

# Initial Public Offerings Trading Strategies Using Pre-Listing Information in Sri Lanka

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## Abstract

*Main channel of information dissemination for initial public offerings (IPO) in pre listing stage is the prospectus. Auditor fee and director emoluments are two types of such information which investors do know in advance through prospectus. Industry and media publicity are also in the focus of investors in pre IPO stage. This study inquires whether such information can be used to form successful trading strategies in long run. IPO stock portfolios have been constructed based on above four types of information and their returns have been tested using four popular asset pricing models in this study to answer the above question. The findings confirm that long only strategies are successful in all four types of information while long and short strategies are proved to be a failure. The findings reveal also that portfolios consist of non-finance stocks, stocks with high media coverage, high audit fees and high director fees tend to provide highest returns compared to other IPO stock portfolios.*

**Keywords.** *Initial public offerings, Colombo stock exchange, Sri Lanka*

## 1. Introduction

Main channel of information dissemination for initial public offerings (IPO) in pre listing stage is the prospectus which typically includes valuable information such as details of the issue, overview on business operations and industry, management discussion and analysis, corporate structure and past financial statements together with auditor's report. Investors have to use this pre IPO information wisely in order to avoid IPO long run underperformance documented by Ritter (1991) in United States of America, subsequently reported in many parts of the world including Levis (1993), Kooli and Suret (2004), and Sahoo and Rajib (2010). This study intends to examine the effectiveness of long only as well as long and short trading strategies based on pre IPO information as a remedy to the long run underperformance of IPO stocks. Signaling theory provides some useful clues to investors to select long run survivors from all the IPOs listed. Some of them are cited in the IPO literature such as Allen and Faulhaber (1989) using IPO underpricing; Carter, Dark, and Singh (1998) using reputed underwriting firms; Feltham, Hughes, and Simunic (1991) using reputed audit firms; Leland and Pyle (1977) selecting high pre IPO equity firms; Brav and Gompers (1997) using venture capitalists. In this study, four types of pre IPO information are selected to form trading strategies and subsequently to evaluate their effectiveness which are pre IPO media coverage, Industry which IPO belongs to, pre IPO director fees, and pre IPO audit fees. These four types of information were given little or no attention in IPO context even though there are studies on the relationship with normal stocks such as Fang and Peress (2009) for media coverage, Simunic (1980) for audit fees, Malmendier and Tate (2009) for director fees and Chou, Ho, and Ko (2012) for industry. Some of the exceptions which studied the impact to IPO stocks are Dong and Michel (2012) for industry and Liu, Sherman, and Zhang (2014) for media coverage. This study expects to reveal whether trading strategies formed on above four types of information are able to generate an abnormal return using four asset

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pricing models which are three moment capital asset pricing model (3MCAPM) by Kraus and Litzenberger (1976), three factor model (FF3) by Fama and French (1993), four factor model (C4F) by Carhart (1997) and five factor model (FF5) by Fama and French (2015). In other words, this study specifically looks at whether trading strategies formed are outperforming the market index after pricing for well known risk factors such as size, book to market ratio, momentum, profitability and investment. Selected asset pricing models act as the main criteria which determine the excess returns of IPO trading strategies after accounting for popular risk factors and their use in this study is justified by the role played by them to filter excess returns from risk factors. Further, this study fills an empirical gap existed in IPO literature by suggesting strategies to overcome IPO long run underperformance. Therefore objective of this study is to explore the possibility of mitigating IPO long run underperformance by forming strategies based on above four types of pre listing information. It is found that long only strategies were able to result positive alpha while long and short strategies are not successful for all four types of pre IPO information. Further, it is also found that IPOs belong to non-finance industries, IPOs with high pre IPO media coverage, IPOs with high pre IPO director fees and high auditor fees tend to earn slightly higher long run excess returns compared to IPOs in financial services industry, IPOs with low pre IPO media coverage, IPOs with low director fees and low auditor fees. The rest of the paper is organized as follows. Section 2 discusses relevant literature and section 3 describes data and methodology. Section 4 presents the analysis of the study and section 5 provides the results. Section 6 comprises the conclusions.

## **2. Literature Review**

As the beginning, theories which have a profound influence to the study are discussed. Two such theories are market efficiency and information asymmetry. Further, there is a brief introduction to asset pricing models used in the study. Then, empirical studies consists four subsections which are industry, pre IPO media coverage, pre IPO director fees and pre IPO auditor fees.

### **2.1 Theories of Market Efficiency and Information Asymmetry**

Efficient market theory is the centerpiece of modern finance. Efficient market hypothesis has been tested extensively all over the world. Efficient market can be defined as the market which it is impossible to earn an abnormal return by trading on the basis of publicly available information. Samuelson (1965) argued that unexpected price changes in stocks reflect that new information has been supplied to the market. New information can be defined as information that cannot be deduced from previous information and new information must be independent over time. If capital markets are efficient, market value of the firm should be equaled to the present value of firms' future net cash flows. According to Fama (1970) efficient markets are characterized by competition among profit maximizing firms who attempt to estimate the value of securities in the future relying on the information they have. In an ideal world where assumptions of efficient market theory exist; there cannot be any anomalous behaviors such as IPO underpricing and subsequent lower returns in the long run. Even though efficient market theory is widely accepted among academics and professionals, it has many criticisms. One of that is stock prices seem to very much volatile and therefore difficult to be consistent with the efficient market theory. According to efficient market theory, there will be no value of predictive signals of past information. However, technical analysis is widely accepted among stock market

analysts as a method of forecasting stock prices. Most importantly, there are deviations or puzzles in capital markets which originates largely due to psychological biases. Even though there are lots of critics to efficient market theory, it should be noted that still there is no single theory emerged so far to replace it.

Information asymmetry has been explained by Akerlof (1970) as one party possesses superior information about fair value of any asset (IPO share in this instance) compared to other party. Key parties in an IPO process are issuing firm, their underwriters and investors. In IPO literature, different academics assumed different parties have better information compared to others. Baron (1982) argued that underwriters have better information compared to issuing firms and investors since they know market conditions better. However Welch (1989) argued that issuing firm has better information since they know very well about their own firm. Rock (1986) model, better known as winner's curse model or adverse selection model assumes that certain fraction of investors have better information compared to their peer investors, issuing firms and underwriters.

## **2.2 Asset Pricing Models**

As described in the introduction, there are four asset pricing models used in this study. First one is three moment capital asset pricing model (3MCAPM) proposed by Kraus and Litzenberger (1976). It is an extension to the standard capital asset pricing model (CAPM) by introducing a skewness premium. Standard capital asset pricing model predicts the relationship between the risk of an asset and its expected returns which was independently developed by Sharpe (1964), Lintner (1965), and Mossin (1966). Fama and French (1993) added two more risk factors to the CAPM to represent size (measured by market capitalization) and value (measured by book to market ratio). Size anomaly is that small companies can earn higher risk adjusted returns compared their large counterparts. Value anomaly is a tendency of value stocks (stocks with low prices relative to their fundamentals) to outperform growth stocks (stocks with high prices relative to fundamentals). Carhart (1997) added a fourth factor to the three factor model which is momentum. Momentum is the continuation of stocks that have performed well recently to do well over the subsequent 1 to 12 months. Fama and French (2015) added two more factors which are investment and profitability to their seminal three factor model.

## **2.3 Empirical Studies**

### **2.3.1 Industry**

Industry refers to a group of companies that produce similar products and services or close substitutes, even though sometimes it is very complex in real world. It was found that traditional asset pricing models were unable to explain returns for industry groups (Hou & Robinson, 2006; Lewellen, Nagel, & Shanken, 2010). Industry has a strong effect to traditional risk based factors such as size, book to market ratio and momentum. Chou et al. (2012) found several important implications which are small firm effect is a below industry median phenomenon, value effect is an intra-industry phenomenon, and short run momentum is an inter industry phenomenon. Dong and Michel (2012) analyzed industry's impact to stock returns in IPO context. They explained that if investors are underreacting to a new issue, it will lead to set the IPO initial trading price too low. Thereafter price will correct itself based on good prospects of relevant IPO. When investors are overreacting to an IPO, opposite mechanism would happen. Ritter (1991) analyzed 14 industries in 1975–1984 period

and only three industries over performed which are financial services, pharmaceuticals and airlines. Analysing Australian IPOs by dividing them into four industries which are consumer discretionary and staples, information technology, industrial and resources it was found that consumer industry is underperforming in both measures of cumulative abnormal returns as well as buy and hold abnormal returns while other industries displayed a mixed behavior (Perera, 2014).

### **2.3.2 Pre IPO Media Coverage**

According to market efficiency theory, mass media coverage doesn't have an impact to stock returns unless they reveal new information which is not available before. But there are many studies which found significant relationships between media coverage and stock returns (e.g., Tetlock, 2011; Fang & Peress, 2009). They documented that there is a negative relationship between media coverage and stock returns. Main reason for this can be explained using investor recognition hypothesis by Merton (1987). Further, Easley, Hvidkjaer, and O'Hara (2002) explained it using information asymmetry theory. Their argument is stocks with lesser information will result a lesser awareness among investors. So high stock returns are needed to compensate those stocks with lesser information. This argument is questioned by the finding of Van Nieuwerburgh and Veldkamp (2009) which assumed that higher awareness backed by higher investor attention has a cost. Hence, high stock returns need to recover that cost involved with higher awareness.

Main channel of information dissemination for IPOs is prospectus which is issued in pre IPO stage. Relationship between media coverage and IPO stock returns was analyzed by Liu et al. (2014) and found similar negative relationship in confirmation with findings of Fang and Peress (2009) and Tetlock (2011). Further, contrary to investor recognition hypothesis (Merton, 1987), Barber and Odean (2008) mentioned that stocks with higher attention will be selected by investors when there are large numbers of stocks are available to choose. Therefore it can be argued that more popular stocks will grab investor attention in IPO context too and media coverage will play a role in this process.

### **2.3.3 Pre IPO Director Fees**

There are number of studies which recommend executive compensation and firm performance should be connected with each other in order to mitigate agency conflict (e.g., Grossman & Hart, 1983; Holmstrom, 1979; Jensen & Meckling, 1976; Jensen & Murphy, 1990). Further, there are number of studies which had found positive or strong relationship between executive pay and firm performance (e.g. Espenlaub, Walker, & Stathopoulos, 2004; Main, Bruce, & Buck, 1996; Merhebi, Pattenden, Swan, & Zhou, 2006). However, Grima, Thomson, and Wright (2007) found weak relationships between these executive pay and firm performance. But it should be noted that most of the above studies defined firm performance in accounting measures but not the appreciation of firms' stock value. The relationship between future stock returns and executive pay is studied by several papers (e.g., Cooper, Gulen, & Rau, 2009; Lewellen, Loderer, Martin, & Blum, 1992; Malmendier & Tate, 2009; Masson, 1971; McConaughy & Mishra, 1996) while most of them found positive relationship between executive pay and future stock returns. Cooper et al. (2009) documented that both total and cash compensation is unrelated or insignificantly related to stock

returns<sup>2</sup>. Further, they identified that increased executive pay related information will not be quickly incorporated to stock returns due to several reasons. Some of them are existence of unobservable elements of executive compensation to outside investors, requirement of special skills and knowledge to identify such information, tendency of increased pay leading to shareholder wealth destruction by executives such as empire building. Empirical evidence for relationship between executive pay and stock returns in IPO context is very limited. One such study is by Nikbakht, Shahrokhi, and Martin (2007) where they discovered if an executive remains in the firm in post IPO period, that stock is undervalued and firm's prospects are bright in future. Further, Cooper et al. (2009) found an effective trading strategy which yielded positive returns by selling highest executive compensation firms and buying lowest executive compensation payers.

#### **2.3.4 Pre IPO Auditor Fees**

Auditors have the benefit to access confidential details such as accounting reports, strategic plans, and internal records of their clients. Audit risk is the probability that auditors issue a qualified opinion on clients' financial statements and engagement risk is auditors' vulnerability to litigation risk or loss of reputation due to the audit job which they have undertaken. Picconi and Reynolds (2013) explained that there is a positive relationship between engagement risk and audit risk. Simunic (1980) pointed out that both audit risk and engagement risk should be considered by an auditor when they determine the price of the audit. Therefore it can be concluded that there is a risk element hidden in audit fees which is not explicit to outside investors. Hence, audit fee can be a determinant of future stock returns. In IPO context, information such as auditor type, pre IPO audit opinion and audit fees are available to investors through prospectus. Investors can use this information to decide whether they invest in a respective IPO or not. On auditor type, Palmrose (1988) reported that reputed big audit firms tend to avoid future audit failures which would result litigation activities than small and less reputed peers. Thus, there is a certification that accounting reports audited by big and reputed audit firms are true and fair compared to small audit firms. Further, Craswell, Francis, and Taylor (1995) and Beatty (1993) mentioned that large audit firms do charge fee premium for their work compared to small auditors. Accordingly, if large auditors avoid audit failures and they charge high audit fees, it would mean that fee premium acts as a certification of the clients' business. Therefore this information can be used by investors to select high quality firms and execute their trading strategies. Finally when big auditors issue a pre IPO clean opinion for a client, these firms tend to earn higher post IPO return compared to firms with qualified opinions by same auditors as revealed by Weber and Willenborg (2003).

### **3. Data and Methodology**

Sub section 3.1 describes data used for this study and sub section 3.2 presents the methodology followed in the study.

#### **3.1 Data**

The data used in this study consist of 63 IPOs listed in Colombo Stock Exchange (CSE) from January 2003 to December 2016. The issue dates and offering prices of IPOs are taken from CSE and listing prospectuses. Monthly stock prices are taken

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<sup>2</sup> Focus of this study is cash compensation but not the stock based incentives such as executive share option schemes.



from CSE and adjusted by authors to dividends and other corporate actions. All share price index (ASPI) data is obtained from CSE and is considered as the market index. Factor data such as size (market capitalization of firms), book to market ratio, momentum (past returns in short run), profitability (return on equity) and investment (total asset growth) were mainly obtained from CSE and individual company annual reports. Risk free rate is taken as three month Treasury bill rate published by Central Bank of Sri Lanka (CBSL). Media search results were obtained by counting news items which carried IPO Company's name with in headlines or text or both on website archives of leading newspapers and online news portals in Sri Lanka. They are Daily FT, Lanka Business On line (LBO), Daily News, Daily Mirror, Sunday Times and Sunday Observer. Further, this count is taken for three months prior to the IPO up to IPO listing date. Industry classification was based on the CSE sector classification. Companies which belong to Bank, Finance and Insurance sector were classified as finance industry and all other stocks were classified as non-finance industry. Director fees and audit fees are taken from prospectuses.

### 3.2 Methodology

This study intends to examine the effectiveness of long only as well as long and short trading strategies of IPO stocks in CSE. For this purpose, it needs to construct IPO stock portfolios based on widely available pre IPO information which are industry, media coverage, director fees and audit fees. Two portfolios were created based on the industry which IPO firm belongs to. They are finance (FIN) and non-finance (NONFIN) portfolios. Further, six portfolios were created as low media search results (LMSR) and high media search results (HMSR) based on media coverage three months prior to the issue, low director fees (LDF) and high director fees (HDF) based on director fees paid by the company immediately prior to IPO, low auditor fees (LAF) and high auditor fees (HAF) based on auditor fees paid by the company immediately prior to IPO. These low and high portfolios were segregated based on median of the respective variable. It will result eight portfolios together with two industry portfolios which are FIN, NONFIN, LMSR, HMSR, LDF, HDF, LAF and HAF which has monthly returns for 168 months from January, 2003 and December, 2016. Further, four more additional portfolios were created by subtracting NONFIN, LMSR, LDF and LAF from FIN, HMSR, HDF and HAF respectively. Those four portfolios are FIN-NONFIN, HMSR-LMSR, HDF-LDF and HAF-LAF. As a result, there are 12 portfolios all together. IPO companies were included to construct IPO portfolio return from listing to five years or delisting where earlier of the two situations is taken. When there are missing prices (when there is no trading) for IPO firms, last traded price was taken to compute the return. Stock returns of these monthly portfolios are calculated on equal weighted basis. Single IPO firm monthly return is calculated as follows.

$$R_{im} = \ln \left[ \frac{P_{icpm}}{P_{icpm1}} \right]$$

Where  $R_{im}$  is the single IPO firm  $i$  monthly return for month  $m$ ,  $P_{icpm}$  is closing price of IPO firm for month  $m$  and  $P_{icpm1}$  is closing price of IPO firm for month  $m-1$ .

Next step would be to run weighted least square regression with Newey and West (1987) adjustment to the standard errors of estimated values in order to mitigate auto correlation and heteroscedasticity. Four asset pricing models used for this step are

three moment capital asset pricing model (3MCAPM), Fama and French three factor model (FF3), Carhart four factor model (C4F) and Fama and French five factor model (FF5). Below Table 1 shows variables and equations for above asset pricing models.

#### **4. Analysis**

Brief descriptive analysis will be presented first before estimating the weighted least square regression on IPO trading strategies.

##### **4.1 Descriptive Statistics**

Descriptive statistics on returns of IPO portfolios are presented in Table 2. When analyzed means and medians of FIN and NONFIN portfolios, FIN is slightly higher than NONFIN IPOs. Means and medians of LMSR are also higher than means and medians of HMSR. Further, HDF and HAF exhibited higher means and median compared to their peer portfolios, LDF and LAF respectively. Minimums and maximums express that there is evidence of higher statistical range for all variables indicating the presence of extreme values in the data set. However author did not attempt to winsorize or truncate the data because it is already a small data set compared to similar studies. Standard deviations for all variables exhibit similar values between 8.43% and 9.66%. This can be interpreted as all these IPO portfolios carry risk in similar range.

##### **4.2 Weighted Least Square Regression Analysis**

Weighted least square (WLS) regression analysis has been performed for portfolio returns of all four types of pre IPO information.

###### **4.2.1 Industry Based IPO Portfolios**

Table 3 presents the WLS regression results on trading strategies based on industry. Coefficients of alpha of FIN as well as NONFIN portfolios are positive indicating they are able to generate slight but positive premium after pricing for well known risk factors. However FIN-NONFIN portfolio trading strategy didn't earn a statistically significant alpha. This indicates that long only strategy based on industry is successful in Sri Lankan context even though even though long and short strategy based on industry is proved to be a failure. Positive alphas were generated from three asset pricing models out of four except 3MCAPM where alpha was slightly higher for NONFIN compared to FIN. Therefore, it would be ideal for investors to select NONFIN IPOs even though it yields a slightly higher return than FIN. Further, coefficient of MRP (Market risk premium) exhibits a positive relationship with returns of both FIN and NONFIN portfolios but not for FIN-NONFIN. SMB indicates a positive size premium for both FIN and NONFIN portfolios. Coefficients of HML show a valid value premium only for NONFIN portfolio but not for others. New factors added to the FF5 model by Fama and French (2015) exhibit statistically significant coefficients for NONFIN and FIN-NONFIN portfolios but not for the FIN portfolio. Adjusted R squared is increasing for both FIN and NONFIN portfolios from 3MCAPM to FF5. It should be noted that adjusted R squared is high for NONFIN in all the asset pricing models compared to FIN. Further, F statistics are highly significant for both FIN and NONFIN portfolios indicating all the factors in the asset pricing models jointly explaining the variation of portfolio returns. However, adjusted R squared is very low for FIN-NONFIN portfolio indicating statistical model explains very few about the return variation of FIN-NONFIN. F statistics are not statistically significant for FIN-NONFIN except C4F and FF5.

Table 1  
Variables and equations for asset pricing models

Panel A: Variables

Variable	Description
RF	Risk free (RF) rate which is three month treasury bill rate published by Central Bank of Sri Lanka.
RM	Market rate of return (RM) which is monthly ASPI change of CSE.
MRP	Market Risk Premium (MRP) which is obtained by deducting RF from RM. $MRP = RM - RF$
SMB	Return difference between small stocks and big stocks based on market capitalization. $\frac{1}{3} (\text{Small Value} + \text{Small Neutral} + \text{Small Growth}) - \frac{1}{3} (\text{Big Value} + \text{Big Neutral} + \text{Big Growth})$ $\frac{1}{3} \{ [\frac{1}{3}(\text{Small Value} + \text{Small Neutral} + \text{Small Growth}) - \frac{1}{3} (\text{Big Value} + \text{Big Neutral} + \text{Big Growth})] + [\frac{1}{3}(\text{Small Robust} + \text{Small Neutral} + \text{Small Weak}) - \frac{1}{3} (\text{Big Robust} + \text{Big Neutral} + \text{Big Weak})] + [\frac{1}{3}(\text{Small Conservative} + \text{Small Neutral} + \text{Small Aggressive}) - \frac{1}{3} (\text{Big Conservative} + \text{Big Neutral} + \text{Big Aggressive})] \}$
HML	Return difference between value (high book to market) stocks and growth (low book to market) stocks. $HML = \frac{1}{2} (\text{Small Value} + \text{Big Value}) - \frac{1}{2} (\text{Small Growth} + \text{Big Growth})$
WML	Return difference between past eleven month (t-2 to t-12) winner stocks and past eleven month loser stocks. $WML = \frac{1}{2} (\text{Small Winners} + \text{Big Winners}) - \frac{1}{2} (\text{Small Losers} + \text{Big Losers})$
RMW	Return difference between robust profitability stocks and weak profitability stocks. $RMW = \frac{1}{2} (\text{Small Robust} + \text{Big Robust}) - \frac{1}{2} (\text{Small Weak} + \text{Big Weak})$
CMA	Return difference between conservative investment stocks and aggressive investment stocks. $CMA = \frac{1}{2} (\text{Small Conservative} + \text{Big Conservative}) - \frac{1}{2} (\text{Small Aggressive} + \text{Big Aggressive})$

Panel B: Equations

Asset pricing model and source

Three moment Capital Asset Pricing Model (3MCAPM) – Kraus and Litzenberger (1976)  
Fama & French 3 factor model (FF3) – Fama

Equation

$$R_{it} - RF_t = (MRP_t) + (MRP_t - MRP_t) \frac{1}{2} \sigma_{t-2}^2$$

and French (1993)

Carhart 4 factor model (C4F) – Carhart (1997)

$$R_{it} - RF_t = (RM_t - RF_t) + sSMB_t + hHML_t + wWML_t$$

Fama & French 5 factor model (FF5) – Fama and French (2015)

$$R_{it} - RF_t = (RM_t - RF_t) + sSMB_t + hHML_t + rRMW_t + cCMA_t$$

Note. Researcher's construction based on Fama and French (1993, 2015) and Carhart (1997)



#### 4.2.2 Portfolios Based on Pre IPO Media Coverage

Table 4 presents the WLS regression results for trading strategies based on pre IPO media coverage. Coefficient of alpha is positively significant for both LMSR and HMSR but not for HMSR-LMSR. This indicates that both LMSR and HMSR outperformed HMSR-LMSR after controlling for well known risk factors. However, HMSR exhibit slightly higher alpha compared to LMSR (except for 3MCAPM) hence signaling to investors that IPOs with heavy pre listing media coverage would result higher return even though the difference of alpha between two portfolios is marginal. This result is consistent with Barber and Odean (2008); Van Nieuwerburgh and Veldcamp (2009). But it is contradicted with the findings of Fang and Peress (2009); Liu et al. (2014) which postulates a negative relationship between stock returns and media coverage. MRP reflects a statistically significant beta for all three portfolios except HMSR-LMSR under 3MCAPM. SMB shows a positive size premium for LMSR and inverted size premium for HMSR-LMSR. Valid value premium can be observed only for HMSR. Coefficient of WML indicates a positive momentum effect for LMSR and a negative momentum for HMSR-LMSR. Both coefficients of RMW and CMA are negatively significant for both LMSR and HMSR. Adjusted R squared lies in healthy levels for LMSR and HMSR but it is very low for the portfolio HMSR-LMSR. However F statistics are highly significant for all three portfolios except for HMSR-LMSR under 3MCAPM.

Table 2

##### *Descriptive statistics on IPO portfolio returns*

Portfolio	Mean (%)	Median (%)	Maximum (%)	Minimum (%)	Standard Deviation (%)	Observations
FIN	0.18	-0.29	38.68	-33.51	9.21	168
NONFIN	0.11	-0.32	30.50	-28.37	8.49	168
LMSR	0.75	-0.1	24.69	-34.63	8.97	168
HMSR	-0.34	-0.78	36.22	-24.24	8.43	168
LDF	-0.35	-0.77	35.39	-34.84	9.11	168
HDF	0.51	0.36	31.96	-26.73	9.01	168
LAF	-0.01	-1.26	35.39	-34.2	9.66	168
HAF	0.17	0.01	38.87	-26.73	8.64	168

*Note.* Researcher's construction using E-views 6.0 software.

Table 3  
*IPO trading strategies based on industry portfolios*

	Finance (FIN)				Non Finance (NONFIN)				FIN – NONFIN			
	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5
Constant	0.062***	0.051***	0.049***	0.052***	0.059***	0.053***	0.053***	0.059***	0.003	-0.002	-0.004	-0.007
MRP	(5.698) 0.660***	(5.550) 0.588***	(5.550) 0.584***	(6.032) 0.601***	(6.414) 0.698***	(7.229) 0.629***	(6.764) 0.630***	(9.021) 0.679***	(0.279) -0.038	(-0.212) -0.041	(-0.498) -0.046	(-0.894) -0.078
$(MRP \ MRP)^2$	(6.025) -0.464 (-0.779)	(6.909)	(7.115)	(7.360)	(6.872) 0.361 (0.530)	(7.548)	(7.308)	(8.066)	(-0.460) -0.825** (-1.989)	(-0.561)	(-0.659)	(-1.248)
SMB (FF3)		0.469*** (4.464)	0.472*** (4.868)			0.324*** (3.483)	0.323*** (3.480)			0.146 (0.948)	0.149 (1.032)	
HML		0.058 (0.484)	0.075 (0.623)	0.009 (0.081)		0.178** (2.394)	0.174** (2.441)	0.170** (2.193)		-0.120 (-0.856)	-0.100 (-0.712)	-0.161 (-1.223)
WML			0.101 (1.436)				-0.025 (-0.251)				0.127 (1.097)	
SMB (FF5)				0.486*** (6.144)				0.233** (2.305)				0.253** (2.116)
RMW				-0.084 (-0.997)				-0.187** (-2.551)				0.103 (0.983)
CMA				0.034 (0.340)				-0.300*** (-2.882)				0.334*** (3.713)
Adjusted R <sup>2</sup>	0.345	0.459	0.466	0.478	0.432	0.505	0.502	0.539	0.012	0.014	0.031	0.133
F statistic	44.896***	48.217***	37.464***	31.565***	64.622***	57.701***	43.144***	40.026***	0.998	1.794	2.350*	6.119***
Observations	168	168	168	168	168	168	168	168	168	168	168	168

Note. Researcher's construction using E-views 6.0 software. \*\*\*, \*\*, \* denote statistical significance at the 0.01, 0.05 and 0.10 levels respectively.

#### **4.2.3 Portfolios Based on Pre IPO Director Fees**

Table 5 presents WLS regression results of trading strategies based on pre IPO director fees. Coefficient for the alpha exhibits statistically very high positive correlation for LDF and HDF while coefficient of HDF-LDF results a correlation which is marginally significant at 10% except for 3MCAPM. Even though all three portfolios yield a positive alpha, HDF is appeared as the portfolio with highest coefficient for alpha exceeding other two portfolios. This is against the findings of Cooper et al. (2009) which exhibited an unrelated association between stock returns and executive cash compensation. Positive coefficients for MRP are reported for both LDF and HDF but not for HDF-LDF. Significant size premium is reported for both LDF and HDF but it has been reversed for HDF-LDF. Coefficient of RMW is significantly positive for HDF-LDF while it is significantly negative for LDF. Reverse premium for CMA also has been reported for HDF and HDF-LDF. Adjusted R squared is at healthy levels for LDF and HDF while it is very low for HDF-LDF. F statistics are highly significant for all the regressions except HDF-LDF under 3MCAPM indicating all factors are jointly explaining the return variation.

#### **4.2.4 Portfolios Based on Pre IPO Auditor Fees**

Table 6 presents WLS regression results of trading strategies based on pre IPO audit fees. Coefficients of alpha have been significantly positive for both LAF and HAF. However HAF's alpha is slightly higher than alpha of LAF except for 3MCAPM. So it gives the message that firms which pay high pre IPO audit fees would result higher returns even after pricing for risk factors such as size, book to market ratio, momentum, investment and profitability. Similar to above results with other three types of pre IPO information, significantly positive coefficients are reported on MRP for both LAF and HAF. Valid size premium can be observed for LAF and HAF while it has been reversed for HAF-LAF. No significant premiums for HML, WML, RMW and CMA can be observed. Adjusted R squared is at high levels for HAF and LAF compared to very low adjusted R squared reported for HAF-LAF. F statistics are highly significant for all the regressions except for HAF-LAF under 3MCAPM.

Table 4  
*Trading strategies for portfolios based on Pre IPO media coverage*

	LMSR				HMSR				HMSR – LMSR			
	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5
Constant	0.064***	0.049***	0.047***	0.054***	0.060***	0.058***	0.059***	0.064***	-0.004	0.009	0.013*	0.010
MRP	(5.148)	(7.576)	(6.839)	(8.570)	(8.338)	(7.718)	(7.330)	(8.715)	(-0.338)	(1.242)	(1.933)	(1.504)
	0.637***	0.519***	0.513***	0.568***	0.763***	0.732***	0.736***	0.763***	0.126	0.213***	0.223***	0.195***
	(5.150)	(6.258)	(6.405)	(6.750)	(8.997)	(9.752)	(9.338)	(10.356)	(1.416)	(3.908)	(4.371)	(4.108)
$(MRP - MRP)^2$	-0.219				0.345				0.564			
	(-0.314)				(0.585)				(1.220)			
SMB (FF3)		0.699***	0.703***			0.105	0.103*			-0.594***	-0.600***	
		(9.292)	(9.897)			(1.623)	(1.672)			(-6.936)	(-8.429)	
HML		0.098	0.122	0.057		0.157**	0.144**	0.152*		0.059	0.022	0.095
		(1.259)	(1.539)	(0.756)		(2.095)	(2.094)	(1.888)		(0.612)	(0.242)	(1.144)
WML			0.145**				-0.078				-0.224***	
			(1.977)				(-0.993)				(-4.917)	
SMB (FF5)				0.674***				0.020				-0.654***
				(8.098)				(0.262)				(-8.079)
RMW				-0.118*				-0.197***				-0.079
				(-1.699)				(-2.809)				(-1.115)
CMA				-0.163**				-0.232*				-0.069
				(-2.312)				(-1.869)				(-0.892)
Adjusted R <sup>2</sup>	0.331	0.610	0.630	0.613	0.527	0.542	0.547	0.578	0.014	0.387	0.479	0.449
F statistic	42.313***	87.915***	72.105***	53.824***	94.093***	66.916***	51.397***	46.669***	2.209	36.082***	39.368***	28.206***
Observations	168	168	168	168	168	168	168	168	168	168	168	168

Note. Researcher's construction using E-views 6.0 software. \*\*\*, \*\*, \* denote statistical significance at the 0.01, 0.05 and 0.10 levels respectively.

Table 5  
*IPO trading strategies for portfolios based on Pre IPO director fees*

	LDF				HDF				HDF – LDF			
	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5
Constant	0.057*** (5.266)	0.044*** (5.878)	0.043*** (5.604)	0.049*** (6.306)	0.066*** (5.457)	0.060*** (6.104)	0.059*** (5.681)	0.062*** (6.832)	0.009 (1.047)	0.016* (1.901)	0.015* (1.923)	0.013* (1.730)
MRP	0.674*** (5.943)	0.580*** (7.258)	0.578*** (7.213)	0.611*** (7.754)	0.714*** (6.510)	0.651*** (6.886)	0.648*** (6.827)	0.696*** (7.855)	0.040 (0.522)	0.071 (1.030)	0.070 (1.021)	0.085 (1.492)
$(MRP - MRP)^2$	-0.422 (-0.660)				0.045 (0.071)				0.467 (0.990)			
SMB (FF3)		0.590*** (6.888)	0.591*** (6.730)			0.357*** (2.952)	0.359*** (3.050)			-0.233* (-1.892)	-0.232* (-1.899)	
HML		0.091 (1.172)	0.098 (1.233)	0.039 (0.445)		0.021 (0.197)	0.031 (0.301)	0.048 (0.553)		-0.070 (-0.685)	-0.066 (-0.640)	0.008 (0.094)
WML			0.038 (0.458)				0.064 (0.864)				0.025 (0.316)	
SMB (FF5)				0.586*** (6.011)				0.392*** (3.915)				-0.193* (-1.768)
RMW				-0.220** (-2.559)				0.030 (0.353)				0.250*** (2.991)
CMA				-0.120 (-0.946)				-0.272** (-2.370)				-0.152* (-1.666)
Adjusted R <sup>2</sup>	0.367	0.556	0.555	0.601	0.407	0.478	0.479	0.558	0.006	0.040	0.036	0.249
F statistic	49.383***	70.733***	53.052***	51.311***	58.360***	51.899***	39.355***	43.087***	0.519	3.337**	2.544**	12.103***
Observations	168	168	168	168	168	168	168	168	168	168	168	168

Note. Researcher's construction using E-views 6.0 software. \*\*\*, \*\*, \* denote statistical significance at the 0.01, 0.05 and 0.10 levels respectively.

Table 6  
*IPO trading strategies for portfolios based on Pre IPO auditor fees*

	LAF				HAF				HAF – LAF			
	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5	3MCAPM	FF3	C4F	FF5
Constant	0.063*** (5.284)	0.049*** (6.143)	0.048*** (6.043)	0.051*** (7.823)	0.061*** (5.526)	0.055*** (5.887)	0.055*** (5.342)	0.060*** (5.648)	-0.002 (-0.293)	0.006 (0.775)	0.007 (0.888)	0.009 (1.021)
MRP	0.683*** (5.878)	0.587*** (7.368)	0.584*** (7.490)	0.626*** (8.493)	0.708*** (6.617)	0.646*** (6.708)	0.645*** (6.566)	0.682*** (6.855)	0.025 (0.328)	0.059 (0.808)	0.060 (0.848)	0.056 (0.771)
$(MRP - \overline{MRP})^2$	-0.644 (-1.038)				0.314 (0.480)				0.959 (2.131)			
SMB (FF3)		0.648*** (5.740)	0.650*** (5.746)			0.297*** (3.406)	0.298*** (3.438)			-0.350*** (-3.223)	-0.351*** (-3.171)	
HML		-0.013 (-0.123)	-0.001 (-0.013)	-0.033 (-0.359)		0.135 (1.427)	0.140 (1.547)	0.127 (1.288)		0.148 (1.195)	0.141 (1.111)	0.160 (1.359)
WML			0.069 (0.809)				0.028 (0.359)				-0.041 (-0.459)	
SMB (FF5)				0.715*** (8.496)				0.257** (2.239)				-0.458*** (-4.092)
RMW				-0.057 (-0.750)				-0.138 (-1.391)				-0.081 (-0.892)
CMA				-0.165* (-1.811)				-0.219 (-1.369)				-0.053 (-0.440)
Adjusted R <sup>2</sup>	0.341	0.549	0.550	0.608	0.430	0.485	0.482	0.504	0.006	0.126	0.124	0.191
F statistic	44.257***	68.718***	52.131***	52.728***	63.974***	53.356***	39.914***	34.912***	1.499	9.061***	6.905***	8.871***
Observations	168	168	168	168	168	168	168	168	168	168	168	168

Note. Researcher's construction using E-views 6.0 software. \*\*\*, \*\*, \* denote statistical significance at the 0.01, 0.05 and 0.10 levels respectively.



## **5. Results**

This study examined the effectiveness of trading strategies formed on pre IPO information such as industry which IPO belongs to, pre IPO media coverage, pre IPO director fees and pre IPO audit fees. Most highlighted fact from the study is that long only strategies produce significant excess returns while long and short strategies exhibit poor and mixed results in most occasions. Further, NONFIN, HMSR, HDF and HAF produce slightly higher alpha compared to FIN, LMSR, LDF and LAF respectively. Hence, these findings will be useful to investors where they can plan their investments accordingly. There can be several reasons for this finding. FIN portfolio is concentrated only for financial services (banks, finance and insurance companies) while NONFIN has better diversification across range of industries and that may be the reason why NONFIN yield better returns. HMSR portfolio would have higher awareness among investors compared to LMSR due to high media coverage. Therefore, investors may overreact on high HMSR stocks which push returns upwards. According to agency theory, HDF and HAF minimize agency costs which will lead to better operating performance. Ultimately, it will have a positive impact to stock returns. Except alpha, it can be observed positively significant beta coefficients and valid size premiums for many long only strategies. It can be interpreted as there are solid positive relationships between return variations of long only portfolios and well known risk factors like MRP and SMB. But inconsistent mixed results were reported for other tested risk factors such as HML, WML, RMW and CMA. Further, long and short portfolios were proved as imprecise models where adjusted R squared is very low under each asset pricing model. In contrast to that adjusted R squared for long only portfolios are higher and it should be noted that when number of risk factor are more in a model, higher adjusted R squared can be observed. For an example, C4F and FF5 had highest adjusted R squared figures for many occasions.

## **6. Conclusions**

Main conclusion derived from the study is that long only strategies will be well preferred over long and short strategies for all the four information types considered in this study. NONFIN, HMSR, HDF and HAF emerged as highest return generating portfolios out of long only portfolios. Therefore, it can be concluded that investing in these portfolios would mitigate the IPO long run underperformance anomaly. However, there are several limitations and further research opportunities can be identified from this study. Even though it is controlled for well known risk factors, there are many other risk factors which have not been taken in to the consideration of this study. Some of them are liquidity, short term reversals, and idiosyncratic volatility. Thus, it is ideal, if those also can be incorporated to asset pricing models to assess above IPO trading strategies. Similarly there is much other information circulated in pre IPO stage which can be used to apply the same methodology of portfolio construction and form profitable trading strategies. Some of such information is profile of the management, corporate structure and capital structure which is not considered by this study. Further, it is possible to compare the viability of these trading strategies in other markets too covering both emerging and developed countries.

This study has many useful implications to investors, financial professionals, policy makers and academics. Investors can use the findings of this study where they can select only viable IPOs from pre IPO information to earn a profit from their

investment. Similarly financial professionals can effectively use these insights in advising their clients on IPO investment decisions. Further, the findings of this study will be useful for policy makers and regulators in setting up rules and regulations specifically pertaining to pre IPO listing disclosures. Finally academics can explore further research opportunities mentioned above to fill the empirical and conceptual gaps in the literature.

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