

Effect of Institutional Ownership and Market Factors on IPOs Under-Pricing in Pakistan

MUHAMMAD USMAN

Assistant Professor, Department of Management Sciences, University of Gujrat, Pakistan.
Email: drusman@uog.edu.pk

MUZAMMIL HUSSAIN

MS Scholar, Department of Management Sciences, University of Gujrat, Pakistan.
Email: hussain_muzammil@yahoo.com

FAIQ MAHMOOD

Assistant Professor, Department of Business Administration, GIFT University, Gujranwala, Pakistan.
Email: faiq4_u@hotmail.com

HUMERA SHAHID

Assistant Professor, Hailey College of Banking & Finance, University of the Punjab, Pakistan.
Email: humera-shahid@hotmail.com

Abstract

This paper aims to investigate the effect of institutional ownership and market factors on IPO under pricing. In institution ownership variables industrial ownership, financial ownership and ex-anti uncertainty are included and in market variables over subscription, market sentiment and under writer's reputation are considered. Cross sectional data from 2001 to 2012 is taken into account for 55 IPO firms in order to validate results. Multiple regressions were used to achieve study objectives. Findings revealed the fact that institutional ownership factors like industrial and financial ownership and market factors like over subscription and market sentiment are major predictors of the under-pricing in Pakistan. Ex-anti uncertainty and under writer's reputation has no effect on under pricing for the current study. So, firms going to be public and perspective investors are major users of this study as they can take guidance for future investments. They can make sensible decisions for the future by using results of this study.

Key Word: Initial Public Offerings, Under-Pricing, Ownership and Control, Information Asymmetry.

Introduction

Under-pricing refers to the phenomenon of a large positive gain to a new issue relative to its offering price immediately after listing. If the evaluation of a newly offered stock made by the under writer differs from the investor's evaluation; this situation leads to under-pricing. In every stock market of the world the Initial Public Offerings (IPOs) go highly under priced on the first day of the trading, but the level of under-pricing highly varies from country to country and market to market i.e. 127-950% in China and 3-14% in France (Engelen and Essen 2010). Under-pricing is considered a loss to the issuing firm because as a result of under-pricing the capital of the firm is reduced and it creates a negative impact on the firm (Certo et al. 2001). A recent study that included IPOs from 21 countries indicated that under-pricing of IPOs is a worldwide phenomenon. However, the data show enormous differences in the level of under-pricing. For example, the overpricing in Israel is 3.67%, while the under-pricing in Spain is more than 40%. The overall average under-pricing across all 21 countries for the time period 2000 to 2005 amounts to 24.97%

(Ljungqvist, 2007). Under-pricing is a kind of premium offered by the low quality firms in order to keep the IPO market alive and to provide the opportunity for the investors (Ljungqvist, 2007; Ritter and Welch, 2002).

A model was presented by Rock in (1986) “winner’s curse model”; in which main reason of the IPO under-pricing was considered asymmetric information among the stockholders of the IPO. Due to this asymmetric information; investors with more information are interested to invest in most attractive stocks and investors who don’t have the proper information suffer losses.

The IPO under-pricing has also been studied in the context of Pakistan by a few researchers. Sohail & Rehman (2009) explored the determinants of under-pricing for IPOs listed on KSE from 2000- 2006. In a later study, Sohail and Rehman (2010) examined short and long run performance of IPOs listed on Karachi Stock Exchange for the period 2000-2009. Effect of corporate governance in reducing the information asymmetry is also found significant and it is also found that the different factors like offer size, corporate governance and market sentiments are significant determinants of IPO under-pricing in Pakistan (Afza et. al.2013).

In the process of IPO, a company is connected in a set of relationships i.e. internals (management), external investors and underwriters. A firm issues new stock to finance some future projects that only the company insiders are well aware of. There is a high level of information asymmetry between the related parties concerning the true value of the firm that leads to a higher level of IPO under-pricing. Under-pricing shows loss of value to the initial shareholders or owners of the firm, due to which firm is available with reduced capital to finance its projects. So in IPO process it is the basic challenge for the firm to resolve its information asymmetry issues by properly signalling its true value which ultimately results in the reduction of IPO under-pricing.

Studies investigating determinants of IPO’s under-pricing have argued relationship of different variables with under-pricing based on the truth that they decrease or increase uncertainty for example ex-anti uncertainty, firm age, firm size, oversubscription and offer size are affecting under pricing because these variables reduce uncertainty about the firm.

In general, the present study intends to investigate the determinants of under-pricing (keeping in mind the information asymmetric theory of IPO under-pricing) in Pakistan and to examine how firm specific factors affect the level of IPO under-pricing in Pakistan and whether under-pricing is influenced by firm specific factors and the role of market specific factors in IPO under-pricing. Specifically, the research questions in the study are as follow:

- To what extent the firm’s internal factors (Uncertainty, industrial and financial ownership) are affecting the under-pricing?
- At what extent the external factors (oversubscription, under writer reputation and market sentiment) are affecting the under-pricing?

Significance of the Study and Objectives

In earlier studies the determinants of IPO under-pricing are explored by Sohail & Rehman in (2009) for the firms listed on KSE from 2000 to 2006 and in 2010 short and long run performance of IPOs listed on KSE for the period 2000 to 2009 was analysed. Afza et al. in (2013) investigated the role of corporate governance to reduce the under-pricing and found significant results. In the current study the researcher is interested to find the determinants of the under-pricing by dividing them into two categories. Firm specific factors and market specific factors will be found in IPO’s under-pricing in Pakistan. Mainly the role of under writer’s reputation and the market sentiments in IPO under-pricing will be explored in this study. No previous study discussed the determinants of under-pricing in such detail stated above in Pakistan’s

context, so the current study will add a significant contribution in the literature of IPO under-pricing as a whole. Objectives of the study are:

- To guide firms which are planning to be listed in future?
- To guide investors that which factors leads to excessive under-pricing?

Theories of IPO under-pricing have explained different dimensions of under pricing; asymmetric information, ownership and control, institutional basis and investor's behavioural explanations are major theories expressed by different school of thoughts. Among these theories the information asymmetry theory is considered most important and well established theory (Ljungqvist, 2004). According to (Ljungqvist, 2004) main parties in an IPO process are potential investors, firm going public, underwriters or investment banker and Asymmetric information theories suppose that one of them is having more information than others. The company that is going to be public has the best information about its value and previous performance and its under-pricing depends upon the quality of the company (Welch, 1989). Investors with more information participate in only those IPOs which are potentially profitable as compared to the investors with less information about the company's affairs. Hence under-pricing occurred due to these well informed investors (Rock, 1986). Under-pricing is due to the fact that firms under price to remunerate informed investors who exposed their information earlier than the offer price is decided, consequently decreasing the loss to the issuing firm (Benveniste and Spindt, 1989). According to Beatty and Ritter (1986) the under writers are mainly responsible for under-pricing because they have the incentive in under-pricing in the new issue by taking low responsibility of purchasing the shares in case of over pricing in short run, but in the long run the under writers can't afford to under price the shares too much because they have to charge the under writing commission from the IPO firms. Brennan and Franks (1997) argued that under-pricing is a means to avoid monitoring by a large outside investor and embed managerial control whereas, Stoughton and Zechner (1998) suggested that under-pricing is used to reduce agency costs and encourage monitoring by providing shares at discount to large outside investors.

Book building model was introduced by Benveniste and Spindt in (1989). According to this model the under writers are primary marketing representatives and they play a very important role in the process of an IPO. They can reduce under pricing by reducing asymmetric information among the concerned parties. Issuing firm get benefit from the position, while the IPOs are under priced. The model permits getting useful information and uplifting offer price, and by leaving the money on the table the aftermarket benefits are obtained. In almost all the studies it is found that the IPOs are under priced but the level of under-pricing is different in different countries of the world ranging from 3-14% for France and 127-950% in China (Engelen and Essen, 2010). The level of under-pricing has also varied from time to time i.e. in US it was 21% in the 1960 and at the start of last decade 40% in 2000 to 2004 (Ljungqvist, 2004).

Many researchers have investigated different determinants of the under-pricing all over the world in the past and now in many studies the variation in the under-pricing in the different cultures is getting more importance. The major reasons in the variation of under-pricing are the different industrial background, institutional background and the role of corporate governance. A brief over view of the studies regarding the under-pricing all over the world is as under. Studies investigating determinants of IPO's under-pricing have argued relationship of different variables with under-pricing based on the truth that they decrease or increase uncertainty for example ex-anti uncertainty, firm age, firm size, ownership structure, oversubscription and offer size are expected to affect under-pricing because these variables reduce uncertainty about the firm.

Corporate governance has negative impact on involuntary delisting of firms in France, it was examined by taking data of 139 IPO firms listed during 1999-2007 and 39 of them are failed to maintain their exchange listing (Chiraz and Anis, 2013). Al-Hassan et al. (2010) explored the determinants of under-pricing of 47 issuing firms in Gulf countries for the period 2001 to 2006. The study reported under-pricing of 290 percent which was greater than other emerging and developed markets. The findings demonstrated

that the common independent variables like ex-ante uncertainty, oversubscription, market conditions and offer size were not significant in explaining the level of under-pricing. The results suggested that that timing of offer, industry and country specific variables played a role in explaining under-pricing in Gulf countries.

Boulton et al. (2010) studied how governance systems in different countries affected the level of under-pricing and IPO firm value by using 4462 IPOs in 29 countries for the period 2000-2004. The findings of the study quite surprisingly provided evidence that under-pricing was higher in countries with stronger governance systems ensuring investors protection. As under-pricing leads to oversubscription, hence insiders got an opportunity to discriminate among investors, which resulted in dispersion of ownership and reduced the incentives of outsiders to monitor the activities of insiders. In another study by Esfahanipour et al. (2013) in Tehran Stock Exchange (Iran), IPO under-pricing was studied with reference to withdrawal of an IPO. It was argued that under-pricing and probability of withdrawal is negatively related to each other.

IPO Under-Pricing in Pakistan

History of literature on IPO under-pricing is not very rich in Pakistan, due to the very low level of IPO activity in Pakistan and unavailability of the historical data related to the IPOs is also a major issue in Pakistan. Only a few studies are found on IPOs and their performance. An over view of the studies related to the IPOs in Pakistan:

In a study on IPO under-pricing it was reported that the ex-ante uncertainty, offer size, market capitalization and oversubscription were the main and significant variables were determinants of under-pricing. The study summarized that there were positive unusual returns of IPOs in short period of time and negative unusual returns after one year. Data of the IPOs listed on Karachi Stock exchange from 2000 to 2006 was used to analyse the performance of IPOs (Sohail and Rehman, 2007). In a study the performance of private and public sectors IPOs was observed. Results showed that public sector IPOs are more under priced than the private sector the short run. However in the long run, performance of public sector IPOs was amazingly better than the private sector in Pakistani market (Rizwan and Khan, 2007).

Sohail and Rehman again in (2009) reported the short run presentation of IPO in different sectors of market of 73 IPOs (included IPOs and seasoned offering) listed from 2000 to 2009 and summarized that IPOs well performed in short run and rewarded the investors with encouraging initial returns. Also they discovered the determinants of IPO under-pricing and long and short run performance of firm's IPOs listed on KSE from 2000- 2009. The results have shown that IPO listed on Karachi stock market are underpriced and the investors may earn an average profit of almost 35%.

Sadaqat et.al (2011) examined the short run performance of IPO in different sectors of economy. The results show that overall Pakistani IPOs outperform in short- run basis under different state of economy. Afza et.al (2013) validates the role of corporate governance to minimize the IPO under-pricing based on the information asymmetry theories of IPO under-pricing in Pakistan. Sarwar et al. (2013) examined the effect of firm size, market premium and uncertainty on stock returns in KSE. Positive significant relation is confirmed by considering data from listed IPOs at KSE during 1998-2009.

This study contributes positively in the literature of IPO Under-pricing by verifying the role of institutional ownership in signalling the value of the firm and resulting in mitigating the IPO under-pricing. Till now the studies have presented different theories on IPO under-pricing and the most significant theory information asymmetry with its major models like signalling, winner's curse and book building. The main point of concern of this study is information asymmetry among the firms, under writers and investors. Under-pricing is due to this information asymmetry and the reasons of this can be measured in the form of different institutional and market determinants of under-pricing.

Material and Methods

To achieve objective of the study the data of IPOs is used from the Karachi Stock Exchange from 2001 to 2012. According to KSE website the total of 55 new firms were listed during the studied period and out of which 28 were from nonfinancial sector and remaining 27 were from the financial sector companies. In 2013 only 1 firm listed at KSE, but due to non-availability of the data of that firm it is not included in the study.

Data is collected from the KSE website and categorized in two parts, in the first part the prospectuses were collected to calculate the internal factors of the firms and in the second part the market/external factors were calculated by collecting the data from the KSE data base.

To achieve the objectives of study the variables are measured as follows:

Under-pricing refers to difference between the offer price and closing price at first day end. In Pakistan the formal listing date is usually few days after the issue of prospectus. Hence in this study, the market adjusted returns are used as a replacement of under-pricing and are calculated as under following (Afza et al. 2013; Islam et al 2010; Al-Hassan et al. 2010; Sohail & Rehman, 2009; Habib and Ljungqvist, 2001; Jain & Kini, 2000; Carter et al, 1998).

Under-pricing = $\{[(1 + R I) / (1 + R m)] - 1\} * 100$

R I = First day return

R m = Market return calculated as $M1 - M0 / M0$

M1 = KSE index at the end of the first day of Trading

M0 = KSE index on the day of offering.

Industrial Ownership = Industrial ownership measured as shares owned by industrial institutions (including sponsors and pre IPO investors) divided by total post IPO shares (Al-Hassan et al. 2010; Jain & Kini, 2000; Carter et al, 1998).

Financial ownership = Financial ownership is measured as shares owned by financial institutions divided by total post IPO shares (Al-Hassan et al. 2010; Afza et al. 2013; Habib and Ljungqvist, 2001).

Oversubscription = Over subscription is measured as times the IPO is over subscribed as used by (Al-Hassan et al. 2010; Sohail & Rehman, 2009; Habib and Ljungqvist, 2001).

Market Sentiment: Market sentiment measured as percentage change in stock price from date of provisional listing to the date of formal listing (Islam et al 2010; Sohail & Rehman, 2009; Habib and Ljungqvist; 2001).

Underwriter reputation: It is calculated by adding up the number of IPOs an underwriter carry out and dividing this by the total number of IPOs taking place in the sample period (Afza et al.2013; Islam et al 2010; Sohail & Rehman, 2009).

Ex-anti Uncertainty: It is measured by taking the standard deviations of the stock returns from the date of listing to the end of first month (Al-Hassan et al. 2010; Ljungqvist, 2007; Habib and Ljungqvist, 2001; Beatty and Ritter; 1986).

The hypothesized relations between the above variables are:

H01 = There is no relation between Industrial ownership and under-pricing.

- Ha1= There is relation between Industrial ownership and under-pricing.
 H02= There is no relation between Financial ownership and under-pricing.
 Ha2= There is relation between Financial ownership and under-pricing.
 H03= There is no relation between Over subscription and under-pricing.
 Ha3= There is relation between Over subscription and under-pricing.
 H04= There is no relation between Market sentiment and under-pricing.
 Ha4= There is relation between Market sentiment and under-pricing.
 H05= There is no relation between under writer’s reputation and under-pricing.
 Ha5= There is relation between under writer’s reputation and under-pricing. H06= There is no relation between under ex-ante uncertainty and under-pricing.
 Ha6= There is relation between under ex-ante uncertainty and under-pricing.

A combined model is used for the analysis of the internal and external factors and the multiple regression analysis is used. Statistical model to validate the relationships between the variables is as follows:

$$\text{Under-pricing} = \beta_1 + \beta_2 (\text{Financial Ownership}) + \beta_3 (\text{industrial ownership}) + \beta_4 (\text{Over subscription}) + \beta_5 (\text{market Sentiment}) + \beta_6 (\text{under writer reputation}) + \beta_7 (\text{Ex-Anti Uncertainty}) + \mu$$

Results and Discussions

In this study effect of institutional and market factors on IPO under-pricing is estimated by using a model; variables included institutional (financial ownership, industrial ownership and ex-anti uncertainty) and market (market sentiment, under writer’s reputation and over subscription). Statistical tools applied are descriptive statistics, correlation among the under-pricing and all the determinants and at the end regression analysis is used.

Table 1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
UNDP	55	-92	217	29.14	56.265
FIN	55	0	75	26.35	21.731
IND	55	0	67	1.4252	18.61203
O.SUB	55	.0100	18.20	2.2232	3.4515
UND.REPU	55	.3740	4.0667	2.1926	.7914742
MARKT	55	-47.3000	75.2000	3.4418	20.0050
Exant.	55	-1.77	1.95	-.1274	1.1039

Source: Author

Under-pricing reported the mean value of 29.14% with standard deviation of 56.26% in the returns and the maximum value of the under-pricing is 217 with minimum value of -92. By analyzing all considered variables of the study it is cleared that the under-pricing has the highest standard deviation of 56.26, it show that the under-pricing has the disperse data in the studied sample. And the under writer’s reputation has the lowest standard deviation of 0.79, showing the least dispersion in the data of the sample period.

Main purpose of correlation matrix is to know the degree of multicollinearity among variables. Pearson’s correlation is used to know the strength of relationship between all the variables of study. It is clear from the correlation matrix that relationship between the under-pricing and financial ownership of the company is negative. Second variable is industrial ownership which is also negatively related with the under-pricing.

Table 2: Correlation Analysis

		Correlations						
		UNDP	FIN	IND	O.SUB	MARKT	Exant.	UND.REPU
UNDP	Pearson Correlation	1						
FIN	Pearson Correlation	-.264	1					
IND	Pearson Correlation	-.276*	-.249	1				
O.SUB	Pearson Correlation	.689**	-.161	-.126	1			
MARKT	Pearson Correlation	-.332*	-.117	.046	-.105	1		
Exant	Pearson Correlation	.258	.043	-.136	.163	-.076	1	
UND.REPU	Pearson Correlation	.285*	-.166	.074	.366**	.167	.122	1

Source: Author

The third in this study is over subscription which is positively correlated with the level of under-pricing in Pakistan at 1%, this result is consistent with the market absorption capacity hypothesis. Market sentiment is the next independent variable of the study which is negatively correlated with the under-pricing and significant at 5%. Ex-anti uncertainty is positively correlated with the under-pricing which is in accordance to the information asymmetry theory of the under-pricing but the correlation is not significant. Under writer’s reputation and it is also positively related to the under-pricing.

Multiple regression analysis is used to check effect of variables of study on under-pricing. First of all diagnostics of the regression are checked and then regression is applied to the data and found following results are found. The value of the R-square is 0.668 with adjusted R-square of 0.623, which is showing that the major portion of the dependent variable is explained by the hypothesized predictors and the value of F test is 14.75, which means model is a good fit and the variation in the under-pricing is mostly due to these variables.

Table 3: Regression Results

Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
1	.817 ^a	.668	.623	35.692	1.673	14.75	0.000
a. Predictors: (Constant), LNEXANTE, FIN, MARKT, IND, UND.REPU, O.SUB							
b. Dependent Variable: UNDP							

Source: Author

Table 4: Coefficient results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	27.460	18.557		1.480	.146
	FIN	-.697	.246	-.257	-2.834	.007**
	IND	-.905	.314	-.259	-2.886	.006**
	O.SUB	8.634	1.615	.530	5.347	.000**
	MARKT	-.835	.256	-.296	-3.258	.002**
	UND.REPU	7.237	7.569	.093	.956	.344
	EX-ANTE	6.026	4.699	.114	1.282	.206
	*. Significant at the 0.05 level. **. Significant at the 0.01 level.					

Financial ownership has significant negative effect on IPO under-pricing at 1%, it means financial ownership is a strong predictor of IPO's under-pricing and can bring significant changes in the under-pricing negatively. This result is consistent with the previous literature as reported by different researchers in Pakistan as well as in other countries (Afza et al. 2013; Al-Hassan et al. 2010). It is a source of guidance for the future firms to decrease the level of under pricing by increasing financial ownership. Another predictor of the under-pricing is Industrial ownership which also showed significant negative relationship with under-pricing at 1%, also indicating a strong influence on the level of under-pricing; this result is also supported by the previous studies (Afza et.al 2013; Sohail and Rehman 2010; Al-Hassan et. al. 2010). It is also a source of guidance for the firms which are planning to be listed in near future.

Both of above discussed variables are negatively affecting the under-pricing and hence guiding the new firms to maximize institutional ownership in order to minimize the under-pricing and to mitigate the losses. These results are also in accordance with ownership and control theories of under-pricing. Over-subscription is positive significant impact on under-pricing in Pakistan, showing strong positive influence on under-pricing as it is significant at 1%. It can bring a huge change in under-pricing. It is also supported by the theories given by the earlier researchers like "market absorption hypothesis" by (Al-Hassan et al. 2010; Sohail and Rehman, 2007; Habib and Ljungqvist, 2001; Paudyal et al. 1998). Market sentiment is also showed significant negative effect on the under-pricing which means market sentiment is a significant predictor of the under-pricing because it is also significant at 1%. Market sentiments and under-pricing has positive significant relation and with every increase in market returns under-pricing also increased as it was also found in previous studies (Rashid et al.2013; Afza et al. 2013; Sohail and Rehman 2010; Al-Hassan et al. 2010; Dimovski and Brooks 2004; Beatty and Welch, 1996).

Under writer's reputation shows the positive insignificant relation with under-pricing. As in many earlier studies the under writer's reputation has the positive but no affect on under-pricing based on the fact that the under writers under price the newly issued stocks for their own interests, but their reputation have no affect on the level of under-pricing (Dimovski et al. 2010; Loughran and Ritter 2004; Cooney et al.2001; Beatty and Welch, 1996). Ex-anti uncertainty is the last predictor of the IPO under-pricing in this study and it is found to have no affect on under-pricing as given by advocates of ownership and control theories (Al-Hassan et. al. 2010; Stoughton and Zechner, 1998; Brennan and Franks, 1997). According to ownership and control theories uncertainty has no effect on under-pricing due to ownership and control considerations.

Conclusion

In this study effect of institutional and market factors on IPO under-pricing is found i.e. (Industrial ownership, financial ownership, oversubscription, market sentiments, under writer's reputation and ex-anti uncertainty). With the help of multiple regression analysis the strength of the each and every individual determinant is checked and found that the 66.8% (R-square) of the variation in under-pricing is due to these variables and four of them are strongly affecting the under-pricing but two of them are not showing significant results.

These results are clearly satisfying the objectives of the study and answering the research questions, which are set at the start. The first objective of the study is to guide those firms which are planning to be listed on KSE in future and having a lot of issues in their plans about the IPOs and the under-pricing, as never in the history of Pakistan any IPO went over priced. So the firms to be listed in future increase the institutional ownership (industrial and financial) in order to minimize the level of under-pricing because the institutional ownership is negatively affecting the under-pricing and with every increase in this ownership the under-pricing will be decreased. Firms should also take into account the over subscription and market sentiments to decrease the losses as these two variables are directly related to the under-pricing in Pakistan.

Second objective of the study is to guide the perspective investors in the IPO market, for future investors the study as provide suitable guidance. The investors should observe the ownership and market conditions before making an investment decision in the IPO of any upcoming firm to minimize huge losses.

References

- Afza, T., Yousaf, H., & Alam, A. (2013). Information asymmetry, Corporate Governance and IPO under-pricing. *Science International*, 25(4), 989-997.
- Aggarwal, R., Leal, R. & Hernandez, L. (1993). The aftermarket performance of initial public offerings in Latin America. *Journal of Financial Management*, 22 (1), 42-53.
- Aggarwal R., Prabhala N.R., & Puri M. (2002). Institutional Allocation in Initial Public Offerings: Empirical Evidence. *Journal of Finance*, 57, 1421-1442.
- Al-Hassan, A., Delgado, F., & Omran, M. (2010). The under- pricing of IPOs in the Gulf cooperation council Countries. *Research in International Business and Finance*, 24, 344-360.
- Arthurs, J. D., Hoskisson, R. E., Busenitz, L. W., & Johnson, R. A. (2008). Managerial Agents Aching other Agents; Multiple Agency Conflicts Regarding Under-pricing in IPO Firms. *Academy of Management Journal*, 51(2), 277-294.
- Baron, D.P., & Holmström B. (1980). The Investment Banking Contract for New Issues under Asymmetric Information: Delegation and the Incentive Problem. *Journal of Finance*, 35, 1115-1138.
- Baron, D.P. (1982). A model of the Demand for Investment Banking Advising and Distribution Services for New Issues. *Journal of Finance*, 37, 955-976.
- Beatty, R.P., & Ritter, J.R. (1986). Investment Banking, Reputation and the under-pricing of Initial Public Offerings. *Journal of Financial Economics*, 15, 213-232.
- Benveniste, L.M., & Spindt, P.A. (1989). How Investment Bankers Determine the Offer Price and Allocation of New Issues. *Journal of Financial Economics*, 24, 343- 361.
- Boulton, T.J, Smart, S.B & Zutter C.J. (2013). Industrial Diversification and under-pricing of Initial Public Offerings. *Journal of financial management*, 679-704.
- Brennan, M.J., & Franks, J. (1997). Under-pricing, Ownership and Control in Initial Public Offerings of Equity Securities in the U.K. *Journal of Financial Economics*, 45, 391- 413.
- Carter, R.B., & Manaster, S. (1990). Initial Public Offerings and Underwriter Reputation. *Journal of Finance*, 45, 1045- 1067.
- Certo, S. T., Daily, C. M., & Dalton, D. R. (2001). Signalling firm value through board structure: An investigation of initial public offerings. *Entrepreneurship Theory & Practice*, 26, 33-50.

- Chahine, S. (2004). Corporate Governance and Firm Value for Small and Medium Sized IPOs. *Financial Markets and Portfolio Management*, 8, 143–159.
- Chemmanur, T.J. (1993). The Pricing of Initial Public Offerings: A Dynamic Model with Information Production. *Journal of Finance*, 48, 285-304.
- Chiraz D., & Anis J. (2013). Corporate Governance and Delisting Risk of French IPO Firms. *International Review of Management and Business Research*, 2(1), 117-127.
- Dennis E. L. (1973). On the Pricing of Unseasoned Equity Issues: 1965–1969. *Journal of Financial and Quantitative Analysis*, 91-103.
- Engelen, J.P., & Essen V. M. (2010). Under-pricing of IPOs: Firm, issue and country specific characteristics. *Journal of Banking & Finance*, 34, 1958–1969.
- Esfahanipour A., Goodarzi M., Pishkenari S.B., & Gohari N.S. (2013). Investigation of IPO Under-pricing Considering Probability of Offering Withdrawal: Empirical Analysis in Tehran Stock Exchange (TSE). *European Journal of Scientific Research*, 112 (1), 57-70.
- Faiq M., Xia X., Ali M., Usman M., & Shahid H. (2011). How Asian and Global Economic Crises Prevail in Chinese IPO and Stock Market Efficiency. *International Business Research*, 4(2).
- Filatotchev, I., & Bishop, K. (2002). Board composition, share ownership and under-pricing of UK IPO firms. *Strategic Management Journal*, 23(10), 941–955.
- Firth, M. (1997). An analysis of the stock market performance of new issues in New Zealand. *Pacific Basin Finance Journal*, 5 (1), 63-85.
- Ibbotson, R.G. (1975). Price Performance of Common Stock New Issues. *Journal of Financial Economics*, 2, 235-272.
- Islam, A.M., Ruhani A., & Ahmad, Z. (2010). An empirical investigation of the under-pricing of initial public offerings in the Chittagong stock exchange. *International Journal of Economics and Finance*, 2, 36-46.
- Kim, J- B., Krinsky, I., & Lee, J. (1995). The aftermarket performance of initial public offerings in Korea. *Pacific-Basin Finance Journal*, 3, 429- 448.
- Kiyamaz, H. (2000). The initial and aftermarket performance of IPOs in an emerging market: evidence from Istanbul Stock Exchange. *Journal of Multinational Financial Management*, 10 (2), 13-227.
- Kooli M., & Suret J. M., (2004).The aftermarket performance of initial public Offerings in Canada. *Journal of multinational Financial Management*, 14, 47–66.
- Lee, P.J., Taylor, S.L., & Walter, T.S. (1996). Australian IPO Pricing in the Short and Long Run. *Journal of Banking and Finance*, 20, 1189-210.
- Ljungqvist, A. P., (2007).*IPO under-pricing: A Handbook in Corporate Finance: Empirical Corporate Finance*. New York, NY: Elsevier J North Holland, 375-422.
- Leland, H. E., & Pyle, D. H. (1977). Information Asymmetries, Financial Structures and Financial Intermediation. *Journal of Finance*, 32, 371-387.
- Rashid, R.M., Rahim, R.A., Hadori, H., & Tanha, F.H., (2013). IPO Volume, Initial Return, and Market Condition in the Malaysian Stock Market. *American Journal of Economics*, 3(2), 68-74.
- Rock, K. (1986). Why New Issues Are Underpriced? *Journal of Financial Economics*, 15, 187-212.
- Ritter, J.R., & Welch, I. (2002). A Review of IPO Activity, Pricing, and Allocations. *Journal of Finance*, 57, 1795-1828.
- Sadaqat, S., Akhtar, F.M., & Ali, K. (2011). An Analysis on the Performance of IPO: A Study on the Karachi Stock Exchange of Pakistan. *International Journal of Business and Social Science*, 2(6), 275-285.
- Sarwar S., Hussain W., & Malhi S. N. (2013). Empirical Relation among Fundamentals, Uncertainty and Investor Sentiments: Evidence of Karachi Stock Exchange. *International Review of Management and Business Research*, 2(3), 674-681.
- Sohail, K.M., & Rehman, A. (2009). Determinants of Under-Pricing of IPOs Regarding Financial & Non-Financial Firms in Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, 15, 62-73.
- Sohail, K.M., & Rehman, A. (2010). Examining the Short-run IPO Performance in State of Economy: Normal, Boom & Recession. *International Research Journal of Finance and Economics*, 35,173- 186.

- Jenkinson, T.J. (1990). Initial public offerings in the United Kingdom, the United States, and Japan, *Journal of Japanese and International Economics*, 4 (14), 428-449
- Taranto, M. (2003). Employee Stock Options and the under-pricing of Initial Public Offerings. *Unpublished working paper, University of Pennsylvania.*
- Welbourne T.M., & Cyr, L.A. (1999). The Human Resource Executive Effect in Initial Public Offering Firms. *Academy Of Management Journal*, 42(6), 616-629.
- Welch, I., (1989). Seasoned offerings, imitation costs and the under-pricing of initial public offering. *Journal of Finance*, 44(2), 421-449.

