

The Time Series Behaviour of Volume, Initial Return and Economic Condition of the Malaysian IPO Market

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This paper analyses the short-run as well as the long-run relationship of the IPO volume, initial returns and economic conditions of the Malaysian IPO market. The ARDL bounds testing approach was used to examine these variables. Empirical results showed that both initial returns and economic conditions have significant long-run relationships with IPO volume. Moreover, these two variables are also found to Granger- cause the IPO volume in the short-run.

Field: Stock markets

1.0 Background of the Study

The Malaysian Stock Market was first established as the Malaysian Stock Exchange in 1960 and continued as the Stock Exchange of Malaysia and Singapore until the setting up of the Kuala Lumpur Stock Exchange Berhad (KLSEB) and Singapore Stock Exchange (SES) in 1973. KLSEB was renamed and is currently known as Bursa Malaysia after the demutualization exercise in 2004.

Similar to other share markers worldwide, the Malaysian stock market was not left behind in the IPO trend. The number of listed companies has grown steadily from a mere 262 companies in 1973 to 1028 companies in 2007. This rapid increase in the number of new listings is attributed to a number of factors, mainly to raise financing for expansion, to reduce the cost of new funds and to reduce the level of leverage (Shamsher et al., 1994).

Pricing behavior of the IPOs across various markets worldwide is one of the most popular research areas in finance for the past four decades. Among others, the winner's curse theory introduced by Rock (1986), signaling theory as well as the lawsuit avoidance theory introduced by Ibbotson (1975) are some of the popular theories used to explain IPO initial underpricing. In addition to the abovementioned theories, researches related to how IPO dynamics and economic indicators are related to underpricing have also been documented (see Lowry and Schwert, 2002; Brailsford, 2004 and McKenzie, 2007).

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Numerous studies have been carried out to examine the pricing behavior of the IPOs in Bursa Malaysia. Nevertheless, not many have investigated how the time series behaviors of the initial return as well as the economic indicator are related to the IPO volume in Malaysia. Since information on this is crucial for both the issuers as well as the investors, therefore, the objective of this study is to find out whether initial return and economic indicator affect the Malaysia IPO dynamics in both the short and long-run.

The rest of this paper is organized as follows. Following the introduction, related literature will be discussed in Section 2. Section 3 and Section 4 describe the data and the methodology respectively. Section 5 presents the empirical results and analysis. Lastly, Section 6 summarizes the results and concludes the study.

2.0 Literature Review

Research interest on IPOs was generally concentrated on pricing performance which was motivated by three anomalies, namely, initial underpricing, the 'hot issue' market phenomenon and long-run underperformance. On the variables determining the presence of these three prominent phenomena, among others, ex-ante factors related to IPO pre-listing quality are confirmed to have a significant impact on initial underpricing (Ritter, 1984). On the other hand, in terms of IPO activities, initial underpricing, business and stock market indicators are documented to have explanatory power over IPO volume (Ibbotson et al. 1994; Brailsford, 2004 and McKenzie, 2007).

2.1 Initial Return of IPO

Initial return is generally measured as the difference between the price at which the new shares were offered for sale to the investing public and the closing price at the end of the first trading day after listing. It is also commonly known as underpricing. Studies conducted by researchers on various stock markets worldwide have provided empirical evidence supporting the existence of abnormal positive initial return or initial underpricing among new listings. Nevertheless, the degree of underpricing varies significantly across markets. Ritter (1998) pointed out that the average initial return of new listings in 33 countries ranged from 13.6% to 388% in the developing market and 4.2% to 54.4% in the developed market. Initial underpricing of new listings on Bursa Malaysia was ranked among the top five in the list. This finding highlights that a more developed market registers a lower level of underpricing than an emerging market.

Ibbotson's (1975) study was the first major academic study which formally documented the existence of the initial underpricing phenomenon. Using a sample of 120 new listings on the New York Stock Exchange, Ibbotson found an average initial return of 11.4% from the listing date to the end of the listing month. Garfinkle et al. (2002) discovered a similar pattern in their study conducted on new listings on the NASDAQ between 1997 and 1999. They

recorded a higher average initial return of 44% for this riskier and younger market. A more recent study by Ritter and Welch (2002) confirmed the underpricing pattern of the US market. With a larger sample of 6,249 new listings from 1980 to 2001, they recorded initial underpricing at 18.8%; about halfway between Ibbotson's (1975) and Garfinkle et al.'s (2002) findings.

Several other empirical studies carried out on other markets worldwide support the initial underpricing trend. Aggarwal et. al (1993) reported new listings in Brazil, Chile and Mexico had an average initial return of 78.5%, 16.3% and 33%, respectively. Lee et al. (1996) on the other hand, contended that Singapore IPOs undertaken between 1973 and 1992 had an average initial return of 30% while Klymaz (2000) documented an initial underpricing of 13.6% on the Istanbul Stock Exchange. Naceur (2000) found an initial underpricing of 24.5% for Tunisian companies listed from 1980 to 1997. The Chinese market also supported this trend. For example, Chan et al.'s (2004) study on IPOs issued in China during the 1993 to 1998 period found the average underpricing for A-share IPOs was 178% whilst the B-share IPOs was 11.6%. The same findings were also reported in Canada by Kooli and Suret (2004) and Europe by Filatotchev and Bishop (2002). In addition, Burrowes et al. (2004) examined the initial performance of the German Neuer market and documented an underpricing of 56.53%. A more recent study by Drobetz et al. (2005) revealed a 34.97% initial return for IPOs listed on the Swiss Exchange from 1983 to 2000.

On the Malaysian setting, numerous studies on new listing's short-run performance had been conducted and the empirical results are in line with those stated above. For instance, Dawson (1987), after studying twenty-one new issues listed between 1978 and 1983, reported an initial return of 166.7%. Yong (1991) discovered a mean initial return of 167.4% for new listing undertaken during the 1983 to 1988 period. Another related study conducted by Isa and Ahmad (1996) on 126 new listings from 1980 to 1991, found an overall initial return of 76.8% and a positive first year return of 6.2%. A similar result was obtained by Leong et al. (2000) who noted that the initial average return was at 107% for new listings from 1992 to 1998.

2.2 IPO Volume, Initial Return and Economic Condition

The most well-known phenomenon associated with IPO volume is the "hot issue" market. It refers to a pattern where high initial returns are associated with a high volume of new listings period (Ritter, 1998). This pattern was first recognized by Ibbotson and Jaffe (1975) for the 1960 to 1970 period in the US market. It was subsequently confirmed by Ritter (1984) for the 1960 to 1982 period. A similar study by Ibbotson et al. (1988) covering the period between 1960 and 1987 has provided further evidence to support the existence of this phenomenon.

Likewise, Lowry and Schwert (2002) indicated there is a highly autocorrelated relationship between IPO volume and average initial returns. They contended that the level of average initial returns contains no information about the particular company's eventual underpricing at the time of filing. Instead, they

attributed the lead-lag relationship between initial returns and IPO volume to the information learned during the registration period. In addition to the positive relationship between initial return and the IPO volume, Ibbotson et al. (1994) also documented that current level of initial return and IPO volume are good predictors of future initial return and IPO volume, respectively.

There are relatively few theoretical explanations for the hot issue market phenomenon. Ritter (1984) stated that the hot issue market of the 1980s was a positive equilibrium phenomenon between risk and expected return. There was an increase in the riskiness of new listings during the hot issue market. Since the risk level of the new listing market is proportionate to that of the risk level of individual new listings, a high overall risk level in the market is positively associated to higher initial return. Aggarwal and Rivoli (1990) contended that 'fads' occur in the hot issue market because during this period, investors are overoptimistic about the growth potential of the IPO. Furthermore, issuers will time their IPOs during these periods in order to take advantage of the "windows of opportunity".

The windows of opportunity hypothesis posits that issuers attempt to "time" the issuance of their IPOs during periods when investors are optimistic about the companies' further growth, and these issuers' collective responses to the high value period cause the large cycles of IPO volume. It also predicts that firms which are listed in the high volume period have a higher probability to be overvalued than firms listed during the lower volume period.

Related to market "timing", economic variables are proposed to have explanatory power over IPO volume. A number of studies indicated that general economic variables such as stock index and general business indicators determine listing activity (see for example: Loughran et al., 1994; Brailsford et al., 2004 and McKenzie, 2007). Loughran et al. (1994) posited that the inflation-adjusted stock index is positively related to IPO volume while Brailsford et al. (2004) found that past condition of stock market led future volume of the IPOs.

On the other hand, McKenzie (2007) discovered that the ability of stock market and business condition variables in explaining listing activities in the developed countries is significant. Among others, the most influential variable is the past level of listing activity. However, MacKenzie (2007) posited that these findings do not apply to the emerging markets as none of the economic variables used in his study are having any explanatory power over the IPO volume in emerging markets.

3.0 Data Source

The sample employed in this study spans from 1993Q1 to 2006Q4. Data are collected on all the IPOs listed on the Main Board of Bursa Malaysia. Since the IPO volume is thin, hence, quarterly data for all the variables are compiled for analysis. The average level of quarterly initial return is constructed as an equally weighted average of first trading day underpricing relative to the

market return. Following Brailsford et al. (2004) and McKenzie (2007), the market return of KLCI is used as proxy for economic condition.

4.0 Methodology

The Autoregressive Distributed Lag (ARDL) bounds testing approach developed by Pesaran et al. (2001) was used in this study to examine empirically the relationship between IPO volume, underpricing and economic condition as proposed by Brailsford et al. (2004). ARDL bounds test was used to analysis the data collected because it has several advantages over the conventional type of cointegration tests. First, ARDL bounds test obviates the uncertainty associated with pre-testing for unit roots as it does not require the information for the order of integration of the variables. Second, it is more robust when applied to a small sample study compared to the Engle and Granger (1987) or Johansen type of cointegration methods. Third, once the orders of the lags in the ARDL model have been appropriately selected, the cointegration relationship can be estimated using a simple ordinary least square (OLS) method.

Following Brailsford et al. (2004), the Unrestricted Error Correction Model (UECM) used in this study has the following form as expressed in Equation (1):

$$\Delta IPO_t = \beta_0 + \beta_1 IPO_{t-1} + \beta_2 UNDER_{t-1} + \beta_3 ECON_{t-1} + \sum_{i=1}^p \theta_i \Delta IPO_{t-i} + \sum_{i=0}^p \alpha_i \Delta UNDER_{t-i} + \sum_{i=0}^p \delta_i \Delta ECON_{t-i} + \varepsilon_t \quad (1)$$

where *IPO*, *UNDER* and *ECON* are IPO volume, initial underpricing and economic condition, respectively; Δ denotes a first difference operator; β_0 is an intercept and ε_t is a white noise error term.

In order to obtain a parsimonious UECM, following Hendry and Ericsson (1991), the insignificant first difference variables in Equation (1) are dropped sequentially.

To test the cointegration relationship, Equation (1) was estimated using OLS technique. Following that, the null hypothesis of no-cointegration $H_0: \beta_1 = \beta_2 = \beta_3 = 0$ is tested against the alternative of $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq 0$ by the means of *F*-test. Since the sample size used in this study is relatively small, the *F*-statistics for critical value bounds provided by Nayaran (2005) was adopted. According to Nayaran (2005), if the computed *F*-statistic falls below the lower bound critical value, the null hypothesis of no-cointegration cannot be rejected. On the other hand, if the computed *F*-statistic lies above the upper bound critical value, the null hypothesis is rejected, implying that there is a long-run cointegration relationship amongst the variables in the model. However, if the calculated value falls within the bounds, inference is inconclusive.

After confirming the existence of a cointegration relationship, the long-run parameters of the independent variable are calculated by dividing the estimated coefficient of one-lagged level independent variable over the estimated coefficient of one-lagged level dependent variable. Finally, the Wald test is used to identify the short-run causality on the joint significance of the sum of the lags of each independent variable (in first difference) in the equation.

5.0 Results and Discussion

Table 1 reports the ARDL bounds test estimating result. The diagnostic test results specify that the estimated model is well fitted because it does not suffer from any problem of normality, autocorrelation, heteroscedastic errors and misspecification as shown by the Jacque-Bera normality of the residuals test, the Breusch-Godfrey serial correlation LM test, the ARCH test and the Ramsey RESET specification test. Moreover, the obtained parameters are considered stable over time as the plots of the CUSUM and CUSUM of square statistics are well within the 5% critical bounds.

By comparing the computed F -statistic value obtained in Table 1 against the critical values provided by Narayan (2005), it is obvious that the F -value reported is greater than the upper bound critical value of 6.195 at the 1% level of significance, therefore, this study concludes that there is a long-run stable equilibrium relationship between the IPO volume, initial underpricing and economic condition variables in Malaysia.

Referring to the empirical results show in Table 1, both the underpricing and economic condition variables are having a significant positive long-run relationships with the number of IPOs issued. This finding has provided support to Ibbotson et al. (1994) and Lowry and Schwert (2002). Nonetheless, by referring to the long-run parameters obtained, the underpricing variable (with coefficient of 1.716) seems to have a more influential effect on IPO volume compared to economic condition variable (with a coefficient of 0.122). The reason could be that compared to past economic conditions, the past level of initial underpricing has a more direct relationship with IPO volume.

The Granger causality test further indicates that the past underpricing level and economic condition variables indeed have the ability to affect the current number of IPOs issued. In other words, both the level of initial underpricing and economic conditions can lead to future IPO activities. This finding confirms the windows of opportunity hypothesis. Bayley et al. (2006) attributed this phenomenon to the representative heuristics of the investors, whereby, due to previous underpricing, investors become more optimistic and thus, are more inclined to invest in IPOs. With that, a higher demand for IPOs exists.

Issuers on the other hand, will ride on this optimistic market sentiment and issue their IPOs for extra funding to meet business needs (Lowry, 2003). On why issuers do not get upset leaving money on the table in IPOs, Ritter and Loughran (2002) postulated that issuers become contented with the higher

wealth gained on retained shares as a result of initial underpricing when compared to the relatively smaller wealth loss from leaving money on the table. Similarly, a good economic condition leads to investors' optimism towards IPOs and with that issuers are more willing to issue their IPOs during this time in order to take advantage of the 'window of opportunity'.

Table 1: ARDL Bounds Test Results

Computed F-statistic: 13.791***			
Critical values:	lower bound	upper bound	
1%	3.408	4.623	
5%	4.828	6.195	
Decision: Reject H₀			
Long-run Elasticity:			
	Constant	Underpricing	Economic Condition
IPO	2.612**	1.716**	0.122**
Granger Causality Test:			
	IPO	Underpricing	Economic Condition
IPO	-	2.757**	3.119*
Diagnostic Tests:			
JB	0.433 [0.805]		
AR[4]	0.067 [0.992]		
ARCH[4]	1.739 [0.160]		
RESET[1]	2.156 [0.150]		
CUSUM	Stable		
CUSUM ²	Stable		

Notes: The bounds critical values are obtained from [Narayan. \(2005, pp. 1988\)](#). JB is the Jarque-Bera statistic for testing normality. AR[4] is the Lagrange Multiplier test of 4th order serial correlation. ARCH[4] is the 4th order test for ARCH. RESET refers to Ramsey RESET specification test. CUSUM and CUSUM² are the cumulative sum of recursive residuals stability test and cumulative sum of squares of recursive residuals stability test, respectively. Asterisks (*), (**) and (***) denote significant at the 10%, 5% and 1% levels, respectively.

6.0 Conclusion

Using data from 1993Q1 to 2006Q4 from the Malaysian IPO market, the relationships between IPO volume, initial underpricing and economic conditions are assessed. The ARDL bounds test was used for analysis. Results showed that both the level of initial underpricing and economic conditions are found to have a positive long-run relationship with IPO volume. In terms of short-run relationship, both level of initial underpricing and economic conditions are found to Granger cause the level of IPO volume.

These findings confirm the proposition that issuers 'time' their IPO issues in order to exploit the 'windows of opportunity' when markets are optimistic either due to past levels of underpricing or positive economic environment. The empirical results of this study also provided support to those of Ibbotson et al. (1994), Loughran et al (1994) as well as Lowry and Schwert (2002). Nonetheless, these results are different from those of McKenzie (2007) which claimed that none of the stock market and business condition indicators provides explanatory power over new listing activities for the emerging markets.

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