

Earning Management, Timing Ability and Long-Run Underperformance of IPOs in Bangladesh.

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Abstract

This paper mainly focuses on two conjectures. Firstly the firm's timing ability and secondly whether the firms are intentionally managing their pre-IPO discretionary accruals to overstate their earnings at the time of floatation to fetch higher price for their issues. In our study we do not find any evidence that supports the timing ability proposition of Ritter. But considering the cumulative abnormal return we find that in the long-run, IPOs have poor stock return when managers aggressively manage pre-IPO discretionary accruals of these firms than when they manage pre-IPO discretionary accruals conservatively.

Keywords: Earning management, long-run underperformance, timing ability.

1. Introduction

Firms that went public in Bangladesh in the 1991-2007 periods significantly underperformed the market benchmark, in the five years after going public. In a sample of 99 IPOs during the period of 1991-2007, the average return on firms going public was 3.18% per year compared to 13.37% per year for market benchmark. The underperformance effect amounted to 10.19% per year. (Haque,2012) It certainly raises the question about the causes of this behavior.

Using IPO data from the Bangladeshi market, this paper investigates two conjectures about the long-run poor performance of IPOs. Firstly, we examine the firms' timing ability proposition, put forward by Ritter (1991) and Lougran, Ritter and Rydqvist(1994), that firms can successfully time their initial public offerings to take the advantage of "windows of opportunity" created by investor overoptimism, resulting in abnormally poor long-run returns.

Secondly, we examine the conjecture that some managers of IPOs actively manage pre-IPO discretionary accruals in reporting enhanced earnings to achieve higher prices at the floatation, and it is mostly these firms following aggressive reporting strategies that subsequently perform poorly in the aftermarket. This type of activities aimed at overstating the current earnings to deceive stakeholders is known as earning management. Earnings management can be defined as the "alteration of firms' reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes." (Leuz, Nanda & Wysocki, 2002).

1.1 Literature Review

Teoh, Welch and Wong (1998 a & 1998 b) report that firms manipulate earnings prior to initial and seasoned public offerings. Previous studies, such as Sloan (1996) and Chan, Jegadeesh and Lakonishok (2002), show that in the cross-sectional analysis, high earnings management firms underperform low earnings management firms. The predictability of stock returns implies that the market is initially fooled by manipulated earnings.

Shang (2003) empirically proved that corporate executives attempt to manipulate stock prices by inflating earnings when they sell their company stocks or exercise options and by deflating earnings when they buy company stocks or delay option exercises. Leuz, Nanda and Wysocki, (2002) presented comparative evidence on corporate earning management on thirty one countries. Hence it can be inferred that earning management may be pervasive in nature but its magnitude may vary from country to country.

Teoh and Wong (1997) interpreted abnormal accruals as a measure of earnings management, reported evidence that is consistent with analysts being misled by opportunistic earnings management by new equity issuers (both IPOs and SEOs). Teoh, Welch and Wong (1998a) compared the level of accruals of IPO and non-IPO firms around the issuing date. They found a significant difference in the level of accruals between both categories. DuCharme *et al* (2002) find that accruals are abnormally high around IPO offers. These accruals tend to reverse after stock offers and are negatively related to post-offer stock returns. Xie(2001) reports that abnormal accruals are negatively correlated with subsequent stock returns in the population of firms.

Stein(1989), using a signaling model, shows that in efficient capital markets, myopic behavior like window-dressing may persist even when managers do care about stock price since it is a Nash equilibrium. In the

context of IPOs, his model implies that managers may attempt to manipulate investors' belief by pumping up pre-IPO earnings to raise forecasted value of the firm. In equilibrium, the market is not fooled by this behavior: it correctly anticipates and adjusts for this in making its predictions of the valuation. Unfortunately, the preferred cooperative equilibrium in which there would involve no myopia on the part of managers and no conjecture of myopia (and hence no need of any adjustment for this behavior) by the market, cannot be sustained as a Nash equilibrium. Stein's signal jamming model can also be extended to show that, in the equilibrium, managers may attempt to time issues and that rational investors anticipate and account for this behavior. If the market is able to account fully and immediately for such actions, the long-run stock price performance of IPO firms should be normal. However, the evidence of long-run underperformance of Bangladeshi IPOs suggests that earning management by managers of IPO is not anticipated and investors are subsequently disappointed by firms with high pre-IPO discretionary accruals. Our findings of systematic negative relationship between pre-IPO accruals and future stock price performance (and hence the predictable power of pre-IPO accruals on post-IPO returns) are consistent with this interpretation, suggesting that investors failed to properly adjust for pre-IPO discretionary accrual component of earning and hence their valuations appear related to pre-IPO earnings performance that they naively extrapolated to the future.

In our study we do not find any evidence that supports the timing ability proposition of Ritter. We find that bullish-market issues are doing better than bear-market issues in the long-run, suggesting that firms might not have timing ability. However, the difference in the performance between bullish-market issues and bearish-market issues is not statistically significant. Considering the Cumulative Abnormal return we also find that in the long-run, IPOs have poor stock return when managers aggressively manage pre-IPO discretionary accruals of these firms than when they manage pre-IPO discretionary accruals conservatively.

The unexpected accruals of IPOs as a proxy for earnings management are extracted from an extension of the cross-sectional Jones' (1991) model. The unexpected accruals are deemed unusual and thus termed as discretionary (managed). To measure abnormal stock return performance, we use market adjusted returns. The results are consistent with Earning Management Hypothesis. Using the market adjusted return, the most conservative quartile firms (firms with the lowest pre-IPO accruals) underperformed the market benchmark by a cumulative -55.68% in the five years after going public. In contrast, the most aggressive quartile firms (firms with highest pre-IPO accruals) significantly underperformed by a cumulative -67.64% in the five years after going public. Thus our evidence indicates that investors failed to use all information contained in the discretionary pre-IPO accruals, and instead they appear to value firms going public based on the expectation that pre-IPO earnings performance will continue in future. Under this interpretation, the failure to adjust for the pre-IPO accrual component of earning led investors to have high initial expectations of firms' future earnings growth. Subsequent revelation about the appropriateness of the accruals in post-IPO financial statement caused a downward correction in stock price.

The rest of the paper is organized as follows; Section 2 describes methodology and estimation procedure. Section 3 examines the predictability of post-IPO stock price performance with market conditions and pre-IPO accruals. Finally, Section 4 concludes the results to related findings in Bangladeshi IPOs.

2. Methodology and Estimation Procedure

2.1 Estimation Procedure of Unexpected Scaled Accounting Accruals

Following Teoh, Wong, and Rao (1998), an extension of the cross-sectional Jones' (1991) model has been used for this purpose. Accruals are decomposed into two components: discretionary accruals and nondiscretionary accruals. Nondiscretionary accruals are the asset-scaled proxies for unmanipulated accruals dictated by business conditions. Discretionary accruals are the asset-scaled proxies for manipulated earnings determined at the discretion of management. Given the earlier discussion, it is expected that discretionary accruals (DAC) are the superior proxy for earnings management. The Jones model has been used widely in the Accounting literature. For example, Dechow (1994), and Dechow, Sloan and Sweeney (1995), use the Jones model to detect whether earnings management exists. Sloan (1996) and Collins and Hribar (2000) use the Jones Model to show that the market appears to overestimate the persistence of the accruals components of earnings, and hence stock prices initially overreact to news on accruals.

Haque (2012) investigates the long run performances of IPOs in Bangladesh from 1991 to 2007 over first 60 months of trading. The performance of 99 IPOs are documented and measured as average abnormal monthly returns (AR_t) and average cumulative abnormal return metric ($CAR_{s,T}$), in percent excluding the initial equilibrium return. The Benchmark used here is value weighted All Share Price Index of Dhaka Stock Exchange. Imam and Haque (2012) also find that 15th day as the equilibrium price adjustment day for non-financial IPOs in Bangladeshi market.

Imam and Jaber (2010) find evidence, using modified Jones model, powerful accrual testing methodology, that entrepreneurs of IPOs coming to the market during 1991-2000, behaved myopically in boosting earnings in the year prior to going public. They have shown that mean and median managed accruals of

sample IPO firms account for 6.0% and 4.24% of the total assets under the Modified Jones' Model. The magnitudes of mean and median managed accruals are not only statistically significant but also economically significant. Thus Modified Jones' Model of discretionary accruals test does detect a significant portion of managed accruals, which indicates an evidence of earnings manipulation by entrepreneurs of IPOs in the year prior to going public. It is also documented in that study that earnings management had a positive impact on initial firm's value in support of "Value Relevance Hypothesis".

2.2 Selection of the Sample

This study observed all IPO firms came to the public between January 1991 and December 2000 excluding Banks, Insurances and other non-banking Financial Institutions. IPOs of Banks, Insurances and other non-banking Financial Institutions are excluded from the sample because their nature is different from non-financial institutions and post-IPO industry data of those financial institutions are not readily available. All IPOs (of non-financial institutions) within this period, which provide adequate data, have been taken into the sample. It is found that a total of 79 IPOs went into public within this period. In those IPO firms 26 were green field, so that those firms are not considered into the sample because they do not have required data and management of those firms have no scope of manipulating earnings. Three IPO firms are excluded from the sample because of inadequate data in prospectus of 2 firms and could not make available prospectus of one firm. Another three firms are also excluded from the sample which went on public in 1991 because cross-sectional regression is conducted with IPO data and industry data, in which industry data is also collected from 1991 to 2000 and changes in cash flow from operation and changes in adjusted revenue are calculated with those data, so regression for IPOs of the year 1991 has not been conducted for lacking of data. At last 47 IPO firms are included in the sample which have prospectus with required data of at least two years prior to going public with information of current assets, cash in hand and cash at bank, accounts receivable, current liabilities, gross property plant and equipment, depreciation of the year, total asset, net sales, net income, EBIT, proportion of ownership shares, offer price per share, total number of issues, and the name(s) of issue manager(s).

Table 1. Status of Data of IPO Firms

IPO Period – January 1991 to December 2000	
IPOs Came into Public	79
Green Field IPOs	26
Inadequate Data in Prospectus	02
Unavailable Prospectus	01
IPOs of 1991	03
Sample Size of the Study	47

Table 2. Distribution of Sample IPOs across Industry

Industry	Frequency	%	Cum. Freq.	%
Engineering	3	6.38	3	6.38
Food and Allied Products	12	25.53	15	31.91
Jute	1	2.13	16	34.04
Textile	11	23.40	27	57.45
Pharmaceuticals and Chemicals	4	8.51	31	65.96
Paper and Printing	1	2.13	32	68.09
Services and Real Estate	2	4.26	34	72.34
Miscellaneous	13	27.66	47	100.00
Total	47	100.00		

Table 2 shows the distribution of sample according to the industry classification. According to Bangladesh Bank's "Balance sheet Analysis of Joint Stock Companies", industries are classified into ten categories within which there is no accepted IPO in Fuel and Power, and Cement categories. There are highest numbers of IPOs in miscellaneous category followed by food and allied products, and textile categories respectively.

Table 3. Time Distribution of Sample IPOs

IPO Year	Frequency	%
2000	3	6.38
1999	5	10.64
1998	2	4.26
1997	8	17.02
1996	11	23.40
1995	4	8.51
1994	13	27.66
1993	1	2.13
1992	0	0.00
Total	47	100.00

Table 3 shows the distribution of accepted sample IPOs according to the year of going public. In 1992 total of three IPO firms came into public in which prospectus of one IPO had inadequate data and the rest were green field. Hence the sample of IPOs in the year of 1992 turns out to be zero. The largest number of IPOs floated in the year of 1994 followed by the year of 1996 and 1997 respectively.

2.3 Collection of Data

IPO data are collected from the published prospectus of IPO firms. Calculation of discretionary accruals needs to run the regression with IPO data and cross-sectional industry data. Those industry data for the same period between January 1991 and December 2000 are collected from the “Balance Sheet Analysis of Joint Stock Companies” of 1998, 2001 and 2002 issues published by the Bangladesh Bank. Because of limited access to the original annual reports of the public listed companies, Bangladesh Banks’ data is preferred. Moreover in some cases original annual reports and data from Dhaka Stock Exchange are used when ever required.

Data on discretionary accruals-a proxy for earning management are obtained from the paper “Earning Management of IPOs in Bangladesh-Test of Value Relevance Hypotheses: Evidence from Dhaka Stock Exchange” (Imam & Jaber, 2010). Following (Imam & Jaber, 2010) the detail of the modified Jones model and its calculation of discretionary accruals is given the appendix 1.

Data on the long run underperformance of IPOs are extracted from the paper”Longrun price performance of Initial Public Offerings in Bangladesh”(Haque,2012).The detail methodology for calculating the long run underperformaance is given in appendix 2.

2.4 Test-Methods for Market Timing Ability

To test the issuers’ timing ability proposition offered as an explanation of IPO long-run underperformance, we examine the effect of pre-IPO market conditions on the long-run after-market performance of IPOs. If the firms are able to time the issue, IPOs that come to the market during its relative pre-IPO bullishness must have poor aftermarket stock price performance. One of the proxies for pre-IPO market conditions is market run –ups prior to the offer date, which captures market upswings.⁴This proxy is based on observable data and backward-looking event time. hence this event time supposed to have less stringent information about firms’ timing ability than those of LRR (1994) who credit issuers with the ability to forecast market peak⁵.The market run-ups variable will be defined over the sixty six trading days (66 days) prior to the IPO offering day. An IPO is then defined to have occurred in a relatively bull period if the market return index on the offering day is at higher level than the past-quarter (66 trading day) average of the market return index preceding the offering day (i.e. $MI_{off} > MI_{avg66}$). Otherwise, the issue is defined to have been priced in a relatively bear market. Thus, the market condition is proxied by a dummy variable as follows:

$$MktimingD = \begin{cases} 1 & \text{if the market is “bull” at the time of an IPO} \\ 0 & \text{otherwise, i.e. “bear” market} \end{cases}$$

The conjecture about earnings management we examine is whether the pre-IPO discretionary accruals are systematically related to future stock price performance. We consider the predictability of pre-IPO accruals for post-IPO stock price performance in section. For our test, we divide IPO firms into four quartiles according to their pre-IPO discretionary accruals and compare the five year market adjusted returns for the IPOs in different quartiles. Quartile 1 represents the smallest discretionary accruals, and it is referred to as conservative quartile. Quartile 4, represents the largest discretionary accruals, and referred to as the aggressive

⁴ The underlying assumption here as well as in LRR(1994) is that market condition and investors’ overoptimisim are highly positively correlated, making this a joint test of the timing ability and the validity of the proxy.

⁵ LRR (1994) and Loghran and Ritter (1993) provide timing proposition based on inference about issuers forecasting ability made from observations’ that the number of IPOs is negatively related to long-run performance and positively related to market peaks.

quartile. We also analyze differences in post-IPO stock returns between two portfolios of IPO firms classified by the median size of pre-IPO discretionary accruals. Table 4 presents the cut-offs, means and standard deviation for discretionary accruals for four quartiles in panel A. In panel B two median portfolios are formed on the basis of the cross-sectional variation in pre-IPO accruals (DAC). There is a substantial variation in the earnings management measures between the aggressive and conservative quartile. Mean discretionary pre-IPO accrual is -10% of total assets in the conservative quartile (Q1), and 15% in the aggressive quartile (Q4).

Table 4. **Quartile and Median Cut-offs of Pre-IPO Accruals**

Panel B : Pre-IPO unexpected accruals quartiles cut-offs				
	DAC set	Mean	Std.Dev	No
Quartile 1 (Q1)	less than -0.0215	-0.10	0.07	12
Quartile 2 (Q2)	-0.0215 to 0.0391	-0.001	0.02	12
Quartile 3 (Q3)	0.0391 to .0979	0.06	0.02	11
Quartile 4 (Q4)	Greater than 0.0979	0.15	0.07	12
Panel B : Pre-IPO unexpected accruals median cut-offs				
Below Median	Less than 0.0391	-0.04	0.06	24
Above Median	Greater than .0391	0.13	0.07	23

This table presents cut-offs and mean/standard deviations of the four quartile portfolios in panel A, and two median portfolios in panel B, both formed by sorting on pre-IPO discretionary accruals(DAC₁). Pre-IPO discretionary accruals (DAC₁) are discretionary accruals in the fiscal of IPO. Quartile 1 is the most conservative portfolio with the lowest discretionary accruals, where as quartile 4 is the most aggressive portfolio with the highest discretionary accruals.

3. Predicting Post-IPO Stock Returns with Market conditions and Pre-IPO accruals

3.1 Effects of Market Conditions on Long-Run Performance

In this sub-section, we examine the relation between our measures of relative bullishness of the market and the subsequent long-run performance. For this test, firms are categorized in two groups according to pre-IPO market conditions (MktimingD). In table 5, the wealth relatives for the IPOs coming in both bullish and bearish market are well below one (1.00). This indicates that both types of market condition issues underperformed, on average, the market benchmark.

Table 5. **Long-Run Performance Conditional on Market Conditions at the Time of Floatation**

Market Condition at the Time of Floatation	No. of IPOs	Average 3-year buy-and-hold returns			Average 5-year buy-and-hold returns		
		IPOs	Market	Wealth Relatives	IPOs	Market	Wealth Relatives
		%	%		%	%	
Bear Market	41	-11.43	21.96	0.73	-5.18	59.88	0.59
Bull Market	58	8.57	39.08	0.78	30.03	68.71	0.77
All Firms	99	0.29	31.99	0.76	-3.15	45.74	0.66

IPO firms in our sample are categorized according to market conditions at the time of floatation. An IPO is defined to have occurred in a relatively bull market period if the market index on the offering day is greater than the past-quarter(66 days trading day) average of the market index preceding the offering day (i.e. $MI_{off} > MI_{avg66}$). Otherwise, the issue is defined to have been priced in a relatively bear market. The five-year buy-and-hold return for firms going public is calculated excluding the initial return. Wealth relatives are calculated as $[(1/N \sum (1 + R_{\pi})) / (1/N \sum (1 + R_{mT}))]$, where R_{π} is the holding period return from the 15th day closing price until the earlier of the delisting date or the five year anniversary of the IPO. R_{mT} is the holding period return on the market over the same holding period, and the summation are over the N observations in each calendar year. Return is truncated on April, 2011.

Figure 1 plots the average cumulative abnormal return time series performance of bullish-and bearish market issues. The figure also shows that both bullish- and bearish market issues significantly underperform the market benchmark by a cumulative -40.63% and -46.67% respectively in five years after going public. To assess the statistical significance, we compute a mean and standard deviation⁶ across the time-series realization of each market condition issues. The monthly mean (standard deviation) returns on the bullish-market issues and bearish market issues are -0.775 (3.01) and the bearish market issues are -1.11 (3.95) respectively. The *t*-statistics against the null hypothesis that multi year excess return are zero are -1.97 and -2.16 allowing us to infer that both market condition issues experienced significantly negative post-IPO performance. As can be seen from the Table that the bearish market issues performed more poorly than those issued during bullish market. This suggests that underperformance is more prevalent among firms that went public under relatively bearish market condition.

⁶ While computing standard deviation, first-order auto covariance of monthly return series is also accounted for.

This appears to be inconsistent with firms' timing ability which claims that IPOs perform worse if issued in a buoyant market. Thus it can be concluded that Bangladeshi IPOs do not behave in the same manner as the premise of the timing ability proposition would have us believe. However, parametric means of difference 't-test' test fail to reject the null hypothesis that the difference in the performance of bullish- and bearish –market issues is zero. The fact that we find no difference in the post-issue performance between bullish-and bearish market issues casts doubt on the timing ability of Bangladeshi IPO firms

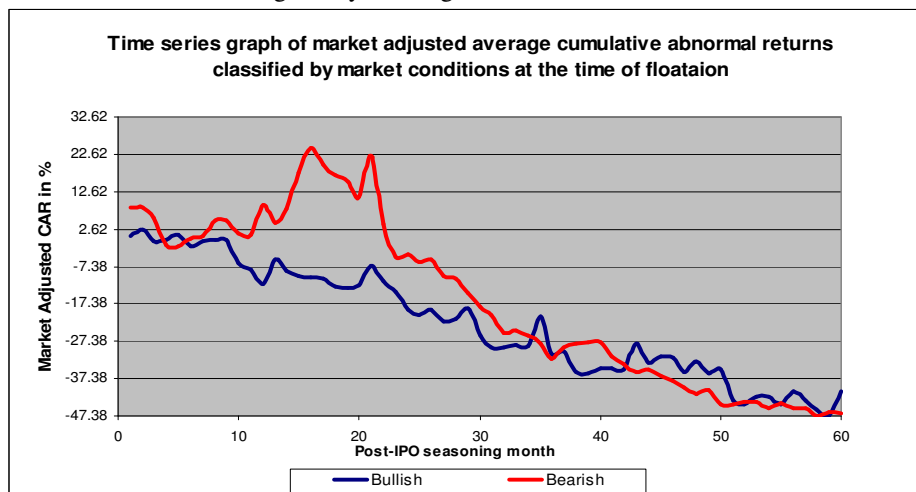


Figure1. Time-series graph of market adjusted Average Cumulative Abnormal return classified by Market Conditions at the time of Floatation. An IPO is defined to have occurred in a relatively bull market period if the market index on the offering day is greater than the past-quarter(66 days trading day) average of the market index preceding the offering day (i.e. $MI_{off} > MI_{avg66}$). Otherwise, the issue is defined to have been priced in a relatively bear market. Returns are adjusted using the market benchmark.

3.2 Post-IPO Returns by Pre-IPO Accruals Quartiles and Median Category

The key issue we investigate is whether the pre-IPO discretionary accruals explain the observed post-IPO abnormal return performance. In this sub-section, we examine the conjecture that issuers often report unusually high earnings by adopting discretionary accounting accruals adjustments that raise reported earnings relative to actual earnings. As information about the firm is revealed over time by the media and analysts' report and the subsequent financial reports, investors may realize that earnings are not maintaining the momentum, and investors thus may lose their overoptimism. So other thing being equal the greater the earnings management at the time of offering, the larger the ultimate price correction.

For our tests, IPO firms are classified into four quartiles according to their pre-IPO accruals (DAC) and post-IPO stock price performance for the IPOs in the different quartiles are compared and analyzed. In panel A of Table 1.6 we report five year and three year buy-and hold return and wealth relatives for the portfolios of pre-IPO accrual quartiles. The wealth relatives of four quartiles show that all the quartiles are showing clear-cut underperformance. In addition to the quartile classification, we report post-IPO return performance of two portfolios in panel B of Table 6, where the cut-offs for these categories is the sample median value of pre-IPO accruals. The result indicates that in the long-run above median portfolio (more aggressive portfolio) performed better than below median portfolio (less aggressive portfolio).

Table 6. Long-Run Performance Categorized by Pre-IPO Accruals (DAC)

Pre-IPO Accruals(DAC)	No. of IPOs	Average 3-year Buy-and-hold return			Average 5-year Buy-and hold return		
		IPOs	Market	Wealth Relative	IPOs	Market	Wealth Relative
Panel A: Quartile Cut-offs							
Quartile 1 (Q1)	12	-11.19	7.82	0.82	-38.13	31.91	0.47
Quartile 2 (Q2)	12	-40.15	0.66	0.59	-46.45	13.28	0.47
Quartile 3 (Q3)	11	-44.25	-26.72	0.76	-63.89	-9.16	0.40
Quartile 4 (Q4)	12	-36.34	-5.16	0.67	-44.81	-6.32	0.59
Panel B: Median Cut-offs							
Below Median	24	-25.67	4.24	0.71	-42.29	22.59	0.47
Above Median	23	-36.89	-15.47	0.75	-53.94	-7.67	0.50

Unexpected accounting accruals (DAC) are discretionary accruals in the fiscal year. IPO firms are classified into four quartiles (1 being conservative, 4 being aggressive managers) in panel A, and into two portfolios in panel B where the cut-off for these two categories is the sample median value of pre-IPO accruals. The five-year buy-and-hold return for firms going public is calculated excluding the initial return. Wealth relatives are calculated as $[(1/N \sum (1 + R_x)) / (1/N \sum (1 + R_{mT}))]$, where R_x is the holding period return from the 15th day closing price until the earlier of the delisting date or the five year anniversary of the IPO. R_{mT} is the holding period return on the market over the same holding period, and the summation are over the N observations in each calendar year. Return is truncated on April, 2011.

Figure 2 presents a simple time-series graph of the average cumulative time-series performance of four portfolios, classified by the pre-IPO accrual (DAC) quartiles. Cumulative returns for the quartiles portfolios are computed as follows: we first cumulate the monthly abnormal market adjusted returns of individual stocks by compounding over time, and then take the cross-sectional average in the quartile to obtain the time-series portfolio returns.

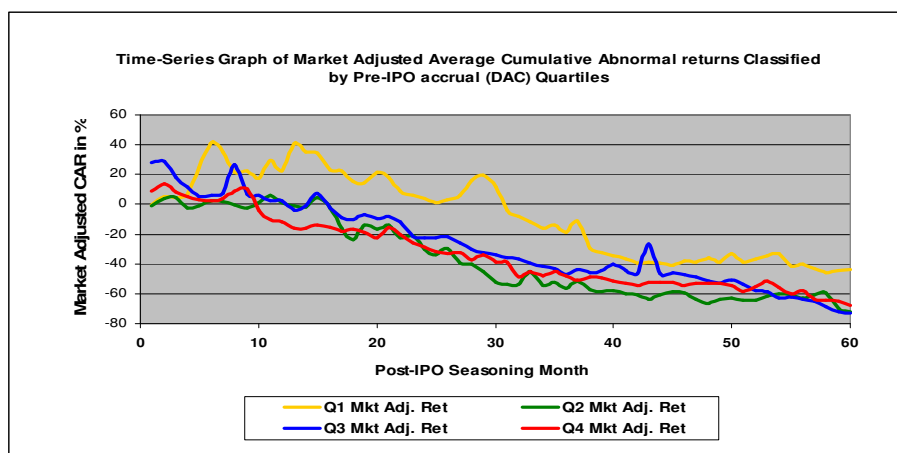


Figure 2: Time-series Graph of market Adjusted Average Cumulative Abnormal return classified by Pre-IPO accruals (DAC) quartiles. Unexpected accounting is discretionary accruals in the fiscal year. IPO firms are classified into four quartiles (1 being conservative, 4 being aggressive managers), and cumulative abnormal returns are plotted for each quartile over the 60 month following the IPO. Returns are adjusted using the market benchmark return.

The figure shows that using the market adjusted return, firms with lowest pre-IPO accruals (the conservative quartile portfolio) underperformed by a cumulative of -43.54% in the five years after going public. Whereas firms with highest pre-IPO accruals (the aggressive quartile portfolio) underperformed by a cumulative -67.79%. We compute the mean and standard deviation of across the time series realization of each quartile portfolio. The monthly mean (standard deviation) return on the four quartile portfolios are -1.02(6.73), -1.02(4.12), -2.43(8.45) and -1.57(4.49). Thus, the *t*-statistics against the null hypothesis that the multi-year excess returns are zero -1.16, -1.91, -2.21 and -2.68. This indicates that the conservative quartile portfolio managers experienced insignificant negative post-IPO return, whereas the second quartile portfolio managers experience marginally significant negative return and the rest quartiles (relatively more aggressive portfolios) experienced significantly negative post-IPO performance. It implies that when managers manage pre-IPO accruals more aggressively, those firms are more likely to underperform in future.

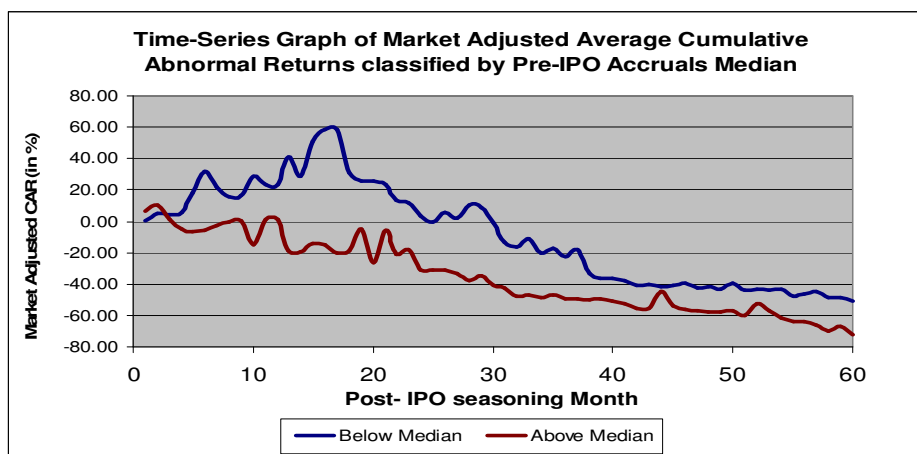


Figure 3: Time-Series Graph of Market-Adjusted Average Cumulative Abnormal Returns classified by Pre-IPO Accruals (DAC) Median. Unexpected accounting accruals (DAC) are discretionary accruals in the fiscal year. IPO firms are classified into two portfolios, where the cut-off for the two portfolios is the sample value of median pre-IPO accruals, and cumulative abnormal returns are plotted for each portfolio over the first 60 months following the IPO. Returns are adjusted using the market benchmark return.

In figure 3, we also report a plot of the average cumulative time-series performance of the portfolios of below-and-above-median pre-accruals. The monthly mean (standard deviation) on the time series realization of below-and-above median accrual portfolio are -0.949 (6.18) and -2.17 (3.50). The *t*-statistics against the null hypothesis that multi year excess returns are zero are -1.18 and -4.76; suggesting that only more aggressive above median accrual portfolios experienced significantly negative post-IPO returns.

As can be also seen, the portfolio of above median pre-IPO accruals, relatively more aggressive portfolio, significantly underperformed more than the portfolio of below median pre-IPO accruals, relatively less aggressive portfolios.⁷ Thus it appears that the overall poor post-IPO performance can, at least partially, be explained by the unusually pre-IPO earnings management by IPO firms.

Table 7. Average Cumulative Return by pre-IPO Accruals (DAC)

Post IPO Month	Market Adjusted Return			
	Below M	Above M	Q1	Q4
10	5.20	-5.70	22.39	3.87
20	10.17	-29.41	10.37	-24.11
30	-13.25	-44.74	7.35	-35.40
40	-44.13	-54.17	-42.41	-54.05
50	-44.90	-59.91	-43.92	-58.50
60	-55.71	-73.02	-55.68	-67.64

This table documents cumulative return by two extreme pre-IPO accrual quartile portfolios and median accrual portfolios over the first 60 months of seasoning after going public. Q1 refers to the conservative pre-IPO discretionary accrual quartile and Q4 refers to the aggressive pre-IPO discretionary accrual quartile. While below M and above M refer to the below median and above median pre-IPO discretionary accruals respectively. The CAR series is one for return adjusted by the benchmark of the portfolio of the firms. Returns are compounded and cumulated event-monthly, and the 15th day (equilibrium) return is excluded.

Table 7 reports the cumulative performance of two extreme quartile portfolio and median portfolio by pre-IPO discretionary accruals (DAC), analogous to figure 1.2 and figure 1.3.

The table shows that the returns differential between the conservative pre-IPO accrual quartile 1 (low accruals) portfolio and the aggressive pre-IPO quartile 4 (high quartile) portfolio is 11.96% in the sixty month period.

3.3 Regression of Post-IPO Returns on Accruals and Market Conditions

Table 8 presents the results from OLS regression of post-IPO stock price performance on pre-IPO accruals and market conditions. The dependent variable is post-IPO abnormal stock return measured, using the market benchmark, from the 15th trading day closing price to the earlier of five year anniversary or its delisting date. We investigate whether pre-IPO discretionary accruals (*D_accruals*), Unmanaged accruals (*UMA*), short-run Underpricing (*UP*), market conditions (*MkttimingD*), sales growth (*Sales_g*) are systematically related to the long-run performance of IPOs. The results are reported in Table 8 of column (i). All the negative coefficients of the variables except sales growth indicates that all these variables negatively affect long-run performance of the

⁷ Parametric means of difference “*t*-test” show that the difference in the aftermarket performance of these two portfolios is significant from zero at 5% level.

IPOs.

Table 8. Regression result on Post-IPO Return on Accruals and Market Condition

Independent Variable	Market Adjusted Return			
	(i)	(ii)	(iii)	(iv)
Intercepts- (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> / Heteroskedasticity corrected- <i>P</i>)	-36.41 (-2.86/-2.83) (0.003/0.003)	-59.59 (-2.33//-1.30) (.013/0.000)	-26.69 (-0.53/-0.81) (0.30/0.212)	-19.91 (-0.38/-0.60) (.351/.276)
D_accruals (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	-129.95 (-1.41*/-1.07) (0.083/0.147)	-153.49 (-1.55**/-1.30*) (.065/0.100)	-153.75 (-1.56**/-1.28*) (-.064/.104)	-151.95 (-1.53**/-1.28*) (0.067/0.105)
UMA (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	-85.55 (-.092/-0.76) (0.181/0.23)	-189.81 (-1.76**/-1.52**) (0.044/0.069)	-164.49 (-1.51**/-1.37*) (.069/.091)	-172.39 (-1.57**/-1.37*) (.063/.089)
UP (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	-.019 (-0.51/-0.92) (0.306/0.183)	-.029 (-0.063/-0.94) (.265/.177)	----- ----- -----	-.036 (-0.77/-1.08) (.223/.143)
MkttimingD- (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	-3.106 (-0.17/-0.16) (0.43/0.44)	-8.99 (-0.45/-0.44) (0.33/.033)	-15.209 (-0.75/-0.86) (0.228/.198)	-12.56 (-0.61/-0.65) (0.273/0.261)
Sales_g (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	5.57 (1.48**/3.20***) (0.074/0.001)	6.42 (1.52**/2.85***) (0.069/0.003)	6.74 (1.61**/3.18***) (0.059/.001)	6.33 (1.49**/2.97***) (0.073/.002)
Industries Dummies Ln offsize (<i>t</i> -/Heteroskedasticity corrected- <i>t</i>) (<i>P</i> -/Heteroskedasticity corrected- <i>P</i>)	-- --	Full set not reported	Full set not reported	Full set not reported -9.238 (-0.88/-1.19) (0.192/0.121)
R²	-0.119	0.2426	0.2600	0.2600
Adj. R²	0.0120	-0.0247	-0.0315	-0.0315
F-statistics	0.369	0.549	0.569	0.569
N	47	47	47	47

Note : ***, ** and * indicates significance at 1%, 5% and 10% level respectively.

The dependent variable is the five year post-IPO abnormal returns computed using the 15th day aftermarket trading day closing price as purchase price. Monthly returns for each IPO firms are adjusted by subtracting the market benchmark, and then compounded and cumulated for five years. The independent variables are pre-IPO discretionary accruals, unmanaged accruals, short-run underpricing, and market timing dummy. To adjust for some cross-sectional contemporaneous correlation between securities cumulative return , we include but do not report a complete set of industry dummy and log of offer size.

4. The findings of the cross sectional regression of accruals and Market Conditions on Long-run performance

D_accruals: Discretionary accruals (D_accruals) are the proxy for earning management. Higher the earning management by the managers, higher is the long-run underperformance. The coefficient estimate is negative in all the models of the regression and significant. So discretionary accruals as a proxy of earning management is

significantly affecting long-run performance of IPOs.

UMA : *UMA* is the proxy for unmanaged accruals. Given the business conditions typically faced by the firm in the industry, some accrual adjustments are appropriate and necessary, and so are expected by investors. Nondiscretionary accruals or unmanaged accruals are the asset-scaled proxies for unmanipulated accruals dictated by business conditions. So it is expected that unmanaged accruals should have negative relationship. The coefficient estimate is negative in all the models of the regression and significant in model (ii),(iii) and (iv).So it can be inferred that higher the unmanaged accruals higher is the long-run underperformance.

UP: *UP* is the acronym for short-run underpricing. The coefficient estimate is negative in all three models but not significant. The insignificant coefficient implies that there exists no relationship between underpricing and long-run underperformance. This infers that - the two anomalies i.e. underpricing and long-run underperformance do co exists.

MkttimingD: *MkttimingD* is the proxy for market condition. The negative coefficient of *MkttimingD* implies that in the long-run, there is a weak tendency among bullish market issues performing poorly compared to bearish market issues. It should be noted that however the coefficient is not significant.

Sales_g: The sales growth (*Sales_g*) coefficient is significantly positive in all the regression model. It implies that sales growth has strong positive impact on long-run underpricing. Higher the sales growth higher would be the stock returns in the long-run.

In model (ii), (iii) and (iv) we do not report, but include a set of control variable to demonstrate that discretionary accruals, unmanaged accruals, market condition and sales growth effect is unique and novel. As in Ritter (1991) and Loughran and Ritter(1995) , that there is a variation in the post-IPO performance across industries. Consequently we include a complete set of industry dummies. In model (iii), the underpricing (*UP*) dummy variable is dropped considering the notion that its effect would probably be captured by the introduction of industry dummies. Furthermore log of offersize variable is added for controlling firm characteristics in our regression in model (iv).We report only the coefficient estimate and statistics associated with pre-IPO discretionary accruals, unmanaged accruals, underpricing, market timing dummy and sales growth, log of offersize variable in Table 8.

Our regression result indicates that discretionary accruals, unmanaged accruals and sales growth are statistically significant. This implies that firms that aggressively managed pre-IPO accruals aggressively in boosting pre-IPO earnings, performed significantly worse in the aftermarket. The strong significant positive sales growth coefficient implies that higher the sales growth superior would be the performance of that firm in the long-run.

5. Conclusions

This chapter has investigated the firms' timing ability proposition that has been offered as one of the explanations for long-run underperformance of IPOs. We find that bearish market issues performed poorly than those issued in a relative bullish market. It suggests that underperformance is more prevalent among firms that went public under relatively bearish market conditions. This phenomena is not consistent with the firms' timing ability proposition put forward by Ritter (1991) and Lougran,Ritter and Rydqvist(1994).

However, the fact that we find no significant difference in the post-issue performance of IPOs issued either in a buoyant market or in a sluggish market. It sheds some doubt on the ability of the Bangladeshi IPO firms to time their offerings in order to take advantage of 'windows of opportunity'.

This paper has also examined whether pre-IPO earning management, measured by discretionary accruals, can explain the long-run post-issue return underperformance of IPOs. In previous study conducted by (Imam & Jaber,2010) found that entrepreneurs of IPOs coming to the market during 1991-2000, behaved myopically in boosting earnings in the year prior to going public. But their objective of the study was to test the value relevance hypothesis in IPOs which states that "**Pre-IPO earnings management by issuers is positively related to firm's initial value.**" But in this study we have aimed at testing whether there exists any relation between subsequent firms underperformance and earnings management (the long-run market performance of initial public offering firms) which is termed as disappointment hypothesis. In other words, when earning of IPOs have been declined gradually because of adjustment of pre-IPO accruals over the five years periods, investors are disappointed with earning performance of IPOs in the long-run. Hence downward price correction is taking place reflecting the poor long-run performance of IPOs, which is termed as disappointment hypothesis.

We find that in the long run, IPOs performed poorly when managers aggressively manage pre-IPO discretionary accruals of these firms to report high pre-IPO earnings than when they manage pre-IPO discretionary accruals conservatively. Using the market adjusted return, the most conservative quartile firms (firms with lowest pre-IPO accruals) earned a five-year return of -55.68% though statically insignificant. In contrast, the most aggressive quartile firms (firms with the highest pre-IPO accruals) earned a five-year significant cumulative abnormal return of -67.64%. Notably, we find that pre-IPO discretionary accruals are good predictors of the post-IPO return performance of Bangladeshi IPOs.

Our evidence suggests that investors failed to properly adjust for pre-IPO discretionary accruals component of earnings and hence their valuations appear related to pre-IPO earnings performance that they naively extrapolated to the future. Under this interpretation, the failure to adjust properly for pre-IPO accrual component of earnings led investors to have high initial expectations of firms' future earning growth, and subsequent revelation about the actual accruals caused a downward correction in stock price.

There is a common view about earnings management and stock issues. The view holds that some firms opportunistically manipulate earnings upward before stock issues. According to this opportunism hypothesis, investors are deceived and led to form overly optimistic expectations regarding future, post-issue earnings. Thus, offering firms would be able to obtain a higher price than they otherwise would for their stock issue, but subsequent earnings would tend to be quite unsatisfactory. This view emphasizes the incentives that entrepreneurs, venture capitalists, and managers have to maximize issue proceeds, given the number of shares offered. Ritter (1991) provided empirical evidence that IPO firms' stock returns are significantly less than those of a matched sample of non-IPO firms over the three-year period after offering. One possible explanation for this finding is that entrepreneurs mislead investors by earnings management. Jain and Kini (1994) and Imam and Amin (2010) examined accounting measures of operating performance of IPO firms in US and Bangladesh respectively. They found that firms exhibit a decline in operating performance after their IPOs. They suggested that potential investors may initially have high expectations of future earnings growth that are not subsequently fulfilled.

All the empirical evidence produced elsewhere, including our findings, that earning management prior to IPO tends to mislead investors to extrapolate pre-IPO earnings into the future, suggest that the relationship between abnormal accruals and post-offer stock returns appears to be part of a more general empirical regularity.

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Appendix 1

Empirical Model to Test the Earnings Management Detection Hypothesis

Researchers have investigated two venues of earnings management: (i) the choice of accounting methods, and (ii) the management of accruals.

This paper focuses in management of accruals approach because accruals reflect not only the choice of accounting methods but also the effect of recognition and timing of revenues and expenses, asset write-downs and changes in accounting estimates. In this study total accruals are analyzed separating into two parts – discretionary (managed) accruals and non-discretionary (unmanaged) accruals.

Jones (1991) suggested cross-industry approach as well as time series approach to decompose accruals into normal (unmanaged) and abnormal (managed) components. DeFond and Jiambalvo (1994) used both Jones' time series model and a modified cross-industry model in their investigation of earnings management near to debt covenant violations. They reported that the magnitudes of the coefficients from the cross-sectional models were quite similar to those obtained from the time-series models, and that their conclusions were the same under either estimation method.

Accruals depend upon the economic conditions faced by firms (Kaplan, 1985). The cross-industry models control for economic factors that influence accruals using the same independent variables as Jones' time-series model. For each relevant industry, accruals are regressed on the control variables taking data from one year prior to the IPO. This regression model provides the benchmarks for the unmanaged or normal accruals. These benchmark coefficients along with the data of the IPO firm give us the unmanaged accruals of the IPO firm. We then get the managed accrual by subtracting unmanaged accruals from total accruals. The standardized cross-sectional model that was used by Teoh, Welch and Wong (1998) is as follows:

$$TAC_{iy}/TA_{iy-1} = a_{0j} [1/TA_{iy-1}] + a_{1j} [\Delta REV_{iy}/TA_{iy-1}] + a_{2j} [PPE_{iy}/TA_{iy-1}] + e_{iy} \quad [1]$$

Where,

TAC_{iy} =Total accruals (net income before extraordinary items minus cash flow from operations) in the year 'y' for the 'i-th' firm in the industry group matched with offering firm 'j'.

TA_{iy-1} =Total assets prior to the year 'y' for the 'i-th' firm in the industry group matched with offering firm 'j'.
 ΔREV_{iy} =Change in revenues in the year 'y' for the 'i-th' firm in the industry group matched with offering firm 'j'.

PPE_{iy} =Gross property, plant and equipment in the year 'y' for the 'i-th' firm in the industry group matched with offering firm 'j'.

e_{iy} =Regression disturbances, assumed cross-sectional uncorrelated and normally distributed with mean zero.

We get the values of the coefficients from regression of the model. Then putting the data of the IPO firms with these coefficients' values and subtracting from total accruals we get the managed portion of accruals as a fraction of total assets. The following model is called by DuCharme, Malatesta and Sefcik (2000) as the 'Forecast Error Model'.

$$TAEM_{jy} = [TAC_{jy}/TA_{jy-1}] - a_{0j} [1/TA_{jy-1}] - a_{1j} [(\Delta REV_{jy} - \Delta REC_{jy})/TA_{jy-1}] - a_{2j} [PPE_{jy}/TA_{jy-1}] \quad [2]$$

Where,

$TAEM_{jy}$ =Managed component of total accruals.

ΔREC_{jy} =Changes in accounts receivable.

The term ΔREC_{jy} is subtracted from the change in revenues because offering firm may inflate sales through easy credit policies.

Dechow (1994) showed that accruals are negatively associated with contemporaneous components of cash flow from operation. Her results suggested that cash flows are useful in determining expected accruals and she concluded that future research should consider inclusion of cash flows in models identifying them. Therefore, if we include operating cash flow from operation among the variables in 'Forecast Error Model' we get the 'Cash Flow Model' to estimate managed accruals.

$$TAC_{iy}/TA_{iy-1} = a_{0j} [1/TA_{iy-1}] + a_{1j} [\Delta REV_{iy}/TA_{iy-1}] + a_{2j} [PPE_{iy}/TA_{iy-1}] + a_{3j} [\Delta CFO_{iy}/TA_{iy-1}] + e_{iy} \quad [3]$$

Where,

ΔCFO_{iy} =Changes in cash flow from operation.

Appendix 2:

To evaluate the long-run performance of IPOs, two measures were employed: 1) the average cumulative abnormal return metric ($CAR_{s,T}$) with implicit reweighting event "portfolio" every month, and (2) average buy-and-hold return in excess of the benchmark buy-and-hold returns.

A traditional event study performance analysis was conducted over the post IPO (also referred to as the

seasoning) period. The raw returns are adjusted for general movements using a standard “market” adjustment which reflects conservatively the assumedly high risk of IPO shares;

$$AR_{it} = r_{it} - r_{mt}$$

where AR_{it} is the abnormal return for stock i in month t , r_{it} is the raw return on stock i in the month t , and r_{mt} is the corresponding return on the market index during the same time period. This approach of market adjusted return is equivalent to using standard version of the Capital Asset pricing Model (CAPM), with beta assumed to be unity, as the return generating model. The DSE all share price index was used as market benchmark.

Each issuing firm was followed from the first day of trading until the earliest of its delisting date or the end of 60 post-IPO seasoning month, or April 2011 (last month of data collection). The monthly return series are adjusted for capital changes⁸. The return during the first month of seasoning is the return measured from the equilibrium trading day to the last trading calendar day of the first trading month less the equivalent market index return. Hence the time interval of the first month market adjusted return varies from 1 to 30 calendar days. The average abnormal return for month t following the IPO is:

$$AR_t = \frac{1}{n_t} \sum_{i=1}^{n_t} ar_{it}$$

where n_t is the number of issues present in the cross section in post-IPO month t . The average cumulative abnormal return metric [Dimson and Marsh (1986)] from the month s to month T is the cross-sectional average of the individual cumulative compounded abnormal return⁹.

$$CAR_{s,T} = \frac{1}{n} \sum_{i=1}^n \left[\prod_{t=s}^T (1 + ar_{it}) - 1 \right]$$

The use of $CAR_{s,T}$ implicitly reweight our event “portfolio” every month.¹⁰ Since such a portfolio strategy is difficult to implement, we also analyze buy-and-hold returns alternatively. The buy-and-hold return for firm i is defined as:

$$R_{iT} = \prod_{t=1}^{\min(T, delist)} (1 + r_{it}) - 1$$

where $\min(T, delist)$ is the earlier of its delisting date or the end of the five year window. For firms that went public near the end of our sample period, the delisting date is no later than April, 2011, since the return interval is truncated on this date.

Following Ritter (1991) and Loughran and Ritter (1995), we also compute wealth relative as a performance measure, which can be defined as:

$$WR = \frac{1 + \text{average 5-year buy- and-hold return of IPO}}{1 + \text{average 5-year buy-and-hold return of market}} = \frac{1 + \frac{1}{n} \sum_{i=1}^n R_{iT}}{1 + \frac{1}{n} \sum_{M=1}^n R_{MT}}$$

A wealth relative (WR) of greater than one ($WR > 1$) indicates that IPOs are outperforming the market benchmark, while a wealth relative of less than one ($WR < 1$) indicates IPO underperformance.

⁸ All price series were adjusted for dividends, splits, right offering and other capital changes.

⁹ Alternatively, the Cumulative Abnormal Return can be cumulated by summing up over time the AR_t . But this is bias because it does not compound the AR_t , and monthly cumulate the estimation errors in single period return, as pointed out by Conrad and Kaul (1993).

¹⁰ This reweighting implies reducing the holding of stock which have apparently appreciated and increasing the holding in stock which have apparently depreciated and hence it does not realistically represent a typical investor’s behavior.

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