

Operating Performance of Initial Public Offerings in Malaysia

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Abstract : This is an empirical study on the operating performance of Malaysian firms after their initial public offerings (IPOs). The study attempts to determine whether there is any significant difference between pre- and post-IPO operating performance. In addition, this study also examines whether pre-IPO factors such as age of firm, size of firm, dilution of ownership, multi-nationality of firm and pre-IPO profitability level determine the firms' post-IPO operating performance. Using 162 samples of Malaysian IPOs during 1996 to 2000, a significant difference was found between pre-and post-IPO operating performance when operating return on assets (ROA), total assets turnover (ATO) and return on sales (ROS) were used to measure operating performance. This study also found size of firm and pre-IPO profitability to have a significant relationship with post-IPO operating performance.

Keywords: Initial public offerings (IPOs), operating performance

1. Introduction

Numerous studies have examined the performance of initial public offerings (IPOs) with the focus being on the after-market and long-run stock price performance of IPOs (Ritter 1991; Loughran and Ritter 1995; Aggarwal *et al.* 1993). Relatively few studies have examined the operating performance of firms after they go public. Lamba and Otchere (1997) who argued that stock price performance was related to the operating performance of a firm, found that the long-run stock price performance of the IPO firms was consistent with their operating performance in their Australian study. However, Jain and Kini (1994) who examined the post-issue operating performance of 682 IPOs issued in the US during the 1976-1988 period, found that there was a significant decline in the operating performance by using various accounting ratios. There are also studies looking at the relationship between pre-IPO performance and post-IPO price performance in the long run. Khurshed *et al.* (1999), for example, found that the pre-IPO performance of a firm has a significant effect on long-run price performance.

Research in Malaysia has primarily focused on the after-market and long-run stock price behavior of IPOs (Paudyal *et al.* 1998; Wu 1993; Yong 1991). Relatively less attention has been paid to the long-run operating performance of IPO firms. In this study, we do not look at price performance of Malaysian IPOs, but rather we will investigate the operating performance of firms pre- and post-IPO. In addition, we will also examine whether post-IPO operating performance is determined by some of the pre-IPO factors, namely age of firm, size of firm, dilution of ownership, multi-nationality of firm, and pre-IPO profitability.

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Since stock price performance is related to the operating performance of firm, it is necessary to study the operating performance as well as its related factors in order to give an idea to investors in evaluating an IPO.

2. Literature Review

2.1 Operating Performance of Pre- and Post-IPO Firms

There are some papers examining the operating performance of firms before and after their IPOs. Lamba and Otchere (1997) studied the operating performance of 211 IPOs listed in the Australian Stock Exchange (ASX) during 1966-1981. They found that there was no statistically significant deterioration in the operating performance as measured by return on assets (ROA), return on equity (ROE), assets turnover (ATO) and debt-to-assets ratio (DTA) of IPOs over a three-year period following the IPOs. Their result is consistent with Healy and Palepu's (1990) finding that there is no earnings decline after IPOs compared to the prior year's earning either before or after adjusting earnings to an industry median.

Jain and Kini (1994) examined the post-IPO operating performance and found that the post-IPO operating performance as measured by returns on assets, declined from their pre-IPO levels. Their results are consistent with the long-run underperformance in stock returns documented by Ritter (1991) and Loughran and Ritter (1995). Studies in the U.S. by DuCharme *et al.* (2000) and in Japan by Cai and Wei (1997) also had similar results.

In China, Chan *et al.* (2001) studied 570 A-share IPOs and 39 B-share IPOs issued during the 1993-1998 period. They examined the changes in operating performance, which was measured by operating return on assets (ROA), operating cash flows on total assets (CFOA), sales growth rate, asset turnover (ATO), and capital expenditures growth rate (CE) of IPO firms surrounding the issuing year. Their results indicated that ROA, CFOA and ATO declined significantly after the issuance but sales growth rate and CE of IPO firms exhibited substantial increases relative to the industry. Therefore they argued that the inferior operating performance in ROA, CFOA, and ATO was not related to a decline in business activity, but rather the managers attempted to window-dress their accounting reports prior to IPO that led to pre-IPO performance being over-stated and post-IPO performance being understated.

2.1.1 Age of Firm and Operating Performance

Jovanovic and Rousseau (2001) investigated why firms list their shares in their early years of operation. They viewed the duration of the pre-IPO waiting phase as a result of a trade-off between firm learning and the opportunity cost for delaying its entry into the market. Prior to a firm's IPO, management refines the enterprise's idea and strategy while for investors and creditors, they assess the firm's potential, risks and optimal deployment of capital. After the firm goes for IPO, the capital investment will be irreversible. The learning process is very important because it reduces the possibility of a costly mistake, but on the other hand, the learning period creates an opportunity cost because it delays the realisation of revenue and the better a firm's idea, product or business model, the greater the opportunity cost for delay. The greater the opportunity cost, the earlier a firm will go public. To maximise the net

present value for learning period and opportunity cost, the firm will therefore attempt to find the optimal time for its IPO.

Clark (2002) who studied 1234 IPOs issued in the U.S. during 1991 to 1997 found a statistically significant positive relationship between age at IPOs and aftermarket performance. After disaggregating the data, he further observed that the age-return relationship was different for technology and non-technology firms. He found that for non-technology firms, there was a positive relationship between firm age and return. Among the technology firms, there was a negative relationship and young firms outperformed older firms. The results are consistent with Jovanovic and Rousseau's (2001) model as mentioned above. Technology firms went public at a young age because the technologies or idea they introduced were too productive and the opportunity cost would increase higher if they delayed their going-public decision.

2.1.2 Size of Firm and Operating Performance

Several studies have documented the relationship between size of firm and its operating performance. Khurshed *et al.* (1999) found that the larger the size of a firm, which was measured in terms of net assets at the time of IPO, the better was its long-run performance. Another related study by Titman and Wessels (1988) and Schultz (1993) also found the inverse relationship between firm size and risk. Larger firms have better access to investment capital, have more diversified product lines and are better monitored since they are more likely to be backed by informed investors such as venture capitalists. All these factors contribute to reduce the uncertainty surrounding the IPOs of large firms.

In the case of Malaysia, Wu (1993) examined the long-term price performance of 70 IPOs listed in Malaysia from 1974 to 1989. He found that small sized firms tend to outperform the big sized firms, in both the short- and long-terms.

2.1.3 Dilution of Ownership and Operating Performance

When a private firm goes public through an IPO, the ownership by the managers declines because external equity dilutes the managerial shareholding. The dilution of ownership structure is influential to firm performance with respect to the agency theory and corporate control theory. Downes and Heinkel (1982) and Clarkson *et al.* (1991) showed that the proportion of retained ownership was a determinant of IPO firm value. Khurshed *et al.* (1999) found that the higher the proportion of equity sold at the time of IPO, the worse was the long-run performance. A study by Smith *et al.* (1997) found that there was a significant positive relationship between revenues and employee-share ownership, and on the other hand there was a significant negative relationship between leverage and employee share ownership.

Jain and Kini (1994) also pointed out that the "successful timing or window-dressing actions taken by issuers may result in potential investors having high, and systematically biased, expectations of earnings growth in the post-issue period". They found that IPO firms exhibit a decline in post-issue operating performance compared to the pre-issue, due to the reduction in management ownership when firms go public, which was likely to lead to agency problem.

Huang and Song (2002) also found that firm performance deteriorates after they go public due to three potential causes. First, there is the principal-agent problem (Jensen and Meckling 1976). The agency cost increases the conflict between managers and shareholders because the entrepreneurs' ownership declines and ownership becomes disperse after IPOs. The second cause is due to earnings management since IPO firm may overstate their profit before listing (Teoh *et al.* 1998). Third, the entrepreneurs may time the offering of their firms. They tend to list their firms when the firms are showing unusual good performance (Pagano *et al.* 1998). Although there are some benefits of listing, overall effects of IPOs on firm performance is negative.

2.1.4 Multi Nationality and Operating Performance

Errunza and Senbet (1981) have done a study on the effects of international operations on firm value. They found that there was a systematic positive relationship between the degree of international involvement and firm's excess market values. Another study by Chen *et al.* (1997) showed that multinational firms have larger investments in intangible assets such as research and development (R&D) and advertising, and that they have a lower level of leverage than domestic firms. Kuo and Wang (2002) also found that there was a positive relationship between leverage and internationalisation for the information technology (IT) industry but in contrast, there was a negative relationship for the non-information technology industry.

Collins (1989) divided his US sample firms into three groups. The first group was for those without significant international operations. The second group was for those with international operations in developed countries and the third group was for those with international operations in developing countries. After performing risk-return performance analysis on these 3 groups, he found that those firms which have international operations in developing countries showed inferior performance. However, there were no statistically significant differences in market performance among these three groups of firm.

Khurshed *et al.* (1999) also found a significant relationship between the degree of multinationality of a firm and its long-run performance. The more multinational a firm is (in term of subsidiaries in different countries), the better is the long-run performance. He documented that this could be the result of diversification of risk of a firm and the positive effect to investors because multinationality signals quality and reputation of a firm.

2.1.5 Pre-IPO Profitability and Operating Performance

Khurshed *et al.* (1999) found that firms which have earned profits in the last three years before they went for listing underperformed firms that were running losses before listing. Firms with net liabilities performed worse than firms with net assets before the IPOs and firms with a large turnover in the year before listing performed better than small turnover firms. Similar conclusions were reported by Mikkelsen and Shah (1994) who showed that there were reversals in operating performance pre- and post-IPOs, whereby firms failed to sustain the pre-listing level of profitability. Chaney and Lewis (1998) in their research on 489 firms, however, found a positive relationship between firm income and firm performance.

Teoh *et al.* (1998) investigated earnings management related to firm performance. They found a significant negative association between abnormal accruals during the year of offer

and stock returns over a three-year post-IPO period. The other related study by Teoh *et al.* (1999) investigated the abnormal accruals during the year of IPO and subsequent earnings performance. They also found that discretionary current accruals for the year of IPO were negatively correlated with post-IPO earnings.

Bhabra and Pettway (2002) who studied 242 IPOs in Canada from 1987 to 1991 documented that firms with a history of profitable operations were expected to have lower levels of uncertainty and risk compared to those firm with no history of earnings or negative earnings.

3. Methodology

3.1 The Data

The data used in this study comprises IPOs from both the Main Board and the Second Board of the Kuala Lumpur Stock Exchange from 1996 to 2000. There were 263 IPOs during 1996 to 2000. Due to unavailability and missing data, 101 firms were excluded from the study. Therefore, the final sample consisted of 162 IPOs (57 from Main Board and 105 from Second Board) from various industries.

The pre-IPO information was mainly obtained from IPO prospectuses. The data of new IPOs from 1996 to 2000 were compiled from *Investors' Digest*. The post-IPO data was collected from KLSE's *Annual Companies Handbook* and individual firms' Annual Reports.

3.2 Measurement of Variables

3.2.1 Operating Performance

We used three ratios as measures of operating performance of firms. The first was Operating Return on Assets (ROA), which was calculated by dividing *Income Before Extraordinary Items* by *Total Assets* as done by Shelor and Anderson (1998). The rationale of using ROA is that it is a measure of the efficiency of the utilisation of corporate assets to generate operating revenue. ROA has been widely used in previous studies such as those of Daniels and Bracker (1989), Haar (1989), Ramaswamy (1995), and Gomes and Ramaswamy (1999).

Following Shelor and Anderson (1988), the second operating performance measurement was Total Assets Turnover ratio (ATO), which was calculated by dividing *Net Sales* by *Total Assets*. ATO is an accepted measure of the efficiency of utilisation of corporate resources for generation of gross sales revenue (Lewellen and Huntsman 1970).

The final operating performance measurement was Return on Sales (ROS) as used by Shelor and Anderson (1998). It was calculated by dividing *Operating Income* by *Net Sales*. The justification for using ROS as a measure of operating performance is that it provides a good understanding of the income expressed as a fraction of sales revenue.

3.3 Measurement of Other Variables

Age of firm at IPO is computed from the date of incorporation to the date of IPO, as used in Clark (2002) and Khurshed *et al.* (1999). Firm size is measured by using the net assets of the firm in the year before the listing as done by Khurshed *et al.* (1999). To determine the

changes in ownership structure, again reference was made to the study by Khurshed *et al.* (1999), who used the percentage of equity issued at the offering to give the extent of original shareholders' ownership dilution due to offering. Multinationality was measured by the number of foreign subsidiaries the firm has (Morck and Yeung 1991). The higher the number of subsidiaries in the year of IPO, the more multinational is the firm. Profitability of the firm before IPO can be computed by using the ratio of operating income to total assets as used in Bhabra and Pettway's (2002) study.

3.4 The Tests

In order to examine whether there is a significant difference in the operating performance of IPO in the pre-IPO period compared to the post issue period, we adopted the technique used by Shelor and Anderson (1998) and made some minor modifications in order to suit to our own purposes. Our analysis focused on the six years operating performance of IPOs whereby the average three-year post issue period performance was compared to the average three-years pre-issue period performance. Shelor and Anderson's (1998) analysis for pre-IPO performance only selected 1 year to compare with post-IPO performance. Our analysis was extended to average prior 3-year pre-IPO to avoid window dressing impact because some firms may want to show unusual good performance especially one year before listing. The changes in average operating performance measurements (ROA, ATO, and ROS) were determined by comparing these items in the fiscal years surrounding the IPO. In order to determine the impact of IPO, average three years pre-IPO (average of years -3, -2 and -1) and post-IPO (average of years 0, 1 and 2) operating performance were computed to examine the presence of any significant difference between pre-IPO and post-IPO period. For newly-listed firms which have only two years post-IPO result, an average of two years performance was computed (years 0 and 1). A paired samples *t*-test of these differences was used to determine if there is a significant change in the performance.

For the second test, i.e., finding what pre-IPO factors determine the post-IPO operating performance, three multiple regression models were run. They are given below:

Model 1: ROA and Pre-IPO factors

$$\text{ROA} = a_0 + a_1 \text{Age} + a_2 \text{Size} + a_3 \text{Dilution of Ownership} + a_4 \text{Multinationality} + a_5 \text{Pre-IPO profitability} + \epsilon \dots\dots\dots (1)$$

Model 2: ATO and Pre-IPO factors

$$\text{ATO} = b_0 + b_1 \text{Age} + b_2 \text{Size} + b_3 \text{Dilution of Ownership} + b_4 \text{Multinationality} + b_5 \text{Pre-IPO profitability} + \epsilon \dots\dots\dots (2)$$

Model 3: ROS and Pre-IPO factors

$$\text{ROS} = c_0 + c_1 \text{Age} + c_2 \text{Size} + c_3 \text{Dilution of Ownership} + c_4 \text{Multi-nationality} + c_5 \text{Pre-IPO profitability} + \epsilon \dots\dots\dots (3)$$

4. Results

Table 1. Descriptive statistics of the variables

Variables	N	Minimum	Maximum	Mean	Median	Std.Dev.
ROA-PRE (%)	162	0.013	0.754	0.165	0.132	0.118
ROA-POST (%)	162	(6.267)	0.312	0.034	0.079	0.505
ATO-PRE (x)	162	0.074	5.574	1.073	0.937	0.659
ATO-POST (x)	162	0.078	2.208	0.774	0.709	0.445
ROS-PRE (%)	162	0.031	1.561	0.189	0.154	0.168
ROS-POST (%)	162	(2.814)	0.790	0.084	0.107	0.285
AGE (years)	162	1.0	40.0	7.1	3.0	8.138
SIZE (RM'000)	162	1,364	1,032,347	73,463	35,797	120,023
DILUTION (%)	162	7.1	100.0	23.7	19.6	13.7
MULTI (subsidiary)	162	0	6	0	0	0.957
Profit (%)	162	1.3	75.4	16.5	13.2	11.8

Table 1 shows the descriptive statistics of the variables being investigated in the study. The mean for return on assets (ROA) in the pre-IPO period was 16.5 per cent and 3.4 per cent after the IPO. Total assets turnover (ATO) for pre-IPO was 1.1 times and after IPO it was 0.8 times. Operating return on sales (ROS) was 18.9 per cent and 8.4 per cent respectively pre- and post-IPO. There is a good indication from the table that the three operating performance measures differed in the pre-IPO to post-IPO periods.

The average age of the firms was 7.1 years before they went public. The size of the firm, measured by net assets of the firm, ranged from RM1.4 million to RM1 billion. The average net assets of the firms was RM73 million. The dilution of ownership either through public issue or offer for sales ranged from minimum 7.1 per cent to 100 per cent. Most of the firms did not have subsidiaries overseas and the median was zero. As for profitability, measured by operating income before IPO divided by total assets, the samples had an average of 16.5 per cent with the ratio ranging from 1.3 per cent to 75.4 per cent. This suggests that the sample firms ranged from very highly profitable to very low profitable firms before they went public.

4.1 Analysis of Pre-IPO and Post-IPO Operating Performance

A paired-samples *t* test was used to test for the presence of a significant difference between pre-IPO and post-IPO operating performance. The operating performance proxies i.e. operating return on assets (ROA), assets turnover (ATO) and operating return on sales (ROS) were analysed to compare their pre- and post-IPO operating performance.

The results, as summarised in Table 2, show that ROA, ATO and ROS are significantly different in the pre-IPO and post-IPO at 5 per cent significance level. Specifically, we notice that the operating performance was far better before the firms went public. This result is in line with some previous studies such as that of Jain and Kini (1994), Ritter (1991), Loughran and Ritter (1995), Cai and Wei (1997), DuCharme *et al.* (2000), and Chan *et al.* (2001)

Table 2. Operating performance difference between pre and post-IPO of sample firms

Operating performance	Mean	Mean difference	t-statistic	Sig. (2-tailed)
Pre-IPO ROA	0.165	0.131	3.290	0.001
Post-IPO ROA	0.034			
Pre-IPO ATO	1.073	0.298	6.207	0.000
Post-IPO ATO	0.774			
Pre-IPO ROS	0.189	0.105	4.541	0.000
Post-IPO ROS	0.084			

whereby their results also showed that the operating performance of new listed firms declined after IPOs. The reason for the decline in post-IPO operating performance may be due to the window dressing problem as stated in the study by Chan *et al.* (2001). Their study documented that the decline in performance of post-IPO may be due to managers attempting to window-dress their accounting reports prior to IPO leading to pre-IPO operating performance being over-stated and post-IPO performance being under-stated.

4.2 Pre-IPO Factors as Determinants of Post-IPO Operating Performance

Multiple regression was employed to investigate whether pre-IPO factors could explain the variation in the post-IPO operating performance of the firm. All the post-IPO operating performance measures i.e. ROA, ATO and ROS are the dependent variables whereas age of firm, size of firm, dilution of ownership, multi-nationality and profitability of a firm before listing are the independent variables.

Table 3 summarises the results for the multiple regression analysis. The results of model 1 indicate that size of firm and pre-IPO profitability have a significant relationship with ROA. The coefficient was -0.152 ($t=-1.949$) and 0.411 ($t=5437$) respectively for size and pre-IPO profitability, which is significant at 5 per cent level.

From Model 2 where the ATO was used as a measure of operating performance, it was found that size of firm significantly explains operating performance. The coefficient of -0.346 for size indicates that there is a negative relationship between size and operating performance. This is significant at 5 per cent level. The other pre-IPO factors were not significant in explaining operating performance.

Model 3 shows that a pre-IPO firm's profitability has a strong positive relationship with operating performance as measured by ROS. The beta value of 0.319 with a t -value of 3.712 is significant at 5 per cent level. The other factors, however, do not significantly explain ROS. The R^2 of this model was 12.8 per cent which was lower than that of model 1 (22.5 per cent) but a bit higher than that of model 2 (12.0 per cent)

The results of all the three models show that there is no significant relationship between age of firm and post-IPO operating performance which is measured by ROA, ATO and

Table 3. Pre-IPO factors determining post-IPO operating performance

Independent variables	Dependent variables		
	Model 1: ROA	Model 2: ATO	Model 3: ROS
Age	-0.021 (-0.28)	0.018 (0.226)	0.018 (0.208)
Size	-0.152 (-1.949)*	-0.346 (-4.309)*	0.132 (1.478)
Dilution	0.103 (1.369)	0.015 (0.185)	0.111 (1.313)
Multinationality	-0.044 (-0.568)	-0.034 (-0.432)	-0.139 (-1.602)
Profitability	0.411 (5.437)*	-0.032 (-0.412)	0.319 (3.712)*
R ²	0.225	0.120	0.128

Note :

Figures indicate beta coefficient of each variable

Figures in parentheses indicate the *t*-value

* Indicate significant at 5 per cent level

ROS. This result differs from previous studies such as that of Schultz (1993) who found that older firms are less likely to fail after their IPOs. Results from Clark (2002) showed that technology firms have negative age-return relationship (young firms outperformed older firms) whereas non-technology firms have a positive age-return relationship. However, it should be noted that our samples consisted only of 2 firms from the technology sector and most of the firms were young (median age = 3 years); it may give insignificant results for our test.

Our results show that there is no significant relationship between dilution of ownership and post-IPO operating performance. This result is not consistent with the previous studies which found a negative relationship between dilution of ownership and post-IPO operating performance. The studies of Jain and Kini (1994), Huang and Song (2002) and Khurshed *et al.* (1999) found that the reduction in management ownership or the higher the proportion of equity sold at the time of IPO, the worse the operating performance.

The analyses also showed no significant relationship between multinationality and post-IPO operating performance. This result is not consistent with the studies of Errunza and Senbet (1981), Collins (1989), Khurshed *et al.* (1999) that there is a positive relationship between the degree of international involvement and firm operating performance resulting from diversification of firm risk, which allows a firm to capture economies of scale, or geographic scope. Out of 162 firms in our sample, only 31 firms had at least one subsidiary overseas and this could have led to our result showing insignificant relationship between multinationality and post-IPO operating performance.

The size of a firm, which is measured by net assets, has shown a negative relationship with return on asset (ROA) and asset turnover (ATO). Our results show that the larger the firm, the lower the post operating performance. This result is consistent with Wu's (1993)

study in the case of Malaysia whereby he found that small-sized firms tend to outperform the big-sized firms both in the short and long terms. However, it is not consistent with the study of Khurshed *et al.* (1999) where they found that larger firm have better performance in the long-run.

Pre-IPO firm profitability is an important factor in determining the post-IPO operating performance because two out of three operating performance proxies, i.e. ROA and ROS have shown a significant positive relationship to pre-IPO firm profitability. Comparing with the previous studies, our result is consistent with Bhabra and Pettway's (2002) finding that pre-IPO high profitability firms have better performance after IPO. On the other hand, it is inconsistent with the studies of Khurshed *et al.* (1999) and Mikkelsen and Shah (1994). Their studies showed that the changes in operating performance before IPOs and after IPOs are negatively related whereby operating performance fails to sustain pre-listing level of profitability. The positive relation of pre-IPO firm profitability to post-IPO operating performance in our result may imply that earnings management was not practised by our sample firms before they went public.

5. Conclusion

There have been many studies looking at short-run and long-run price performance of firms after they go public. Relatively less studies have been done to look at operating performance of IPO firms. Hence, using a sample of firms listed on the Kuala Lumpur Stock Exchange, this study was undertaken to investigate if operating performance differs for these firms before and after their shares are listed on the exchange. The study also attempted to determine what pre-IPO factors could determine post-IPO performance.

Based on the tests and the results presented above, we can conclude that there was a significant difference between pre-IPO and post-IPO operating performance of KLSE firms to the extent that operating return on assets (ROA), assets turnover (ATO) and operating return on sales (ROS) were used as the proxies for operating performance. More specifically, we found that there is a significant decline in the operating performance after the firms go public. We also found that age of firm, multi-nationality and dilution of ownership of firm were not significant factors determining the post-IPO operating performance. Only two factors significantly influenced post-IPO operating performance, namely size and pre-IPO profitability of firms. We found that size of firm has a significant negative relationship with post-IPO operating performance when using Return on Asset (ROA) and assets turnover (ATO) as measures of operating performance, i.e. smaller firms have better ATO than larger firms. With regard to pre-IPO profitability, we found that pre-IPO firms' profitability has a significant positive relationship with operating performance as measured by ROA and ROS.

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