WHO ACTUALLY DID GAIN FROM THE UNDEPRICING OF IPO'S

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ABSTRACT

The existence of underpricing for initial public offerings (IPOs) of stocks in the advanced markets in the West is well documented in literature. This paper presents the levels of underpricing for IPOs in Malaysia over a more recent period than documented in prior studies. IPOs are examined in the present study over the period January 1990 to December 1994, a period where IPOs are offered in record number, a total of over 220 issues. Unlike previous studies on the Malaysian IPOs, this study further narrows the initial return horizon by dividing the return on the first day of trading into an opening price (offer-to-open) return and an intraday (open-to-close) return, in order to determine who actually gains from IPO underpricing, i.e., whether the benefits of underpricing accrue almost entirely to the subscribers or the secondary market traders may also participate in the return. This paper also focuses on the possible explanations for the levels of underpricing recorded, based on the size of the company, and the oversubscription ratio. Using a sample of 224 IPOs listed on the Kuala Lumpur Stock Exchange (KLSE) from January 1990 to December 1994, this study documents an average initial (offer-to-open) return of 72.849 percent (72.634 percent adjusted return), an average substantially lower than those found in earlier studies on the KLSE. The average oversubscription ratio of 32.318 times is also lower than those those found in earlier studies. Overall, both mean returns and adjusted mean returns indicate that benefits of underpricing do not accrue to the secondary market traders, either on the first day or seven days later. This is consistent with the results of a study by Barry and Jennings (1993) on the US markets (NYSE, AMEX and OTC firms). Initial observation seems to indicate that small companies (paid-up capital less than RM20 million) and large companies (paid-up capital larger than RM100 million) have mean returns lower than the medium sized companies (paid-up capital between RM20 million and RM100 million). Standard deviation of returns tend to increase with the increase in the size of company. However, statistically speaking, size of company is not signifi-

cantly related to initial return. This study also documents the significant relationship between the oversubscription ratio and the initial return, i.e., the larger the oversubscription ratio, the larger is the initial return.

1. INTRODUCTION

The existence of underpricing for initial public offerings (IPOs) of stocks is well documented in literature. A comprehensive review can be found in Ibbotson and Ritter (1993). Studies such as those by Reilly and Hatfield (1969), Neuberger and Hammond (1974), Bear and Curley (1975), Ibbotson (1975), Reilly (1977), Block and Stanley (1980), Baron (1982), Rock (1986), Chalk and Peavy (1987), Miller and Reilly (1987), Allen and Faulhaber (1989), Grinblatt and Hwang (1989), Welch (1989), and Chemmanur (1993) all indicate the existence of underpricing phenomenon with IPOs. A number of explanations have been developed to try to explain this phenomenon. Baron (1982), Rock (1986), Beatty and Ritter (1986), Beatty (1989) and Levis (1990) suggest that underpricing is the result of a winner's curse to uninformed investors caused by asymmetric information between groups of informed and uninformed investors. The informed investors are assumed to have access to information regarding the true value of IPOs, and so they will only subscribe to an IPO if the expected after-market price exceeds the offering price. On the other hand, the uninformed investors are assumed to subscribe to all IPOs indiscriminately, and so they will end up purchasing the overpriced offerings as well; this is referred to as the winner's curse or the Rock's (1986) Winner's Curse model. Therefore, realising that they will be receiving the overpriced offerings, the uninformed investors will stay out of the new issue market. In order to ensure that the offering is fully subscribed, the IPO has to be underpriced to entice the uninformed investors into the market.

Allen and Faulhaber (1989), Grinblatt and Hwang (1989), Welch (1989) and Chemmanur (1993) suggest that asymmetric information causes quality firms to signal their quality by underpricing, and in doing so, they expect to raise capital under better terms in the future. Ibbotson (1975) and Tinic (1988) argue that underpricing results because the issuing firms want to avoid lawsuits because lawsuits by unhappy investors are less likely when issues are underpriced.

The explanations of underpricing, in a way, suggest that the market is likely to immediately recognise and thus correct the underpricing situation upon the start of trading. We, therefore, can expect the large initial returns to be realised at the opening of the market as a "bonus" to the

investors who are willing to participate in the presale market and in the initial allocation. On the other hand, as Welch (1992) argues, there is this notion of informational cascades, where investors ignore their private information and follow the behaviour of the preceding investors. In the context of IPOs, those issues enjoying a larger-than-average initial (offer-to-open) return would also enjoy a larger-than-average first day (open-to-close) return as investors attempt to "get on the bandwagon", so to speak. This means that there is a tendency for "speculative bubbles" to develop in the early trading rounds.

An early study by Dawson (1987), from 1978 to 1983, using 21 new issues, reported a positive average initial return (first day closing price compared to offer price) of 166.7 percent for the Malaysian stocks, while Yong (1991) documented an average initial return of 167.4 percent. Both Dawson (1987) and Yong (1991) documented an average oversubscription ratio of about 46 times. Ismail *et al.* (1993), using 63 new issues from 1980 to 1989, reported an average initial excess return (initial return adjusted for market movement) of 114.6 percent. Finally, Loughran *et al.* (1994) reported an average initial return of 80.3 percent for 132 Malaysian IPOs for the period 1980-91. Among the reasons given for underpricing of Malaysian IPOs are the pricing restraints applied by the Capital Issues Committee (since March 1993, its functions were officially taken over by the Securities Commission) and uncertainty regarding the value of new issues (see Dawson 1994).

This paper has three major objectives. First, to document the levels of underpricing for IPOs in Malaysia over a more recent period than documented in prior studies. IPOs are examined in the present study over the period January 1990 to December 1994, a period where IPOs are offered in record number, a total of over 220 issues. Second, unlike the previous studies on the Malaysian IPOs, and in line with the argument in the previous two paragraphs, this study will focus more on the initial (offer-to-open) return and the first day (open-to-close) return, i.e., this study further narrows the return horizon by dividing the return on the first day of trading into an opening price (offer-to-open) return and an intraday (open-to-close) return. Previous empirical work has not addressed the question of who actually gains from IPO underpricing because it uses offer-to-close returns. This study will find out whether the benefits of underpricing accrue almost entirely to the subscribers or secondary market traders may also participate in the return . The third objective focuses on the possible explanations for the levels of underpricing recorded, based on the size of the company, and the oversubscription ratio.

The remainder of this paper is organised as follows. Section 2 presents the data and methodology used. Section 3 presents the empirical results. Finally, Section 4 concludes the paper.

2. DATA AND METHODOLOGY

The sample used in this study comprises 224 initial public offerings listed on the Main Board and the Second Board of the Kuala Lumpur Stock Exchange (KLSE), the only active stock exchange in Malaysia. Two stocks were excluded from the sample because they were listed on the KLSE without the offer price. These stocks are Syarikat Kurnia Setia (listed on November 6, 1991) and Ekran Berhad (listed on October 12, 1992). The primary source of the data is the various January issues of the *Investors Digest*, a publication of the KLSE. Prices at the end of each trading period were obtained from various daily newspapers.

For each initial public offering, the following measures are calculated:

(1) The initial return or the offer-to-open return is defined as the percentage change in price from the offering date to the opening price on the first day of trading.

(2) The day one return or the open-to-close return is defined as the percentage change in price from the opening on the first day of trading to the closing price on the first day of trading.

(2) The day two return is the percentage change in price from the closing on the first day of trading to the closing on the second day of trading.

(3) The day2-to-day7 return is the percentage change in price from the closing on the second day of trading to the closing on the seventh day of trading.

(4) The initial adjusted return is defined as the percentage change in price from the offering date to the closing on the first day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

(5) The day two adjusted return is defined as the percentage change in price from the the the closing on the first day of trading to the closing on the second day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

(6) The day2-to-day7 adjusted return is defined as the percentage change in price from the closing on the second day to the closing on the seventh day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

In cases where there is no trading on the second day, or the second day is a non-market day, the next available trading day is taken as the second day. If the seventh day of trading falls on Saturday, the previous Friday's price is used, and if it falls on Sunday, the next day Monday's price is used.

Measures of adjusted returns used in this paper do not explicitly adjust for systematic risk. A number of studies, such as that of Ibbotson (1975) for the U.S., and Sudarsanam (1992) for the UK market have demonstrated that the average beta of newly listed firms is higher than 1.00. Therefore, our assumption of IPO betas equal to 1.00 is likely to provide conservative estimates of IPOs' underperformance. Dawson (1987) also took an approach of assigning beta to these new issues to be equivalent to one based on the earlier studies by Bear and Curley (1975) and Buckland, Herbert and Yeomans (1981) which concluded that there was no evidence that the betas attached to new issues are significantly different from one.

3. FINDINGS

3.1. Oversubscription Ratio and Initial Return

Table 1 gives a summary of the characteristics of IPOs over the period 1990-94. Out of the total 224 IPOs issued over this period, the highest number of issues of 66 is documented in 1994, while the lowest number of issues of 30 is registered in 1990. The average oversubscription ratio for the period is 32.318 times, with the highest average of 42.588 times registered in 1994, and the lowest average of 14.536 times recorded in 1992. This average oversubscription ratio of 32.318 times is significantly lower than the average of about 46 times documented in earlier studies by Dawson (1987) and Yong (1991).

The average offer price for the period is RM2.349, with the lowest average of RM2.037 recorded in 1991 and the highest average of RM2.553 recorded in 1993. In terms of the average opening price, the average for the entire period 1990-94 is RM4.043. The lowest average opening price is RM2.865, recorded in 1991, and the highest average of RM5.192 is recorded in 1994.

The average initial return (offer-to-open) for the 1990-94 period is 72.849 percent (initial adjusted return of 72.634 percent), with the lowest average initial return of 40.010 percent (initial adjusted return of 39.347 percent) registered in 1992, and the highest average initial return of 108.140 percent (initial adjusted return of 110.732 percent) recorded in 1994. These average initial returns are significantly different from zero. The average initial return of 72.849 percent (initial adjusted return of 72.634 percent) for the entire 1990-94 period is lower than those documented in the earlier studies by Dawson (1987), Yong (1991), Ismail *et al.* (1993), and Loughran *et al.* (1994). Initial return averages are high in 1993 and 1994. While the high average in 1993 can be said to be

attributed to the bullish market that year, it is not clear why the average is still high in 1994 when the market is bearish. It is worthwhile to note here that there is no significant difference between the values for average initial return and the average initial adjusted return.

TABLE 1

CHARACTERISTICS OF NEW ISSUES ACCORDING TO YEAR

Year	No. of issues	Average over-subscription ratio (times)	Average offer price	Averaga opening price	Average initial return (offer-to-open)@
1990	30	30.816	RM2.240	RM3.478	59.124% (59.560%)**
1991	39	28.811	2.037	2.865	42.086 (42.402)**
1992	45	14.536	2.369	3.382	40.010 (39.347)**
1993	44	39.231	2.374	4.424	90.126 (85.244)**
1994	66	42.588	2.553	5.192	108.140 (110.732)**
1990-94	224	32.318	2.349	4.043	72.849 (72.634)**

Notes: *   Significantly different from zero at the 5% level.
       **   Significantly different from zero at the 1% level.
       @   Average initial adjusted returns are shown in the parentheses.

TABLE 2

MEAN RETURNS AND ADJUSTED MEAN RETURNS ACCORDING
TO YEAR, OVER VARIOUS TIME INTERVALS

	1990	1991	1992	1993	1994	1990-94
			Panel A. Mean return			
Day One						
Open-to-close@	-3.200%	-1.249%	2.806%	4.157%	2.495%	1.469%
Standard deviation	9.840	9.794	16.324	15.633	14.703	14.070
Day Two						
Close-to-close@@	-0.662	-0.109	-2.304*	0.003	-1.493*	-1.010**
Standard deviation	4.903	3.336	6.933	5.026	6.031	5.545
Day2-to-Day7						
Close-to-close#	-0.825	-0.473	-1.502	0.352	0.685	-0.224
Standard deviation	7.937	5.561	5.202	9.679	11.046	8.552
			Panel B. Adjusted mean return			
Day One						
Open-to-close@	-3.316%	-1.052%	1.101%	4.032%	2.562%	1.141%
Standard deviation	10.814	9.950	20.058	15.481	14.732	15.057
Day Two						
Close-to-close@@	-0.159	0.105	-2.186*	-0.332	-1.587*	-0.975**
Standard deviation	4.744	3.700	6.976	5.176	5.756	5.520
Day2-to-Day7						
Close-to-close#	-0.737	-0.902	-1.485	-0.646	1.032	-0.377
Standard deviation	6.178	4.844	5.240	9.402	10.539	8.045

Notes: * Significantly different from zero at the 5% level.
** Significantly different from zero at the 1% level.
@ Mean return from the opening price on the first day of trading to the closing price on the first day of trading.
@@ Mean return from the closing price on the first day of trading to the closing price on the second day of trading.
# Mean return from the closing price on the second day of trading to the closing price on the seventh day of trading.

3.2. Mean Returns after Opening Price

Table 2 presents mean returns and standard deviation of returns for Day 1, Day 2, and Day2-to-Day7, for each year, and for the entire 1990-94 period. Adjusted mean returns and standard deviations are shown in Panel B of Table 2. The open-to-close return for Day 1 averages 1.469 percent (adjusted mean return of 1.141 percent) for the entire period 1990-94. This value is not significantly different from zero at the 5 percent level. This result implies that the secondary market traders do not benefit from the underpricing of IPOs, i.e., the benefits of underpricing accrue entirely to the subscribers. This is in line with the results of a study by Barry and Jennings (1993) on the US stock markets (NYSE, AMEX and OTC firms) which concluded that the benefits of underpricing accrue almost entirely to the subscribers.

In general, mean returns for Day 2 decline from the the open-to-close returns on Day 1. The declines are significant in 1992 and 1994, at the 5 percent level. In fact, the decline is significant for the entire 1990-94 period, at the 1 percent level. However, the mean returns for Day2-to-Day7, in all the years, are not significantly different from zero at the 5 percent level.

Overall, both mean returns and adjusted mean returns indicate that benefits of underpricing do not accrue to the secondary market traders, either on the first day or 7 days later. In fact, even though not significant enough, the evidence suggests a decline in return accruing to secondary market traders after the opening price on the first day of trading.

3.3. Initial Return and Size of Company

In Table 3, initial returns of IPOs are categorised according to the size of the company, as measured by the company's paid-up capital. Here, initial return is defined as the percentage change in price from the offer date to the closing price on the first day of trading. This new measure of initial return is used because of the following reason. The fact that open-to-close returns on Day 1 are not significantly different from zero as shown in Table 2, implies that offer-to-close returns are not significantly different from offer-to-open returns, and allows us to use offer-to-close returns as proxy for initial returns. This measure of initial return is consistent with previous studies (either on the Malaysian or US markets) which use similar measure.

It should be noted here that companies with paid-up capital of RM5 million but less than RM20 million are considered small companies, and according to the listing requirements of the KLSE,

can only be listed on the Second Board, whereas those with paid-up capital of RM20 million or more are listed on the Main Board of the KLSE. Companies with paid-up capital of RM20 million but less than RM100 million are considered medium-sized companies, and those with paid-up capital of more than RM100 million are considered large companies.

Small companies have an average initial return of 72.3932 percent (adjusted initial return of 72.1509 percent). Medium-sized companies exhibit an average initial return of 81.3657 percent (adjusted initial return of 80.0612 percent). Large companies record an average initial return of 72.8926 percent (adjusted initial return of 72.7222 percent), an average which is close enough to that of the small-sized companies. This means that both mean initial returns and mean adjusted returns exhibit a pattern in which small and large companies show lower returns compared to medium-sized companies. Furthermore, as indicated by the standard deviation of returns, the larger the size of the company, the more volatile (as measured by the standard deviation) is the return. However, as shown by the F-values and the P-Prob values, statistically speaking, the difference in mean returns among the groups, based on the size of company, is not significant even at the 5 percent level.

As shown in Table 3, the overall average initial return for the entire period 1990-94 is 75.0259 percent (average adjusted initial return of 74.4901 percent), an average slightly higher than the offer-to-open return of 72.849 percent (adjusted return of 72.634 percent) shown in Table 1. Of course, this average is still lower than those reported in earlier studies on the Malaysian market.

3.4. Initial Return and Oversubscription Ratio

In Table 4, initial returns of IPOs are further categorised according to the oversubscription ratio. Companies with oversubscription ratio of less than 10 times register the lowest average initial return of 36.1636 percent (adjusted initial return of 34.4082 percent), whereas companies with oversubscription ratio greater than 40 times record the highest average initial return of 98.4378 percent (adjusted initial return of 97.3260 percent). This means that both average initial returns and average adjusted initial returns show a similar pattern, i.e., the larger the oversubscription ratio, the larger is the average return. However, unlike the case of the size of company, the volatility (as measured by the standard deviation) of the mean return is not always parallel or in tandem with the oversubscription ratio.

As shown by the F-values and the P-Prob values, the difference in mean returns among groups, based on the oversubscription ratio, is significant. To further investigate this phenomenon, the

independent t-test is run. The results of the t-test are shown in Table 5. Group 4 (oversubscription ratio more than 40 times) always outperforms all other groups. Group 3 outperforms Group 1, and Group 2 outperforms Group 1. Only Group 2 and Group 3 are not significantly different in terms of their mean returns.

TABLE 3

CHARACTERISTICS OF INITIAL RETURN AND ADJUSTED INITIAL RETURN ACCORDING TO SIZE OF THE COMPANY, AS MEASURED BY THE PAID-UP CAPITAL

Size of company	N	Mean	Std. Dev.
Panel A: Initial Return@			
Less than RM20m	129	72.3932%	45.9187%
RM20m to < RM100m	64	81.3657	69.7964
More than RM100m	31	72.8926	76.0878
Overall	224	75.0259	58.1511
F-value = 0.5312			
P-Prob value = 0.5887			
Panel B: Adjusted Initial Return@@			
Less than RM20m	129	72.1509%	45.7143%
RM20m to < RM100m	64	80.0612	69.3074
More than RM100m	31	72.7222	73.7777
Overall	224	74.4901	57.4573
F-value = 0.4202			
P-Prob value = 0.6574			

Notes: @ Initial return is defined as percentage change in price from the closing on the offering date to the closing on the first day of trading.

@@ Initial adjusted return is defined as percentage change in price from the offering date to the closing on the first day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

TABLE 4

CHARACTERISTICS OF INITIAL RETURN AND ADJUSTED INITIAL RETURN ACCORDING TO OVERSUBSCRIPTION RATIO

Oversubscription ratio (times)	N	Mean	Std. Dev.
Panel A: Initial Return@			
Less than 10	28	36.1636%	41.4602%
10 to < 20	49	69.1160	70.9883
20 to < 40	86	74.4398	47.8942
More than 40	61	98.4378	56.7664
Overall	224	75.0259	58.1511

F-value = 8.3957
P-Prob value = 0.0000

Oversubscription ratio (times)	N	Mean	Std. Dev.
Panel B: Adjusted Initial Return@			
Less than 10	28	34.4082%	41.1937%
10 to < 20	49	68.9470	68.4681
20 to < 40	86	74.5006	48.9429
More than 40	61	97.3260	55.2953
Overall	224	74.4901	57.4573

F-value = 8.7277
P-Prob value = 0.0000

Notes: @ Initial return is defined as percentage change in price from the closing on the offering date to the closing on the first day of trading.

@@ Initial adjusted return is defined as percentage change in price from the offering date to the closing on the first day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

TABLE 5

RESULTS (t-STATISTICS) OF INDEPENDENT t-TEST BETWEEN GROUPS

Group#	2	3	4
	Panel A: Initial Return##		
1	-2.57*@ (0.012)	-3.79** (0.000)	-5.20** (0.000)
2		-0.47@ (0.641)	-2.41* (0.018)
3			-2.77** (0.006)
	Panel B: Adjusted Initial Return###		
1	-2.76**@ (0.007)	-3.90** (0.000)	-5.37** (0.000)
2		-0.50@ (0.619)	-2.41* (0.018)
3			-2.64** (0.009)

Notes: #   Groups are based on the oversubscription ratios. Group 1: oversubscription ratio of less than 10 times. Group 2: oversubscription ratio of 10 times to less than 20 times. Group 3: oversubscription ratio of 20 times to less than 40 times. Group 4: oversubscription ratio of more than 40 times.

Initial return is defined as percentage change in price from the closing on the offering date to the closing on the first day of trading.

Adjusted initial return is defined as percentage change in price from the offering date to the closing on the first day of trading less the equivalent change in the KLSE Composite Index (KLSE CI).

*   Significant at the 5% level.
**   Significant at the 1% level.
@   Using separate variance estimate. The rest, using pooled variance estimate.

4. CONCLUSIONS

Using a sample of 224 IPOs listed on the KLSE from January 1990 to December 1994, this study documents an average initial (offer-to-open) return of 72.849 percent (72.634 percent adjusted return), with the recomputed average initial (offer-to-close) return of 75.0259 percent (adjusted initial return of 74.4901 percent). These averages are substantially lower than those found in earlier studies on the KLSE. The average oversubscription ratio of 32.318 times is also lower than those found in earlier studies.

Overall, both mean returns and adjusted mean returns indicate that benefits of underpricing do not accrue to the secondary market traders, either on the first day or seven days later. In fact, even though not significant enough, in some cases, the evidence suggests a decline in return accruing to secondary market traders after the opening price on the first day of trading. The results imply that only the subscribers of securities in the IPO itself (as opposed to buyers in the aftermarket) benefit from the underpricing of IPOs. This is also the finding of a study by Barry and Jennings (1993) on the US stock markets (NYSE, AMEX and OTC firms). This is consistent with the theories, such as Rock's (1986) model of asymmetric information and Benveniste and Spindt's (1989) model of the price adjustment and information acquisition process, which argue that underpricing provides rewards to those who allow the IPO process to work by purchasing securities in the initial offering.

Initial observation seems to indicate that small companies (paid-up capital less than RM20 million) and large companies (paid-up capital larger than RM100 million) have mean returns lower than the medium-sized companies (paid-up capital between RM20 million and RM100 million). Standard deviation of returns tend to increase with the increase in the size of company. However, statistically speaking, size of company is not significantly related to initial return. This study also documents a significant relationship between the oversubscription ratio and the initial return, i.e., the larger the oversubscription ratio, the larger is the initial return.

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