980-1990	347	78.01%
Malaysia	Isa & Yong (2001)	1980-1998	401	104.1%
	Ahmad-Zaluki et al. (2004)	1990-2000	454	-
New Zealand	Loughran et al. (2006)	1979-1999	201	23.0%
	Firth (1997)	1979-1987	143	-
Poland	Lyn and Zychowicz (2003)	1991-1998	103	54.45%
Singapore	Loughran et al. (2006)	1973-2001	441	27%
	Hin & Mahmood (1993)	1976-1984	45	-
Spain	Ansotegui et. al. (2000)	1986-1998	99	10.7%
	Alvarez et al. (2001)	1987-1997	41	-
Sweden	Loughran et al. (2006)	1980-1998	332	30.5%
	Loughran et al. (1994)	1980-1990	162	-
Switzerland	Loughran et al. (2006)	1983-2000	120/34	34.9%
Turkey	Loughran et al. (2006)	1990-2004	282	10.8%
	Yilmaz & Bildik (2005)	1990-2000	234	-
U.K.	Loughran et al. (2006)	1959-2001	3,122	17.4%
	Levis (1993)	1980-1988	712	14.30%
U.S.	Loughran et al. (2006)	1960-2001	15,333	18.1%
	Loughran & Ritter (1995)	1970-1990	4,753	-

TABLE II. THE MODEL SUMMARY OF FIRST-DAY RETURN (STEPWISE METHOD)

Model	R	R Square	Adj. R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.304[a]	.093	.087	.378565314	.093	16.534	1	162	.000	
2	.347[b]	.120	.109	.373913561	.028	5.056	1	161	.026	1.483

a. Predictors: (Constant), Book.To.Market.Value.Ratio

b. Predictors: (Constant), Book.To.Market.Value.Ratio, LnAGE

c. Dependent Variable: First_Day_Return

TABLE III. ANOVA TABLE, FIRST-DAY RETURN (STEPWISE)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.369	1	2.369	16.534	.000[a]
	Residual	23.216	162	.143		
	Total	25.586	163			
2	Regression	3.076	2	1.538	11.002	.000[b]
	Residual	22.510	161	.140		
	Total	25.586	163			

a. Predictors: (Constant), Book.To.Market.Value.Ratio

b. Predictors: (Constant), Book.To.Market.Value.Ratio, LnAGE

c. Dependent Variable: First_Day_Return

TABLE IV. COEFFICIENT FOR MULTIPLE REGRESSION MODEL (STEPWISE)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.297	.060		4.994	.000		
	Book.To.Market. Value.Ratio	-.391	.096	-.304	-4.066	.000	1.000	1.000
2	(Constant)	-.109	.190		-.573	.567		
	Book.To.Market .Value.Ratio	-.403	.095	-.313	-4.233	.000	.997	1.003
	LnAGE	.062	.027	.166	2.249	.026	.997	1.003

a. Dependent Variable: First_Day_Return

TABLE V. COLLINEARITY DIAGNOSTIC OF VARIABLES

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	BV/MV Ratio	LnAGE
1	1	1.868	1.000	.07	.07	
	2	.132	3.762	.93	.93	
2	1	2.813	1.000	.00	.03	.00
	2	.175	4.009	.02	.96	.02
	3	.012	15.078	.98	.01	.97

a. Dependent Variable: First_Day_Return

TABLE VI. COEFFICIENT OF MULTIPLE REGRESSION FOR FIRST-WEEK RETURN (STEPWISE METHOD)

Model		Unstand. Coefficients		Std. Coeff.	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.235	.063		3.726	.000		
	BV/MV Ratio	-.357	.102	-.265	-3.503	.001	1.000	1.000
2	(Constant)	-.212	.201		-1.056	.292		
	BV/MV Ratio	-.370	.101	-.275	-3.674	.000	.997	1.003
	LnAGE	.068	.029	.175	2.340	.021	.997	1.003
3	(Constant)	-.380	.216		-1.758	.081		
	BV/MV Ratio	-.387	.100	-.288	-3.866	.000	.990	1.011
	LnAGE	.070	.029	.181	2.438	.016	.995	1.005
	Market.Volatility	26.028	13.103	.148	1.986	.049	.991	1.009

a. Dependent Variable: First_Week_Return

TABLE VII. COLLINEARITY DIAGNOSTICS (STEPWISE METHOD)

Model	Dimension	Eigen Value	Condition Index	Variance Proportions			
				(Cons.)	BV/MV Ratio	LnAGE	MKT Vol.
1	1	1.868	1.000	.07	.07		
	2	.132	3.762	.93	.93		
2	1	2.813	1.000	.00	.03	.00	
	2	.175	4.009	.02	.96	.02	
	3	.012	15.078	.98	.01	.97	
3	1	3.704	1.000	.00	.02	.00	.01
	2	.196	4.350	.01	.94	.01	.09
	3	.089	6.456	.03	.04	.07	.83
	4	.012	17.863	.96	.00	.92	.07

a. Dependent Variable: First_Week_Return

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