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UNDERPRICING AND LONG-RUN PERFORMANCE OF SHARE ISSUE PRIVATIZATIONS IN THE EGYPTIAN STOCK MARKET

Mohammed Omran

Arab Academy for Science & Technology, College of Management & Technology, Egypt
Arab Monetary Fund, Economic Policy Institute, United Arab Emirates

Abstract

The underpricing of initial public offerings (IPOs) is documented for 53 share issue privatizations in Egypt between 1994 and 1998. Over several intervals (up to five years), I find mixed results: share issue privatizations sustain their positive performance and provide investors with positive abnormal returns over a one-year period; however, my results document negative abnormal returns over three- and five-year horizons. The initial excess returns are determined by ex ante uncertainty and oversubscription, whereas the aftermarket abnormal returns over a one-year period are driven by ex ante uncertainty and the price-earnings ratio. However, over three- and five-year periods, abnormal returns are significantly affected by initial excess returns, the price-earnings ratio, and, to a lesser extent, oversubscription. The empirical findings are consistent with IPO markets in which investors are overoptimistic about the performance of these issues but grow more pessimistic over time.

JEL Classifications: G12, L33

I. Introduction

During the past two decades, privatization has become one of the most important economic phenomena in the world. Since large-scale privatizations were first launched by the Thatcher government in Great Britain, approximately $1.25 trillion has been raised through privatization. Moreover, share issue privatizations (SIPs) accounted for $750 billion between 1980 and 2000 (D'Souza, Megginson, and Nash 2001).

Most empirical studies on privatization in developed and emerging economies focus on financial and operating performance of privatized firms, relying on specific accounting performance measures. However, the analysis of initial and aftermarket performance of SIPs in developed countries and certain emerging

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economies has attracted researchers in the past few years. Yet, little is known about the behavior of SIPs in most emerging markets.

In this article I contribute to the literature on privatization by providing additional evidence on the short- and long-run performance of SIPs in emerging markets, concentrating on the Egyptian experience. Narrowing the focus and testing the performance of SIPs in a single country adds insight into this topic as data tend to be more homogeneous. The first purpose of this study is to analyze the short- and long-run performance of SIPs in Egypt, and the second purpose is to address the determinants that explain such performance.

Using a sample of 53 firms, which were privatized between 1994 and 1998, the results of this study indicate that SIPs yield, economically and statistically, significant positive initial excess returns and abnormal positive returns for up to one year. In contrast, SIPs produce significant negative returns for investors over three- and five-year horizons. The results of the regressions show that initial excess returns are determined by ex ante uncertainty and oversubscription, whereas the abnormal returns over a one-year period are driven by ex ante uncertainty and the price-earnings ratio. However, over three- and five-year periods, abnormal returns are significantly affected by initial excess returns, the price-earnings ratio, and, to a lesser extent, oversubscription. The findings of this study are consistent with the fact that investors are overoptimistic periodically about the earning potential of initial public offerings (IPOs) but grow more pessimistic afterward, causing underpricing to disappear over time.

II. Initial and Aftermarket Behavior and Possible Explanations

Most empirical studies show significant initial positive returns for IPOs. Loughran, Ritter, and Rydqvist (1994, 2003) find that the average initial returns on IPOs for 38 countries are as low as 5.4% for Denmark and as high as 256.9% for China.[1] Several other researchers document such positive initial returns for private IPOs and SIPs (e.g., Perotti and Guney 1993; Dewenter and Malatesta 1997; Paudyal, Saadouni, and Briston 1998).

Contrary to the initial positive returns of IPOs, mixed results are found in their long-run performance. Levis (1993) documents positive long-run returns for investors in 12 U.K. privatized firms. Although numerous other academic studies show the same findings in other economies (e.g., Boardman and Laurin 2000; Megginson et al. 2000; Dewenter and Malatesta 2001), several researchers document insignificant or negative long-run performance in various countries (see Ritter

[1] For a complete list of countries, see http://bear.cba.ufl.edu/ritter/publ_papers/int.pdf.

1991; Aggarwal, Leal, and Hernandez 1993; Keloharju 1993; Paudyal, Saadouni, and Briston 1998).

There are many explanations behind underpricing IPOs. According to asymmetric information theories, the uncertainty about the value of recently established firms, such as SIPs, is higher than that about well-known firms. As such, investors worry about the future performance of SIPs, which is referred to as ex ante uncertainty. Beatty and Ritter (1986) indicate a positive relation between the level of underpricing and nonobservable ex ante uncertainty.

Another explanation is related to oversubscription—a measure of the times the share offering was (over) subscribed—which stipulates a positive relation between oversubscription and the level of underpricing. In this context, Rock (1986), in his winner's curse model, argues that for overpriced shares, only uninformed investors submit purchase orders, and they might receive up to a 100% allocation. However, for underpriced shares, when both uninformed and informed investors submit purchase orders, the allocations are rationed between them.

Paudyal, Saadouni, and Briston (1998) provide an explanation related to the absorption capacity of the market. They indicate that when the demand for IPOs is high, investors receive fewer shares than they ordered. In turn, they try to buy from the market at a higher price, and this pushes prices up, generating a high initial return. Therefore, a positive relation is expected between the level of underpricing and oversubscription.

Allen and Faulhaber (1989) argue that firms sometimes offer IPOs priced below their intrinsic value to signal their quality to investors, thus expecting to have a better chance at offering subsequent seasoned issues at higher prices. In addition, Perotti (1995) argues that governments might prefer gradual sales to signal their commitment to privatization, so that they offer a smaller portion of the firm and retain the higher percentage. Therefore, a negative relation between the proportion of shares offered and the level of underpricing is expected.

Following this argument, it seems that in the early stages of privatization, when privatizations were uncommon and uncertain, governments tended to undervalue prices of SIPs to enable investors to achieve positive returns so that they could continue selling their state-owned enterprises (SOEs) in the future. In this respect, timing might play a role in determining initial returns because higher returns are usually expected to be associated with earlier privatizations.

The last explanation is that the degree of underpricing may depend on market volatility; in other words, governments try to minimize the probability of unsuccessful issues by lowering prices as long as market volatility is high. In turn, a positive relation between market volatility and the level of underpricing is expected.

Although the aftermarket performance could be explained by the previously mentioned determinants of initial performance, Levis (1993) and Paudyal, Saadouni, and Briston (1998) argue that initial excess returns might be due to

initial overoptimism in the market. Accordingly, such issues should underperform the market in the long run. In contrast, if IPOs attain their equilibrium value at initial returns, their long-run performance should not be significantly different from that of the market. Given this argument, an inverse relation between initial abnormal returns and long-run performance is expected.

III. Data Selection

The data set for this study is determined by analyzing Egyptian firms that have been privatized since 1994 and have been traded for at least one year on the stock exchange. As seen in Table 1, there were 184 Egyptian privatized firms in February 2001. However, after excluding certain types of privatization—namely, liquidations, asset sales, and leases—only 111 firms remained. Because many of these firms were not listed or actively traded in the stock market (in particular, firms that were sold to employee shareholder associations and anchor investors), they were eliminated because their return data were not available. This left a final sample of 53 firms that went public through the stock market. I relied on two major sources to build the database for this study: the Technical Office of the Public Enterprise Sector and the Capital Market Authority.

TABLE 1. Number of Privatized Firms in Egypt.

	Full Privatization				Partial Privatization			Yearly Total	
Year	Anchor Investor	Majority IPO	ESA	Liquidation	Minority IPO	Asset Sales	Leases	Number	Value[a]
1990	–	–	–	1	–	–	–	1	n.a.
1991	–	–	–	3	–	–	–	3	n.a.
1992	–	–	–	1	–	–	–	1	n.a.
1993	–	–	–	6	–	–	–	6	n.a.
1994	3	–	7	2	2	–	–	14	664
1995	1	1	3	2	7	–	–	14	1,215
1996	3	13	–	1	6	1	–	24	2,791
1997	3	14	3	3	2	1	2	28	3,396
1998	2	8	12	6	1	3	–	32	2,361
1999	8	–	5	7	–	2	6	28	2,784
2000	5	1	–	3	–	6	10	25	2,476
Until Feb.2001	1	–	–	2	–	3	2	8	n.a.
Total	26	37	30	37	18	16	20	184	15,687

Source: The Egyptian Ministry of Public Enterprise (2001).
Note: The table shows the number of privatized firms classified by the method of sale, year by year, and the value of privatized firms for each year and the total until February 2001. IPO = initial public offering; ESA = employee shareholder associations.

[a]Million of Egyptian pound (Current rate 1 LE = US$0.26).

IV. Research Design

Calculation of Initial Excess Returns and Aftermarket Performance

SIP initial return is calculated as follows:

$$r_i = \frac{P_{i,t} - P_{i,0}}{P_{i,0}}, \tag{1}$$

where r_i is the raw return for security i from subscription time to the closing of the first trading day, $P_{i,t}$ is the closing price of security i at the first trading day, and $P_{i,0}$ is the offer price of security i at the time of subscription.

However, equation (1) does not properly measure the initial return for investors as many other factors could affect the return (Keloharju 1993). In particular, two issues need to be considered. The first is that because investors in most cases cannot get the amount of SIPs in their bid, they bear extra costs for the capital tied up in the subscription but not given any allocations.[2] The second is related to transaction costs that apply to SIPs but not to market portfolios.[3] I use the following equation to adjust the raw return for the previously mentioned costs:

$$r_i = \frac{P_{i,t} - P_{i,0}}{P_{i,0}} - \left[\frac{ARF_{0,t}(SD - TD)}{365} \times (1 - \Psi) + \frac{TC_i}{P_{i,0}}\right], \tag{2}$$

where $ARF_{0,t}$ represents the average risk-free rate from the date of subscription to the date of trading, $SD - TD$ is the difference in number of days between the first day of trading and the last day of subscription, Ψ is the percentage of shares allocated, and TC_i is the transaction costs for each security of firm i.

The market-adjusted return is then calculated as the raw return for security i minus the benchmark return on a corresponding reference portfolio. It is important to specify an appropriate benchmark.[4] Because it is not obvious, either theoretically or practically, with what index or portfolio the SIP returns should be compared, I use more than one index: the general Egyptian capital market index (CMI) and the industry sector indexes (IND), where the latter indexes serve as reference portfolios for SIPs according to their industry classification.

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[2] These costs are calculated by deducting the risk-free opportunity cost from the last day of subscription to the date of returning the part of capital tied up in the subscription but not given any allocations, usually the date of the first trading day of the initial returns.

[3] Because transaction costs are not the same for each security, I track the SIPs case by case to calculate the initial return accurately.

[4] Although the control firm approach avoids the new listing bias, the rebalancing bias, and the skewness problem (Barber and Lyon 1997), I could not follow this approach because most of the firms listed on the Egyptian stock market are not actively traded, and the market is too small to allow the use of such an approach.

In contrast to initial excess returns, long-run performance seems to be more complicated, and there is no consensus on the appropriate way of calculating long-run abnormal returns (Barber and Lyon 1997). However, I consider different forms and models. First, I compute cumulative abnormal returns (CARs) and buy-and-hold abnormal returns (BHARs) using the market-adjusted model over one-, three-, and five-year intervals (252, 756, and 1,260 trading days, respectively) after the SIP listing, exclusive of the initial returns.

$$CAR_{i,s,e} = \sum_{t=s}^{e} r_{i,t} - r_{crp,t}, \tag{3}$$

$$BHAR_{i,T} = \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{i,t}) - 1\right] - \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{crp,t}) - 1\right]$$
$$T = \{252, 756, 1260\}, \tag{4}$$

where $CAR_{i,s,e}$ is the cumulative abnormal return, or cumulative market-adjusted return, for security i from the event month s to the event month e, where s is the starting month after trading of SIP and e is the anniversary month of SIP (12, 36, and 60 months) or until the date of delisting; $r_{i,t}$ and $R_{crp,t}$ are the monthly returns for security i and on a corresponding reference portfolio in period t, respectively; $BHAR_{i,T}$ is the buy-and-hold abnormal return for security i in period T, where T is the aftermarket trading day 252, 756, and 1,260, respectively; and $t = 1$ is the first aftermarket trading day, and $\min\{T, delisting\}$ is the earliest last day before delisting of SIP.

Second, because the returns using the market-adjusted model are not adjusted for risk other than that prevailing in the market as a whole, I use the Sharp-Lintner capital asset pricing model (CAPM) to calculate the abnormal return to take into consideration the risk of individual SIPs.

$$CAPMAR_{i,t} = r_{i,t} - r_{f,t} - \beta_i[r_{crp,t} - r_{f,t}], \tag{5}$$

where $CAPMAR_{i,t}$ is the abnormal return using CAPM for firm i in month t, $r_{f,t}$ is the risk-free rate proxied as a short-term one-month rate for bank deposits, and β_i is the risk of security i and is taken from the CAPM regression model (i.e., the slope obtained from regressing $[r_{i,t} - r_{f,t}]$ on $[r_{crp,t} - r_{f,t}]$ for the estimation period). With *CAPMAR* calculated, I apply the same two forms, CARs and BHARs, mentioned earlier.

Following Ritter (1991), among others, I calculate the wealth relative (WR) measure to compare the average buy-and-hold return (BHR) on a portfolio of SIPs relative to the average BHR on a corresponding reference portfolio to interpret the

performance of SIPs. A WR greater than 1.00 means that SIPs outperform their corresponding reference portfolio, and vice versa:

$$WR_T = \frac{1 + Avg\ BHR_{T,SIPs}}{1 + Avg\ BHR_{T,CRp}} \qquad T = \{252,\ 756,\ 1{,}260\}, \tag{6}$$

where WR_T is the wealth relative over T periods, and $Avg\ BHR_{T,SIPs}$ and $Avg\ BHR_{T,CRp}$ are the average BHR on a portfolio of SIPs and on a corresponding reference portfolio over T periods, respectively.

Table 2 shows summary statistics for the initial and aftermarket raw returns of SIPs and the corresponding reference portfolios. On average, SIPs yield 8.4% on the first trading day, which is far above the average return on corresponding reference portfolios. Some investors obtained superior initial returns as high as 55%, and others achieved negative initial returns as low as −5%. For up to one year, SIPs seem to outperform the market. However, over three- and five-year intervals, SIPs tend to perform far below their benchmarks. The table also shows the results of two tests used to determine whether return variables can be adequately modeled by a normal distribution. Because the results show that the values of the standardized skewness and standardized kurtosis for some variables are outside the range of +2 or −2, these variables are not normally distributed.[5]

Test Statistics

After calculating initial and aftermarket abnormal returns, I test the null hypothesis that the cross-sectional average initial excess returns and long-run abnormal returns over different periods (up to 60 months) are equal to zero for a sample of n SIPs. Under the null hypothesis, these test statistics follow a student's t-distribution if the sample is normally distributed. Given that some variables are not normally distributed, and they seem to be positively skewed in most cases, an alternative technique is the nonparametric Wilcoxon signed-rank test, which tests the null hypothesis that the median abnormal return is equal to zero.

Determinants of Initial Excess Returns and Aftermarket Performance

To better understand the magnitude of observed initial and aftermarket performance of SIPs, I conduct several cross-sectional regressions to identify the significance of selected exogenous variables mentioned in section II. In addition to these variables, I include the price-earnings ratio as an additional explanatory

[5]For robustness, chi-square goodness of fit and Shapiro-Wilks W-test for normality show similar results.

TABLE 2. Basic Descriptive Statistics for Initial and Aftermarket Returns of SIPs.

Panel A. Initial Returns (53 Firms)			
	SIPs	CMI	IND
Mean	0.084	0.002	0.003
Median	0.05	−0.0004	0.0003
Maximum	0.55	0.064	0.069
Minimum	−0.05	−0.026	−0.027
Standard deviation	0.11	0.012	0.013
Standard skewness	8	7.8	7.7
Standard kurtosis	13.7	22.3	22.5

	Cumulative Returns					Buy-and-Hold Returns				
		MAM		CAPM			MAM		CAPM	
	SIPs	CMI	IND	CMI	IND	SIPs	CMI	IND	CMI	IND
Panel B. Twelve-Month Cumulative Returns and Buy-and-Hold Returns (53 Firms)										
Mean	0.44	0.25	0.26	0.24	0.26	0.70	0.29	0.29	0.28	0.31
Median	0.34	0.19	0.19	0.12	0.15	0.24	0.22	0.18	0.12	0.15
Maximum	1.96	0.67	0.88	0.79	0.92	3.96	0.76	0.92	1.06	1.15
Minimum	−0.76	−0.26	−0.21	−0.18	−0.27	−0.59	−0.24	−0.24	−0.23	−0.29
Standard deviation	0.70	0.26	0.24	0.26	0.28	1.20	0.33	0.37	0.33	0.38
Standard skewness	1.96	0.44	1.86	4.15	3.70	7.72	1.10	4.06	4.22	4.54
Standard kurtosis	0.58	−1.99	0.76	1.80	0.79	10.90	−1.88	4.52	1.73	2.35
Panel C. Thirty-Six-Month Cumulative Returns and Buy-and-Hold Returns (51 Firms)										
Mean	0.12	0.39	0.37	0.32	0.3	0.18	0.55	0.49	0.43	0.40
Median	0.2	0.36	0.40	0.28	0.29	0.06	0.47	0.51	0.39	0.35
Maximum	1.61	1.34	1.47	1.83	1.91	2.86	2.11	1.96	2.31	2.06
Minimum	−0.78	−0.63	−0.61	−0.72	−0.86	−0.86	−0.54	−0.61	−0.69	−0.73
Standard deviation	0.82	0.39	0.41	0.34	0.34	0.87	0.39	0.37	0.55	0.64
Standard skewness	0.04	−0.56	−0.88	1.56	0.8	1.49	1.78	1.08	3.71	1.89
Standard kurtosis	−0.92	−1.44	1.99	1.41	−0.11	1.98	0.55	0.94	3.69	−0.38
Panel D. Sixty-Month Cumulative Returns and Buy-and-Hold Returns (31 Firms)										
Mean	0.48	0.80	0.75	0.73	0.71	0.33	0.91	0.82	0.78	0.73
Median	0.50	0.82	0.77	0.69	0.71	0.21	0.95	0.81	0.73	0.65
Maximum	2.50	1.93	1.71	2.07	1.63	1.66	1.82	1.79	1.91	1.64
Minimum	−0.77	−0.43	−0.33	−0.42	−0.38	−0.78	−0.26	−0.34	−0.32	−0.41
Standard deviation	0.75	0.17	0.15	0.41	0.43	0.72	0.39	0.34	0.71	0.79
Standard skewness	0.81	−1.92	1.05	1.93	0.89	0.85	−1.82	1.99	1.53	1.46
Standard kurtosis	0.18	0.79	1.98	0.39	−0.74	−0.98	1.11	1.37	−0.54	−0.32

Note: The table shows basic descriptive statistics for initial and aftermarket raw returns of Egyptian share issue privatizations (SIPs) and their benchmarks. CMI = the capital market index; IND = the industry index; MAM = the market-adjusted model; CAPM = capital asset pricing model. The table includes measures of central tendency, variability, and shape. Also provided are the mean, median, maximum, minimum, and standard deviation values for SIP returns and their corresponding reference portfolios. Standard skewness and standard kurtosis, which can be used to determine whether returns are normally distributed, are given.

variable that might play an important role in determining initial stock returns expecting a negative relation.

As far as initial excess returns are concerned, I estimate the following model:

$$ar_i = \alpha + \beta_1 Exante_i + \beta_2 OVRS_i + \beta_3 PSO_i + \beta_4 Timing_i + \beta_5 MV_i + \beta_6 PER_i + \varepsilon_i, \quad (7)$$

where ar_i is the initial excess return of firm i that refers to the level of underpricing; $Exante_i$ refers to the ex ante uncertainty measured by the standard deviation of daily returns of firm i one year after official listing; $OVRS_i$ is oversubscription of shares in firm i; PSO_i is the proportion of shares offered of firm i; $Timing_i$ is a proxy for the time of privatization that refers to the median privatization date in the sample and equals 1 if firm i is privatized recently, and 0 otherwise; MV_i is market volatility, which is calculated, following Paudyal, Saadouni, and Briston (1998), as the standard deviation of daily market returns over the two months before the closing date of subscription to buy shares in firm i; and PER_i is the price-earnings ratio of firm i.

With regard to the determinants of aftermarket performance, I rely on the same independent variables that explain initial excess returns, but note that: (1) the relation between oversubscription and long-run abnormal returns is expected to be negative, not positive as with initial excess returns because the positive sentiment of investors is expected to diminish over time when they recognize that they were overoptimistic in subscribing heavily in SIPs, and (2) I add another variable based on the Levis's (1993) argument that initial abnormal returns might be due to initial overoptimism in the market, and therefore such issues should underperform the market in the long run. I estimate the following model to explore the explanatory power of the model:[6]

$$AFTMARKAR_{i,T} = \alpha + \beta_1 ar_i + \beta_2 Exante_i + \beta_3 OVRS_i + \beta_4 PSO_i + \beta_5 Timing_i + \beta_6 MV_i + \beta_7 PER_i + \varepsilon_i, \quad (8)$$

where $AFTMARKAR_{i,T}$ is the aftermarket abnormal return for security i over T periods.

[6]I employed the same model over one and three years, though I excluded the timing variable from the model over five years because more than 80% of firms in the sample were privatized earlier.

V. Empirical Results and Analysis

Initial Excess Returns

In the first part of the analysis, I test whether investors, on average, outperform the market through buying SIPs at subscription prices and selling them on the first trading day. As shown in Table 3, Panel A, the initial excess returns of investing in 53 SIPs between 1994 and 1998 yield an average of 8%. This average would be obtained by an investor who bought SIPs at the offer price and sold them at the end of the first trading day. Using two benchmarks, CMI and IND, the results from the parametric *t*-statistic (the nonparametric *z*-statistic) reveal that the mean (median) initial excess return is significantly different from zero at the 1% level.[7] The mean (median) initial excess returns is around 8% (5%). Also, the results show that 87% of SIPs (46 of 53) provide investors with positive initial excess returns. These findings indicate that SIPs in Egypt are underpriced, in line with the findings reported in the literature for most IPOs. However, the level of underpricing is lower than that observed in most countries (e.g., Loughran, Ritter, and Rydqvist 2003).

In the second part of the analysis, I examine the determinants of initial excess returns or the level of underpricing. The regression models in Table 3, Panel B, show that there is a positive and significant (at the 5% level) relation between ex ante uncertainty and the level of underpricing. This finding supports Beatty and Ritter's (1986) argument that investors seek higher returns to compensate for their angst about future performance of IPOs. The table also shows that there is a positive and significant (at the 1% level) effect of oversubscription on initial excess returns. This is consistent with both the absorption capacity of the market (Paudyal, Saadouni, and Briston 1998) and the winner's curse model (Rock 1986), in which underpricing exists because underpriced IPOs are rationed more than overpriced IPOs. Therefore, investors in SIPs bid a higher price in the aftermarket trading to get the quantity they applied for in the subscription period. Hence, the lower the percentage of allocations because of the higher oversubscription, the greater is the increase in SIP prices, which generates initial excess returns.

However, other factors such as firm-specific characteristics (the price-earnings ratio), market effects (market volatility), and the privatization process (time of offers and fraction of issues) have little power in explaining the level of underpricing. In sum, investors' fear (ex ante uncertainty) and hope (bidding for more SIPs in aftermarket trading) play a key role in determining initial excess returns. The adjusted R^2 at 64.1% and 63.4% (using CMI and IND, respectively) implies

[7] Because the distributions of initial returns are not normally distributed and are not symmetric (positive skewness), as seen in Table 2, the implication from the *t*-statistic should be interpreted with caution. Same caution applies for abnormal aftermarket returns if their corresponding variables are not normally distributed.

TABLE 3. Initial Excess Returns of SIPs and Their Determinants.

Panel A. Initial Excess Returns for SIPs

	Firms with > 0 Abnormal Return	Firms with ≤ 0 Abnormal Return	Mean	*t*-stat	Median	*z*-stat	Mean Wealth Relative	Median Wealth Relative
CMI	46	7	0.082	5.62*	0.051	5.74*	1.08	1.05
IND	46	7	0.081	5.58*	0.051	5.67*	1.08	1.05

Panel B. Multivariate Cross- sectional Regression Analysis of the Determinants of SIPs Initial Excess Returns

	Dependent Variable: Initial Excess Returns	
Independent Variables	CMI	IND
Intercept	−0.13	−0.13
	(−2.14)**	(−2.13)**
Exante	1.88	1.94
	(2.09)**	(2.12)**
OVRS	0.03	0.03
	(7)**	(6.87)***
PSO	0.04	0.04
	(0.99)	(0.9)
Timing	−0.03	−0.03
	(−1.35)	(−1.3)
MV	−0.84	−0.67
	(−0.21)	(−0.17)
PER	−0.006	−0.006
	(−1.37)	(−1.35)
R^2 %	67.8	67.1
Adj. R^2 %	63.6	62.8
F-value	16.16***	15.61***
DW-stat.	1.97	1.97

Note: Panel A provides initial excess returns for 53 share issue privatizations (SIPs), which is calculated as: $ar_i = r_i - r_{crp}$, where ar_i is the initial excess return of firm i from subscription time to the closing of the first trading day, r_i is the initial raw return of firm i from subscription time to the closing of the first trading day, and r_{crp} is the raw return on a corresponding reference portfolio, that is general market index or industry index over the same period. The *t*-statistic for the average excess returns is computed as $tar = \overline{ar_i}/(\sigma(ar_i/\sqrt{n})$, where $\overline{ar_i}$ is the sample average of initial excess returns, and $\sigma(ar_i)$ is the cross-sectional sample standard deviation of initial excess returns. The *z*-statistic is based on the Wilcoxon signed-rank test. I provide the number of firms that experience positive or negative initial excess returns, the mean and median values of initial excess returns, and the *t*- and *z*-statistic values with their significance levels. For the parametric (nonparametric) test, I list the results under the null hypothesis that the mean (median) abnormal return = 0.0 versus the alternative hypothesis that the mean (median) abnormal return ≠ 0. Mean (median) wealth relative is calculated as the ratio of 1 plus the mean (median) initial raw returns of SIPs divided by 1 plus the mean (median) initial raw return on a corresponding reference portfolio. Panel B shows the results from multivariate cross-sectional regression analysis based on the following model: $ar_i = \alpha + \beta_1 Exante_i + \beta_2 TOS_i + \beta_3 PSO_i + \beta_4 Timing_i + \beta_5 MV_i + \beta_6 PER_i + \varepsilon_i$, where $Exante_i$ is the ex ante uncertainty measured by the standard deviation of daily returns of firm i one year after official listing; $OVRS_i$ is oversubscription of shares in firm i; PSO_i is the proportion of shares offered of firm i; $Timing_i$ is a proxy for the time of privatization that refers to the median privatization date in the sample and equals 1 if firm i is privatized recently, and 0 otherwise; MV_i is to market volatility, which is calculated as the standard deviation of daily market returns over two months before the application closing data of subscription to buy shares in firm i; and PER_i is the price-earnings ratio for the firm i. CMI = the capital market index; IND = the industry index; DW-stat. = Durbin-Watson statistic. Figures in parentheses are *t*-statistics.

***Significant at the 1% level.

**Significant at the 5% level.

that both models explain a large portion of variability in the level of underpricing of SIPs in Egypt.

Aftermarket Performance

In this section I consider (1) whether SIPs sustain their initial excess returns and provide investors with positive abnormal returns over a long period and (2) how the long-run performance of SIPs can be explained and what the exogenous variables are that might affect such returns.

The results in Tables 4 and 5 show the long-run abnormal returns of SIPs over one-, three-, and five-year periods. The SIPs over a one-year period yield positive returns; however, the buy-and-hold strategy produces, on average, higher returns for investors than does the cumulative return (CR) strategy. The parametric test statistics are significant at the 5% level for all models, which means investors achieve abnormal positive returns, and their SIP investments outperform the market over a one-year period. The nonparametric Wilcoxon signed-rank test confirms the same findings for the CR strategy; however, the null hypothesis that the median abnormal returns of SIPs are not different from zero, using the BHR strategy, cannot be rejected. An interesting implication here is that if an investor bought each SIP for an equal amount of money at the closing price of its first trading day and held it until the first anniversary, he or she would have achieved a mean abnormal return as high as 42% or as low as 39% according to the calculations of the models. The mean wealth relative of around 1.32 implies that an investor would have had to invest 24% less in each SIP than in each corresponding reference portfolio to achieve the same wealth after one year of public trading. Hence, it seems that SIPs sustain their positive initial excess returns for up to one year.

On the other hand, the results over three- and five-year periods indicate that the null hypothesis (that the mean (median) abnormal return is not different from zero) is rejected at the 1% level for most models. However, both the t-statistic and z-statistic are negative, implying that SIPs underperform the market in the long run. The long-run performance of SIPs in Egypt is disappointing for investors. The mean wealth relative of 0.84 for SIPs, in a best-case scenario, implies that an investor would have to invest 19% more to get the same performance as the market. Moreover, in a worst-case scenario, an investor would need to invest 42% more to catch up to the market performance (the mean wealth relative is only 70% over a five-year period using the CMI as a benchmark). These results support the idea that at some point after going public the abnormal returns on IPOs may be negative (e.g., see Ritter 1991, among others).

It is hard to explain why SIPs provide investors with positive abnormal returns for up to one year but are unable to continue beyond that period. Several arguments might explain the change in behavior in Egypt after one year. The most reasonable is that the SIPs price boom was followed by abnormally low returns.

TABLE 4. Abnormal Returns for SIPs Versus Alternative Indexes Based on Cumulative Return.

	Market-Adjusted Model			CAPM		
	1 Year	3 Year	5 Year	1 Year	3 Year	5 Year
SIP vs. CMI						
Number	53	51	31	53	51	31
Firms with > 0 abnormal return	33	15	9	33	16	10
Firms with ≤ 0 abnormal return	20	36	22	20	35	21
Mean abnormal returns	0.19	−0.27	−0.32	0.20	−0.20	−0.25
t-statistic	2.25**	−3.88***	−3.53***	2.44**	−3.19***	−2.66**
Median abnormal returns	0.12	−0.22	−0.31	0.16	−0.18	−0.29
z-statistic	2.09**	−3.3***	−3.12*	2.14**	−3.11***	−2.46**
SIP vs. IND						
Number	53	51	31	53	51	31
Firms with > 0 abnormal return	31	13	11	32	16	10
Firms with ≤ 0 abnormal return	22	38	20	21	35	21
Mean abnormal returns	0.18	−0.25	−0.27	0.18	−0.18	−0.23
t-statistic	2.06**	−3.38***	−3.15***	2.06**	−3.16***	−1.80*
Median abnormal returns	0.07	−0.21	−0.29	0.06	−0.16	−0.31
z-statistic	1.98**	−3.21***	−2.95***	1.82*	−2.96***	−1.75*

Note: The table provides abnormal returns of share issue privatizations (SIPs) over one, three, and five years. The aftermarket abnormal returns are calculated based on cumulative return using the market-adjusted model and the capital asset pricing model (CAPM). The market-adjusted return $(MAR) = r_{i,t} - r_{crp,t}$ where $r_{i,t}$ and $r_{crp,t}$ are the monthly returns for security i and on a corresponding reference portfolio in month t, respectively. $CAPMAR_{i,t} = r_{i,t} - r_{f,t} - \beta_i\ [r_{crp,t} - r_{f,t}]$, where $CAPMAR_{i,t}$ is the abnormal return using CAPM, $r_{f,t}$ is the risk-free rate proxied as short-term one-month rate for bank deposits, and β_i is the risk of security i, and is given from the CAPM regression, which is the slope obtained from regressing $[r_{i,t} - r_{f,t}$ on $[r_{crp,t} - r_{f,t}]$ for the estimation period. $CAR_{i,s,e} = \sum_{t=s}^{e} r_{i,t} - r_{crp,t}$, where $CAR_{i,s,e}$ is the cumulative abnormal return, which takes the form of *MAR* or *CAPMAR*, for security i from event month s to event month e, where s is the starting month after trading of SIP and e is the anniversary month of SIP (12, 36, and 60 months) or until the date of delisting. The *t*-statistic for the average aftermarket performance is computed as $tr_t = \overline{ar_{i,t}}/(\sigma(ar_{i,t}/\sqrt{n})$, where $\overline{ar_{i,t}}$ is the sample average aftermarket abnormal return, which takes the form of *MAR* or *CAPMAR*, and $\sigma(ar_{i,t})$ is the cross-sectional sample standard deviation of aftermarket abnormal returns. The *z*-statistic is based on the Wilcoxon signed-rank test. I provide the number of firms that experience positive or negative aftermarket abnormal returns, the mean and median values of aftermarket abnormal returns, and the *t*- and *z*-statistic values with their significance level. For the parametric (non-parametric) test, I list the results under the null hypothesis that the mean (median) abnormal return = 0.0 versus the alternative hypothesis that the mean (median) abnormal return ≠ 0. CMI = the capital market index; IND = the industry index.

***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.

Numerous SIP investors, over the short term, and even over extended periods, may have been afflicted with "irrational exuberance" when the stock market was booming in Egypt. However, by 1998, factors such as the Asian crises and the Luxor Massacre had their effects on the overall bear trend in the market. Recalling that most SIPs were traded in the market over one year but less than three years before

TABLE 5. Abnormal Returns for SIPs Versus Alternative Indexes Based on Buy-and-Hold Return.

	Market-Adjusted Model			CAPM		
	1 Year	3 Year	5 Year	1 Year	3 Year	5 Year
SIP vs. CMI						
Number	53	51	31	53	51	31
Firms with > 0 abnormal return	29	13	2	25	12	5
Firms with ≤ 0 abnormal return	24	38	29	28	39	26
Mean abnormal returns	0.41	−0.37	−0.58	0.42	−0.25	−0.45
t-statistic	2.27**	−4.53***	−7.2***	2.33**	−3.07***	−4.76***
Median abnormal returns	0.05	−0.41	−0.63	0.06	−0.33	−0.49
z-statistic	1.46	−3.68***	−4.17***	1.43	−3.18***	−4.02***
Mean wealth relative	1.32	0.76	0.70	1.33	0.83	0.75
Median wealth relative	1.02	0.72	0.62	1.11	0.76	0.70
SIP vs. IND						
Number	53	51	31	53	51	31
Firms with > 0 abnormal return	28	11	4	26	13	6
Firms with ≤ 0 abnormal return	25	40	27	27	38	25
Mean abnormal returns	0.41	−0.31	−0.49	0.39	−0.22	−0.40
t-statistic	2.08**	−3.89***	−6.22***	2.10**	−3.06***	−3.62***
Median abnormal returns	−0.02	−0.45	−0.52	−0.004	−0.29	−0.36
z-statistic	0.96	−3.41***	−3.69***	1.18	−3.15***	−3.08***
Mean wealth relative	1.32	0.79	0.73	1.30	0.84	0.78
Median wealth relative	1.06	0.70	0.67	1.08	0.79	0.73

Note: The table provides abnormal returns of share issue privatizations (SIPs) over one, three, and five years. The aftermarket abnormal returns are calculated based on buy-and-hold return using the market-adjusted model and the capital asset pricing model (CAPM). The market-adjusted return (MAR) $= r_{i,t} - r_{crp,t}$, where $r_{i,t}$ and $r_{crp,t}$ are the monthly returns for security i and on a corresponding reference portfolio in month t, respectively. $CAPMAR_{i,t} = r_{i,t} - r_{f,t} - \beta_i[r_{crp,t} - r_{f,t}]$, where $CAPMAR_{i,t}$ is the abnormal return using CAPM, $r_{f,t}$ is the risk-free rate proxied as short-term one-month rate for bank deposits, and β_i is the risk of security i, and is given from the CAPM regression, which is the slope obtained from regressing $[r_{i,t} - r_{f,t}]$ on $[r_{crp,t} - r_{f,t}]$ for the estimation period.

$$BHAR_{i,T} = \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{i,t}) - 1\right] - \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{crp,t}) - 1\right] \qquad T = \{252, 756, 1260\},$$

where $BHAR_{i,T}$ is buy-and-hold abnormal return for security i, which takes the form of MAR or $CAPMAR$, in period T, where T is aftermarket trading days 252, 756, and 1,260, respectively, $t = 1$ indicates the first aftermarket trading day, and $\min\{T,delisting\}$ refers to the earliest last day before delisting of SIP. The t-statistic for the average aftermarket performance is computed as $tr_t = \overline{ar_{i,t}}/(\sigma(ar_{i,t}/\sqrt{n})$, where $\overline{ar_{i,t}}$ is the sample average aftermarket abnormal return, which takes the form of MAR or $CAPMAR$, and $\sigma(ar_{i,t})$is the cross-sectional sample standard deviation of aftermarket abnormal returns. The z-statistic is based on the Wilcoxon signed-rank test. I provide the number of firms that experience positive or negative aftermarket abnormal returns, the mean and median values of aftermarket abnormal returns, and the t- and z-statistic values with their significance level. For the parametric (nonparametric) test, I list the results under the null hypothesis that the mean (median) abnormal return = 0.0 versus the alternative hypothesis that the mean (median) abnormal return ≠ 0. Mean (median) wealth relative is calculated as the ratio of 1 plus the mean (median) buy-and-hold aftermarket raw returns of SIPs divided by 1 plus the mean (median) buy-and-hold aftermarket raw return on a corresponding reference portfolio. CMI = the capital market index; IND = the industry index.

***Significant at the 1% level.
**Significant at the 5% level.

the economic slump, and that they were among the big stock winners in the bull market, they experienced a huge sell-off in the subsequent period (bear market). Relative to the market, it seems that investors in SIPs may have descended a "wall of worry"; hence, SIPs were victims and among the big losers in the bear market.

To delve deeper into this issue and to provide support for the preceding explanation, I split the SIPs into two groups: firms that were privatized in 1994 and early 1995, and those that were privatized afterward.[8] I then calculate the long-run abnormal returns for each group to see whether both groups experience the same performance. Also, I measure the long-run abnormal returns for each group starting from the same time—after July 1997—to test whether the results obtained from the first test remain pervasive.[9] Finally, I test for the significant differences in means and medians between both groups and report the results in Table 6.[10]

As seen in Table 6, Panel A, early SIPs have positive abnormal returns over three years, and they underperform late SIPs significantly at the 5% and 10% levels using CAR and BHAR, respectively. Also, early SIPs underperform late SIPs over five years, although not significant at any level, and they have negative abnormal returns. These results prove that when SIPs are not completely exposed to the pressures of the bear market (as the three-years returns for early SIPs ended in 1997 and early 1998, just around the beginning of the bear market), they still provide investors with positive abnormal returns, and they beat late SIPs. On the other hand, over five years they yield negative returns and their performance is not significantly different from the other group because they had already experienced the downtrend period for at least two years. The results given in Panel B of Table 6 provide further evidence of the robustness of these findings. In the second test (calendar time after July 1997), both groups yield negative abnormal returns with no significant differences between them. This means that, regardless of the time of privatization, when the market experienced a downturn both groups suffered a huge sell-off and yielded negative abnormal returns

Another explanation for the negative stock price returns of the SIPs is related to the effect of post-privatization competition. In the pre-privatization period, the government monopolized certain sectors of the economy; therefore, SOEs had the whole market share in these sectors. When these firms were sold to the private sector, they lost their monopoly position; therefore, their profitability declined in the face of increasing competition. Of course, it is assumed that losing monopoly power should not be reflected in a negative stock price return if investors understand this

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[8] I would like to thank the referee for suggesting this method.

[9] That means, regardless of the date of privatization of each firm, I considered the end of July as the start date in calculating the long-run abnormal returns for all firms.

[10] I measure the long-run abnormal returns using CMI and IND benchmarks, but I only report results of the IND benchmark to conserve space. However, results are similar using either the CMI or the IND index, and they are available from the author on request.

TABLE 6. Comparing Abnormal Returns of Early SIPs (1994 and Early 1995) Versus Late SIPs.

	3 Year				5 Year			
	Early Privatized Firms Mean (Median)	Late Privatized Firms Mean (Median)	*t*-statistic for Difference in Means	*z*-statistic for Difference in Medians	Early Privatized Firms Mean (Median)	Late Privatized Firms Mean (Median)	*t*-statistic for Difference in Means	*z*-statistic for Difference in Medians
Panel A. Early Versus Late SIPs: Same Event-Time Matched Performance								
Market-adjusted model								
CAR	0.11	−0.38	2.83**	2.03**	−0.21	−0.36	1.16	1.02
	(0.09)	(−0.31)			(−0.22)	(−0.34)		
BHAR	0.043	−0.46	2.01*	1.81*	−0.46	−0.61	1.02	0.96
	(0.056)	(−0.48)			(−0.43)	(−0.68)		
CAPM								
CAR	0.16	−0.28	2.76**	2.02**	−0.09	−0.29	1.27	1.01
	(0.18)	(−0.24)			(−0.13)	(−0.32)		
BHAR	0.06	−0.33	2.06*	1.86*	−0.32	−0.48	0.76	0.81
	(0.08)	(−0.41)			(−0.35)	(−0.52)		
Panel B. Early Versus Late SIPs Privatization: Calendar Time After July 1997								
Market-adjusted model								
CAR	−0.46	−0.42	−0.41	0.06	−0.59	−0.53	−0.31	0.00
	(−0.51)	(−0.44)			(−0.51)	(−0.50)		
BHAR	−0.52	−0.47	−0.08	0.00	−0.64	−0.59	−0.46	−0.31
	(−0.58)	(−0.61)			(−0.66)	(−0.61)		
CAPM								
CAR	−0.33	−0.32	−0.04	−0.11	−0.51	−0.46	−0.33	0.02
	(−0.36)	(−0.28)			(−0.41)	(−0.43)		
BHAR	−0.41	−0.35	−0.21	0.00	−0.58	−0.52	−0.18	0.06
	(−0.44)	(−0.46)			(−0.61)	(−0.66)		

Note: The table provides abnormal returns of share issue privatizations (SIPs) over one, three, and five years. The aftermarket abnormal returns are calculated based on buy-and-hold return using the market-adjusted model and the capital asset pricing model (CAPM). The market-adjusted return (MAR) = $r_{i,t} - r_{crp,t}$, where $r_{i,t}$ and $r_{crp,t}$ are the monthly returns for security i and on a corresponding reference portfolio in month t, respectively. $CAPMAR_{i,t} = r_{i,t} - r_{f,t} - \beta_i[r_{crp,t} - r_{f,t}]$, where $CAPMAR_{i,t}$ is the abnormal return using CAPM, $r_{f,t}$ is the risk-free rate proxied as short-term one-month rate for bank deposits, and β_i is the risk of security i, and is given from the CAPM regression, which is the slope obtained from regressing $[r_{i,t} - r_{f,t}]$ on $[r_{crp,t} - r_{f,t}]$ for the estimation period.

$$BHAR_{i,T} = \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{i,t}) - 1\right] - \left[\prod_{t=1}^{\min\{T,delisting\}} (1 + r_{crp,t}) - 1\right] \quad T = \{252, 756, 1260\},$$

where $BHAR_{i,T}$ is buy-and-hold abnormal return for security i, which takes the form of MAR or $CAPMAR$, in period T, where T is aftermarket trading days 252, 756, and 1,260, respectively, $t = 1$ indicates the first aftermarket trading day, and $\min\{T, delisting\}$ refers to the earliest last day before delisting of SIP. The t-statistic for the average aftermarket performance is computed as $tr_t = \overline{ar_{i,t}}/(\sigma(ar_{i,t}/\sqrt{n})$, where $\overline{ar_{i,t}}$ is the sample average aftermarket abnormal return, which takes the form of MAR or $CAPMAR$, and $\sigma(ar_{i,t})$ is the cross-sectional sample standard deviation of aftermarket abnormal returns. The z-statistic is based on the Wilcoxon signed-rank test. I provide the mean and median values of aftermarket abnormal returns, and the t- and z-statistic values with their significance level. For the parametric (nonparametric) test, I list the results under the null hypothesis that the mean (median) abnormal return of early SIPs equal the mean (median) abnormal return of late SIPs versus the alternative hypothesis that the mean (median) abnormal return of early SIPs ≠ the mean (median) abnormal return of late SIPs. CAR = cumulative abnormal return; BHAR = buy-and-hold abnormal return.

**Significant at the 5% level.
*Significant at the 10% level.

at the time of the sale of SOEs and adjust prices accordingly. However, it seems that investors were not forward thinking enough to discount the loss of monopoly power, either because they did not have sufficient information or because the government did not explicitly or implicitly raise such issues at the time of sale. Consequently, stock prices of these firms fell sharply to reflect the new economic situation facing these firms. In sum, the behavior of SIPs is counter to market efficiency.[11]

To address the second issue raised in this section and identify the determinants of the aftermarket performance, I perform several cross-sectional regressions over one-, three-, and five-year periods.[12] Table 7 reports the results obtained from the regression over different periods using several forms and models to calculate aftermarket abnormal returns. As seen in Table 7, the aftermarket performance of SIPs in Egypt over a one-year period is still driven by ex ante uncertainty, as was observed for initial excess returns. However, another factor (the price-earnings ratio) proves to have a negative effect on long-run abnormal returns. This shows that investors concentrate on particular fundamental measures of stock prices such as the price-earnings ratio. Both variables are significant at the 1% level, and the adjusted R^2, in a range of 48% to 54.6%, indicates a good fit and provides a good explanation for the long-run abnormal returns of SIPs over a one-year period.

Moving to the aftermarket abnormal returns of SIPs over three- and five-year periods, the results show that these returns are significantly affected by initial excess returns, the price-earnings ratio, and, to a lesser extent, oversubscription. The negative coefficient estimate of initial excess returns, indicating that investors are overoptimistic in the short run, is consistent with Levis (1993) and Paudyal, Saadouni, and Briston (1998). The negative coefficient estimate of oversubscription tends to support the argument of investors' sentiments and reveals that firms with a higher oversubscription yield negative abnormal returns over longer horizons. The negative effect of the price-earnings ratio on aftermarket performance reflects investors' wisdom to rely on this measure in the valuation of SIPs. The R^2 of the fitted models provides a better explanation for the behavior of SIPs over a three-year period compared with a five-year period. The highest adjusted R^2 over a three-year period is 41.8% compared with 23.8% over a five-year period, whereas the lowest R^2 is 21.5% over a three-year period compared with just 12.3% over a five-year period. However, the significant coefficient estimate of initial excess returns confirms the previously mentioned argument that the Egyptian stock market is not efficient.

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[11] Omran and Farrar (Forthcoming) provide evidence that the Egyptian stock market is not efficient in the weak form.

[12] I estimate the multivariate cross-sectional regression analyses using CMI and IND benchmarks, but I report only results of the IND benchmark to conserve space. However, results are similar using either the CMI or the IND index. The results using CMI are available from the author on request.

TABLE 7. Multivariate Cross-Sectional Regression Analysis of the Determinants of Aftermarket Abnormal Returns of SIPs.

Independent Variable: Aftermarket Abnormal Returns												
	1 Year (53 Firms)				3 Year (51 Firms)				5 Year (31 Firms)			
Independent Variables	Market-Adjusted Model		CAPM		Market-Adjusted Model		CAPM		Market-Adjusted Model		CAPM	
	CR	BHR	CR	BHR	CR	BHR	CR	BHR	CR	BHR	CR	BHR
Intercept	0.71	1.13	0.62	0.89	0.81	0.23	0.74	−0.12	1.37	0.39	1.32	−0.71
	(1.48)	(1.04)	(1.47)	(0.87)	(1.32)	(0.28)	(1.04)	(−0.14)	(1.70)	(0.46)	(1.59)	(−0.65)
ar	−0.62	−2.23	−1.35	−2.97	−2.46	−4.20	−3.28	−5.82	−1.79	−2.02	−2.86	−4
	(−0.57)	(−0.90)	(−1.41)	(−1.28)	(−2)**	(−2.2)**	(−2.1)**	(−2.7)***	(−1.08)	(−1.13)	(−1.63)	(−1.8)*
Exante	3.24	8.46	3.04	8.5	2.21	1.76	1.51	1.77	7.20	9.3	9.12	0.73
	(4.31)***	(5.01)***	(4.6)***	(5.37)***	(0.23)	(0.52)	(1.35)	(0.12)	(0.63)	(0.75)	(1.56)	(0.05)
OVRS	−0.23	−0.027	−0.005	−0.001	−0.09	−0.18	−0.10	−0.24	−0.03	−0.04	−0.01	−0.15
	(−0.42)	(−0.22)	(−0.10)	(−0.01)	(−1.25)	(−2.1)**	(−1.25)	(−2.4)**	(−0.41)	(−0.47)	(−0.06)	(−1.62)
PSO	0.24	0.13	0.25	0.18	0.17	0.19	0.07	0.02	0.29	1.12	0.36	0.92
	(0.82)	(0.19)	(0.95)	(0.29)	(0.44)	(0.37)	(0.15)	(0.03)	(0.47)	(1.11)	(1.27)	(0.82)
Timing	−0.11	−0.16	−0.01	−0.15	−0.24	−0.15	−0.29	−0.10				
	(−0.53)	(−0.36)	(−0.05)	(−0.36)	(1.05)	(−0.48)	(−1.10)	(−0.28)				
MV	−1.51	−0.43	−0.25	−0.39	−2.74	−0.23	−8.8	−1.32	−3.32	−2.40	−2.82	−4.57
	(−0.05)	(−0.63)	(−0.01)	(−0.61)	(−0.72)	(−0.005)	(−0.24)	(−0.23)	(−0.05)	(−0.36)	(−0.19)	(−0.63)
PER	−0.14	−0.25	−0.13	−0.23	−0.13	−0.11	−0.13	−0.08	−0.18	−0.15	−0.17	−0.03
	(−3.92)***	(−3.1)***	(−4.2)***	(−3.01)***	(−3)***	(−2.1)**	(−2.6)**	(−1.2)	(−2.7)*	(−2.1)**	(−2.3)**	(−0.33)
R^2 %	54.1	48	54.6	49.9	45	32.7	41	27.7	31	29.6	32.8	24.3
Adj. R^2 %	46.9	40	47.6	42.1	36.1	21.8	33.6	16.5	19.2	18.9	22.6	9.6
F-ratio	7.57***	5.94***	7.75***	6.39***	5.03***	2.98**	4.26***	2.35**	2.86*	2.62*	2.47*	1.68
DW-stat.	1.80	1.81	1.80	1.90	1.91	1.91	1.99	1.96	1.93	2.12	1.91	1.98

Note: The table shows the results from multivariate cross-sectional regression analyses of the determinants of aftermarket abnormal returns over one, three, and five years. The following model is employed: $AFTMARKAR_{i,T} = \alpha + \beta_1 ar_{i,t} + \beta_2 Exante_i + \beta_3 OVRS_i + \beta_4 PSO_i + \beta_5 Timing_i + \beta_6 MV_i + \beta_7 PER_i + \varepsilon_i$, where $AFTMARKAR_{i,T}$ is the aftermarket abnormal return for security i over T periods, which takes the form of cumulative returns (CR) or buy-and-hold returns (BHR) using market-adjusted model or the capitcal asset pricing model (CAPM); $ar_{i,t}$ is the initial excess return of firm *i;* $Exante_i$ is the ex ante uncertainty measured by the standard deviation of daily returns of firm i one year after official listing; $OVRS_i$ is oversubscription of shares in firm *i;* PSO_i is the proportion of shares offered of firm *i,* $Timing_i$ is a proxy for the time of privatization that refers to the median privatization date in the sample and equals 1 if the firm i is privatized recently, and 0 otherwise; MV_i is to the market volatility, which is calculated as the standard deviation of daily market returns over two months before the application closing data of subscription to buy shares in firm *i;* and PER_i is the price-earnings ratio for the firm *i*. Numbers in parentheses are *t*-statistics.

***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.

VI. Summary and Concluding Remarks

I examine the short- and long-run behavior of 53 Egyptian SIPs from 1994 to 1998 and attempt to explain the reasons for their performance. My results show that SIPs yield economically and statistically significant initial excess returns in line with the underpricing phenomenon of IPOs, which is widely documented in the literature. The behavior of SIPs in aftermarket trading produces mixed results: positive abnormal returns for up to one year, and then negative abnormal returns over three- and five-year periods. For instance, a strategy of investing 1 pound in SIPs at the end of the first trading day and holding them for three or five years would have left investors with only 0.76 or 0.70 pounds, respectively, relative to each 1 pound invested in all firms listed on the Egyptian stock exchange. These results, however, might provide evidence that SIPs outperform the market in bull periods and then underperform the market in bear periods. Another explanation could be drawn from Dewenter and Malatesta's (2001) argument that poor long-run returns may be attributed to systematically negative earning surprises after the offers because of discretionary accruals in financial reports before offers. Consequently, the decline in profits reflects the reversal of pre-offer positive accruals, where SIPs would yield negative abnormal returns if the government manipulated financial reports of its SOEs. Last, it is worth mentioning that some privatized firms, after going public, lost their monopoly positions, and because investors did not expect this at the time of subscription, they did not adjust their prices accordingly. Hence, the profitability of privatized firms declined, and as a result, investors suffered poor long-run returns.

In an attempt to provide explanations for initial excess returns and aftermarket performance of SIPs, I estimate several cross-sectional regression models. The results indicate that ex ante uncertainty and oversubscription are the only significant variables in determining the initial excess returns. Over a one-year period, the abnormal returns are driven by ex ante uncertainty and the price-earnings ratio. However, the aftermarket abnormal returns over three- and five-year periods are significantly affected by initial excess returns, the price-earnings ratio, and, to a lesser extent, oversubscription. An implication of these results is that over time investors tend to concentrate on selected valuation models to determine stock prices.

The results of this study, however, leave us with a paradox: the positive abnormal returns of SIPs in the short-run and up to one year and the negative abnormal performance beyond that. It could be that investors are overoptimistic at the date of offerings and short-run trading, which causes short-run stock prices to rise above their (fair) equilibrium level, and when they correct their misvaluations over time, negative abnormal long-run returns result. Or it could be that the negative abnormal returns of SIPs are caused by market inefficiency, where these issues experience huge gains in the bull market and then underperform the market in the downturn period. By extending the sample period beyond five years, and having

the market rise again, additional evidence could be gathered regarding some of the patterns of SIP behavior in Egypt. Hence, more investigation is needed before the results here can be interpreted conclusively.

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