

AN ANALYSIS OF IPOs UNDERPRICING IN MAURITIUS

S. K. Bundoo¹

University of Mauritius, Mauritius

E-mail: sbundoo@uom.ac.mu

ABSTRACT

Many studies have documented that Initial Public Offerings (IPOs) of equity are substantially underpriced. This paper provides evidence on underpricing in Mauritius using the whole population of firms that went public between 1989 and 2005. The Mauritius environment is interesting given that the Stock Exchange of Mauritius (SEM) started operations as from July 1989 and the IPO market is seen as an important avenue for the raising of funds and for the growth of the private sector. It is found that a significant number of companies earn large positive returns on the first day of listing. When analyzing the daily return over a 7-day interval, it is found that the positive initial return persists for fifty per cent of the companies. The largest companies are the most underpriced, in agreement with the signaling hypothesis. However companies with small market capitalization also exhibit a high degree of underpricing. The regression model shows that the size of the issue and the return on the SEMDEX (the market index) are the statistically significant explanatory variables accounting for the degree of underpricing.

Key words: initial public offerings, determinants of underpricing, stock exchange of Mauritius

JEL Classification: C32, E32

¹ Other contact details: Department of Economics & Statistics, Reduit, Mauritius, sbundoo@uom.ac.mu

I. INTRODUCTION

Many studies have documented that Initial Public Offerings (IPOs) of equity are substantially underpriced. That means that an investor who purchases new issues at the offering price and sells them at the closing price on the first day of listing can, on average, make relatively large returns. This paper provides evidence on underpricing in Mauritius using the population of firms that went public between 1989 and 2005. So the sample examined is the whole population. This is a useful addition to the literature as in many studies only a sample of IPOs is examined. The Mauritius environment is interesting given that the Stock Exchange of Mauritius (SEM) started operations from July 1989 and the IPO market is seen as an important avenue for the raising of funds and for the growth of the private sector. With the government's privatization programme, where the government's stake in para-statal bodies is being sold to the public and to private institutions, the IPO market assumes even greater significance.

The Stock Exchange of Mauritius (SEM) has been in operation for slightly more than sixteen years. Trading on the official market started in July 1989 with five listed companies and a market capitalization of 1.4 billion rupees. As at December 2005, there are forty domestic companies listed and the market capitalization in US dollars has increased from 92.26 million in 1989 to 2,645.90 million. The exchange is run and managed by the Stock Exchange of Mauritius (SEM) Limited and is regulated by the Financial Services Commission (FSC) Limited. The SEMDEX is the index of all listed shares.

There are a few studies confirming that the market is efficient at least in the weak form. For instance, Magnusson and Wydick (2002) finds that the SEM passes both Random Walk I and Random Walk II models of market efficiency. While it is true that African stock markets cannot match the efficiency of the US market, the study finds that they are at par with many emerging stock markets in Latin America and Asia.

The paper is structured as follows. Section II provides a summarized review of previous empirical studies on IPOs. Section III describes the data and methodology. In section IV, the initial daily return and the return over a 7-day window are presented and analyzed. Several empirical relationships between underpricing and other variables such as size, industry, and year of issue are investigated. A regression model analyzing the determinants of underpricing in the Mauritian context is then presented and discussed. The paper then concludes with a summary of the major findings and presents areas for future research.

II. LITERATURE REVIEW

Several researchers have suggested various potential explanations as to why the offer price is substantially lower than the first after market price. Some studies argue that underpricing is the result of ex-ante uncertainty about the share price in the after market, for instance, see Ritter (1984) and Beatty and Ritter (1986)). Many studies, [Firth (1997); and Paudyal (1998)] also suggest that it is in fact investors' over-optimism about the IPOs which leads to the initial listing price shooting up way above their fundamental values. Researchers have also introduced the signaling hypothesis, the litigation hypothesis and several asymmetric information models. In this section, we briefly review the theoretical models, which have been developed in an attempt to explain the IPO puzzle.

According to the investor over-reaction hypothesis, it is the excessive buy pressure in the early rounds of trading which leads to the closing price on the first day of trading to move to a much higher level compared to the initial offer price. As Levis (1993, pp. 40) stated: "while a certain level of first day returns is the result of intentional underpricing, marked deviations from this baseline represent some form of market over-reaction". Investors tend to overvalue the issues in the early rounds of trading.

The signaling hypothesis posits that, 'good' quality firms significantly underprice their issues to distinguish them from 'bad' quality firms. It is argued that the level of underpricing acts as a

signal because only firms with good growth prospects are able to recoup the capital lost from such underpricing. Empirical research supporting the signaling hypothesis includes the work of Allen and Faulhaber (1989), Grinblatt and Hwang (1989), Chemmanur (1993), Reber et al. (2005). Firms with good quality projects can use several instruments to convey this private information to outsiders. Some of these are:

- (i) The percentage of ownership retained by the insiders [Leland and Pyle (1977), Downes and Heinkel (1982), Balatbat et al. (2005)].
- (ii) The use of the issue proceeds (Firth, 1997).
- (iii) Underwriters' reputation [Titman and Trueman (1986), Carter and Manaster (1990), Fields et al. (2003)].

There are two main models developed in the literature supporting the asymmetric information hypothesis: the Baron's (1982) model and the Rock's (1986) model. According to the Baron's model, it is assumed that the investment bankers/underwriters have more information about the demand for a security than the issuers have. The issuer has to compensate the underwriter for the use of his/her superior information set. Rock, on the other hand, assumes that there are two groups of investors in the IPO market: the informed investors and the uninformed investors who subscribe to every IPO indiscriminately. Systematic underpricing is needed in order for the uninformed buyers to earn a normal expected rate of return on the shares allocated to them.

According to the litigation hypothesis, issuers and underwriters tend to underprice their issues in order to avoid the risk of litigation (Tinic, 1988).

III. DATA AND METHODOLOGY

Shares prices data were obtained from the SEM and prospectuses and financial statements by writing to the listed companies. Reminders were often necessary. The percentage of initial return is computed as the percentage difference between the closing price and the offer price and its evolution is tracked over a 7-day

window. Next regression analysis is used to investigate the determinants of the degree of underpricing on the SEM, with emphasis on testing the signaling hypothesis. In the regression models the initial return used is the raw excess return.

IV. EMPIRICAL RESULTS

A. An Analysis of the IPO Returns

Unlike other markets, *prima facie* it would seem that the degree of underpricing on the Stock Exchange of Mauritius is not as pronounced as in other markets. As can be seen from Table 1, the mode first day return is in the range of 0 to 10 percent, with a mean underpricing of nearly 15.2 percent. However, when analyzing the dispersion of the first day return from Table 2, it is found to be quite large, ranging from negative 16.67 percent to 108.33 percent.

Table 1 The Degree of Underpricing

Percentage	Number of cases	Percentage of Total
< 0	1	2.5
0 - 10	22	55.0
11 - 20	9	22.5
21 - 30	3	7.5
31 - 40	2	5.0
41 - 50	1	2.5
> 50	2	5.0
	40	100

(Source: Author's computations)

Table 2 First Day Return by Company

SECURITY	INITIAL RETURN	SECURITY	INITIAL RETURN
AMTS	16.67	MEI	11.11

ASL	40.00	MLC	0.00
BAI	0.00	MOR	10.00
BMH	0.00	MOUNT	0.00
CMPL	15.00	MSM	10.00
COURTS	5.00	MTMD	6.67
FINCORP	0.00	MUA	38.75
GCL	12.07	NMH	7.14
GBH	9.69	NIT	11.00
GIDC	11.11	PAD	25.00
H F	0.00	PIM	42.11
H M	-16.67	POLICY	17.78
HWF	0.00	ROGERS	9.09
IBL	108.33	SAVA	15.00
LIT	22.00	SBM	2.50
MBL	20.83	SHELL	8.00
MCB	9.06	SUN RESORTS	0.00
MCFI	5.00	SWAN	13.51
MDA	10.00	UBP	5.47
MDIT	5.45	UTD DOCKS	101.00

(Source: Author's computations)

Some studies argue that the large first day return disappears quite quickly as trading in the security continues in the days following initial return. However, there are some other studies, which claim that the large initial return persists over a number of days. This issue is investigated on the Stock Exchange of Mauritius. When analyzing the evolution of the initial return over a seven-day period for each security from Table 3 below, the following observations can be made:

- (a) Nineteen companies or approximately fifty per cent have enjoyed consistently high positive return on a daily basis over the 7-day window following the date of initial quotation on the exchange. This is in accordance with the large body of empirical evidence on IPOs documenting large short-term positive returns.
- (b) However, it must also be noted that a number of companies have also experienced a negative initial return over the 7-day period. But except for six companies, when the initial return is negative, it is usually on the low side. It could be due to inappropriate market timing on the part of the companies or the offer price was set too high in the estimation of the market. When analyzing the SEMDEX over this time period, it is found that the market was on average bearish.

Table 3 Evolution of Initial Return over a 7-Day Window

Company	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
AMTS	14.00	7.14	2.78	0.86	1.43	-6.00	-7.14
ASL	-16.43	-25.71	-25.71	-22.86	-25.00	-27.86	28.57
BAI	2.08	2.08	-12.50	-14.58	-16.67	-16.67	-16.67
BMH	8.11	8.11	-3.60	4.50	4.50	-0.90	-0.90
CMPL	6.09	12.17	16.52	20.87	26.09	30.43	30.43
COURT	0	0	-3.81	-3.81	-3.81	-7.62	-4.76
FINC	6.25	20.00	23.13	18.75	20.00	30.00	32.50
GBH	6.84	5.41	5.41	5.41	14.81	13.68	7.69
GCL	0	7.69	-7.69	-7.69	-11.54	-9.23	-10.77
GIDC	13.33	13.33	16.67	20.00	16.67	13.33	16.67
H.Freres	3.33	3.33	-0.67	-0.67	-0.67	-1.67	-3.33
HM	20.00	24.80	28.00	30.00	30.00	30.00	35.20
HWF	-6.47	-6.47	-7.06	-11.76	-11.76	-11.76	-11.76
IBL	6.00	-12.00	-20.00	-8.00	-12.80	-11.60	-16.00
LIT	5.74	18.85	22.13	14.75	8.20	10.66	10.66
MBL	8.97	22.07	37.24	53.10	44.83	36.55	40.69
MCB	4.01	8.31	12.61	17.19	21.78	16.91	14.33
MCFI	0	0	-1.90	-1.90	-1.90	-1.90	0
MDA	0	0	17.00	21.77	26.79	32.78	26.79
MDIT	3.45	6.90	12.07	17.24	22.42	27.59	31.03
MEI	0	-1.00	-4.00	-4.00	-4.00	-6.40	-6.00
MLC	0	0	0	2.00	-2.00	0	0
MOR	1.82	1.82	0	-3.64	-1.82	-3.64	-3.64
MOUNT	0	0	0	0	0	0	-4.12
MSM	3.64	7.64	12.00	12.36	8.00	3.64	7.64
MTMD	2.68	6.70	10.71	10.71	12.95	11.16	9.40
MUA	6.31	3.60	-0.90	-1.80	3.60	19.01	13.51
NIT	-2.70	-3.60	-8.82	-7.21	-6.31	-6.31	-7.21
NMH	2.67	-3.33	-6.00	-3.67	-3.33	-3.67	-6.67
PAD	-6.00	-16.80	-15.60	-18.80	-16.40	-16.80	-18.80

PIM	10.74	5.93	-5.56	-5.56	-5.56	-5.56	-2.22
POLICY	5.66	5.66	3.77	1.89	1.89	3.77	5.66
ROGRS	4.17	17.50	17.50	17.50	18.33	18.33	17.50
SAVA	0	10.43	10.43	21.74	26.09	20.65	15.22
SBM	0	0	0	0	0	-1.22	-3.66
SHELL	5.56	11.11	57.41	74.07	75.93	75.93	66.67
SUN	6.20	7.14	4.76	5.71	4.76	10.95	20.00
SWAN	7.14	7.14	2.86	-3.33	-4.76	-4.76	-4.76
UBP	3.70	8.15	12.59	17.04	21.48	26.67	31.85
UTD	5.97	10.45	16.92	23.88	23.88	18.91	16.42

(Source: Author's computations)

Table 4 Panel A - Initial Return by Market Capitalization

Market Capitalization	Average Return
25 - 200M	16.93
201 - 400 M	9.73
401 - 800 M	6.47
1000 - 3500 M	26.61
Panel B - Initial Return by Industry	
Industry	Average Return
Banks and Insurance	12.49
Industry	15.07
Investment	19.33
Sugar	6.33
Commerce	18.39
Leisure	14.21
Transport	14.70
Panel C - Initial Return by Year	
Year	Average Return
1991	17.89
1993	18.23
1994	32.08

(Source: Author's computations)

B. Regression Analysis

In this section linear regressions are used to investigate the determinants of underpricing of the initial public offerings on the Stock Exchange of Mauritius. The explanatory variables are selected on the basis of previous empirical work, with emphasis on testing the signaling hypothesis. The initial regression model investigated is the following:

$$\text{Excess Raw Return} = \beta_0 + \beta_1 \log \text{Gross Proceeds} + \beta_2 (\text{Ntinc}/\text{Ntassets}) + \beta_3 (\text{Debt}/\text{Ntassets}) + \beta_4 (\log \text{MCAP}) + \beta_5 \text{SEMDRET} + \beta_6 (\log \text{Ntassets})$$

The priori expectations are as follows. The coefficients of the logarithm of Gross Proceeds ($\log \text{Gross Proceeds}$) and the logarithm of market capitalization ($\log \text{MCAP}$) are expected to be positive. Gross proceeds raised and market capitalization, are both indicators of the size of the company. It is argued in the literature that companies large in size signal their intrinsic value by underpricing by a larger margin see [Allen and Faulhaber (1989), Grinblatt and Hwang (1989)]. The coefficient of Debt to Net Assets ($\text{Debt}/\text{Ntassets}$) is expected to be negative. The rationale is as follows. Companies with high gearing, due to various restrictions imposed by debt holders, might find it more difficult to underprice by a large amount. The shares already listed are in direct competition with IPOs for investors' funds. If the return on the SEMDEX (SEMDRET) is going up, then it is natural to expect that to attract investors to IPOs (IPOs are by definition without any trading record), then a larger degree of underpricing is required. The coefficient of the logarithm of Net Assets ($\log \text{Ntassets}$) is expected to be positive for a similar reasoning as that of market capitalization. The regression results obtained are as follows:

Table 4

$$\text{Excess Raw Ret} = 35.48 + 1.81 \log \text{Gross Proceeds} - 1.184 (\text{Ntinc}/\text{ntassets})$$

(t-ratios)	(0.784)	(1.33)	(-0.45)
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- 0.052 (Debt/Ntassets) + 1.38 (log MCAP) + 10.63 SEMDRET + 4.35 (log Ntassets)			
(-0.31)	(0.218)	(2.67)	(0.873)
Adj. R ² = 19.70		D.W = 2.05	

All the coefficients of the explanatory variables are in conformity with the expected signs. However, it is found that only Semdex return (SEMDRET) is significant at the five per cent level. The accounting variables are found to be insignificant. This could be due to the fact that, issue proceeds, market capitalization and net assets are all highly correlated as confirmed by the correlation matrix (available on request). Note the adjusted R² is relatively low and this is common to many short run studies on IPOs. This is also expected as the investigation relates to the daily changes in share prices.

Upon successive variable deletion tests of the accounting variables, it is found that the logarithm of the gross proceeds also become very significant. The model reduces to the following:

Table 5			
Excess Raw Return = 0.05 + 1.62 log Gross Proceeds + 9.83 SEMDRET			
(t-value)	(0.91)	(4.09)	(3.14)
Adj. R ² = 15.17		D.W. = 1.98	

The logarithm of the gross proceeds and the Semdex return are both statistically significant at the 1 per cent level and both have the expected signs. They are the two main variables accounting for the underpricing of IPOs on the Stock Exchange of Mauritius. The size of the issue proceeds could be evidence in support of the signaling

hypothesis. Firms are also more willing to underprice in a rising market.

V CONCLUSION

An analysis of the IPO returns shows that a significant number of companies earn large positive returns on the first day of listing, with a mean underpricing of 15.2 percent. Only one company experienced a negative return on the listing day. When analyzing the daily return over a 7-day interval, it is found that for approximately fifty per cent of the companies the positive initial return persists. Some companies also experienced a negative return over this 7-day window, but it was usually on the low side. When analyzing the initial return by market capitalization, it is found that the largest companies are the most underpriced, in agreement with the signaling hypothesis. However, companies with small market capitalization also exhibit a high degree of underpricing. This lends support to the ex-ante uncertainty hypothesis. The final regression model shows that the size of the issue (measured by the logarithm of the issue proceeds) and the return on the SEMDEX are statistically significant explanatory variables accounting for the degree of underpricing.

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