Impact of Insider Trading & Earnings Management on the Mechanism of Pakistani Stock Market During Stock Market Bubble

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Abstract

The pivotal theme of this study is to make PSX efficient by developing a comprehensive mechanism just like developed countries so that Pakistan's economy could be brought at par with them.In this study four sectors of Pakistani.e. Cement, textile, pharmaceutical & chemical were explored with 1458 observations were explored.The research confirmed that during bubble period E'sM, insider trading, Firm's based & Managerial based Compensation existed especially in those firms who inflated their shares. Another major finding of this research is that illegal insider trading has been detected in the PSX during all phases of bubble.

Keywords: Insider trading, Earnings Management, Abnormal Accruals, Stock Market Bubble, Equity Issuance, Panel Data.

Introduction

Stock market is a forum of securities trading where multiple factors affect investment thereby creating speculation which changes the fundamental & par values of firm's assets (Ahmed et al., 1998). Stock market bubble has been differently viewed by authors like Alana et al., (2016) &Gracia et.al., (2007) relate it with gross deviation of prices, Porter et al., (2003), Costa et al., (2017) &Fama (1965) link it with investors speculations, Tirole (1985) and Tran (2017) regard it supply & demand imbalance due to heavy investment by investors. Yang (2006) says no potent econometric technique has been evolved to detect bubble. However, some worthwhile econometric techniques employed are cointegration by (Brooks et al., 2003), use of stock market data for detection by Bohl (2003) Basu (1977)& Markovian model by Ferreira (2009) etc. Study of different bubbles by authors disclose i.e. that South sea bubble by Hoppit (2002)& M&A by Yosefet al.,(2010)"investor speculations"Chinese stock market bubble 2005-09 by Zhou et al., (2010) "Split Share legislation", Hongkong Bubble by Chen (1999) & USA Technology bubble By Huddart et al., (2003-06-07) "insider trading & Financial Manipulation".

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Relevance of Insider Trading Laws of USA, UK & Pakistan According to Haidermota (1993) investors prefer investment on the basis of Accurate market information & avoid investment in firms floating non-public information (insider trading) to get abnormal profit.Insider Trade remained controversial evenearlier legislation.

The severe US financial crisis of 1928 called for strict anti-insider trading legislation. As a result,"SA 1933 "Section 15 a" & SEA 1934 "Section 15 b" & "ITSA (1984), ITSFEA (1988) and RFD (2000)"were framed.Similarly, UK government passed "Company's Act 1985, London Stock exchange ordinance1996, pp 2 & 4 & Vide London Stock Exchange ordinance 1998, pp 8"(Friederichet al., 2002; Chakravarty 2001&Clark 2014&Daouk et al., 2002). Pakistan also carried out legislation on insider trading vide Companies Act 1969, 1984, Companies Act Schedule 1997, 2001 & Securities Act 2015 (Section 127 to 136).

Problem Identification & Importance of Study

In Pakistan no study on this subject has been carried out so far. This research reveals that PSX does not truly representour economy as during past few years our GDP, Industry Production rate & fiscal budget remained -ve whereas our PSX index remained between 25000 to 50000. Stock market has also failed to attract FDI due to excessive manipulation by the business Tycoons. Research also encompasses the effect of legal & illegal insider trading&Earnings Management on PSX mechanism.

Literature Review

Jaffe (1974) was the pioneer author to conduct research on Insider trading & Abnormal Returns. He recommended that in order to save market investors firm must inform SEC on changing of their holdings & portfolios. Huddart et al., (2003, 06,07)regarded creation of bubble because of insider trading, managerial & stock-based compensation & earnings management and the same elements ware involved infor increase share prices in Stock market Beneish&Vargus 2002, Chowdhury et al., 2018; Elliot et al., 1996 &Chakravarty 2001 etc.Ball &Shivakumar (2005-08) &Abarbanell and Lehavy (2003) are of the view that firms Firm's enhance their share prices through Earnings Management. Lakonishok and Lee (2001) states insider trading is directly proportional to the firm size & market PIN. Daiet,al (2016), firms always earn profit by illegal insider trading.

Conceptual Frame Work & Hypothesis

Senior management of firms & insiders enjoy an easy access to firm's PIN which may be positive or negative. This information enables them to manipulate or misprice the share values of the firms. As a result, they lure in the ignorant investors for excessive investments and resultantly earn abnormal profits, managerial & firm incentives. Insiders hide information to earn profit & avid litigation. (Brandouy et.al., 2000; Al Farooque 2017; Benish&Vargus 2002; Huddart et al., (2003, 06&07);Elliott et al. 1996; Tonk et.al., 2018;Rozeff & Zaman, 1998; Jaffe 1974; Agrawal & Cooper 2015&Piotroski&Roulstone, 2005etc.). Firms earn abnormal profit by illegal insider trading (Dai et al., 2016)

Hypothesis

H1:*Earnings Inflation is grossly affected by Insider trading & managerial incentives(BM) in the Bubble epic.*

H2:*Stock Returns are -vely effected by legal Insider trading in the Bubble Periods.*

H3:*Stock returns enjoy a sig. +verelationship with Illegal Insider Trading in the Bubble Phase.*

H4: *Firms Capital Structure is sig. effected by Firms "Earnings Management& Insider Trading" in the Bubble Phases.*

Econometric Models

a. Assocciation between Insider trading w.r.t selling & Abnormal Accruals

$$\mathrm{INSS}_{it} = \boldsymbol{\alpha}_o + \beta_1 \mathrm{EI}_{it} + \beta_2 BM_{it} + \beta_3 \mathrm{Size}_{it_1} + \beta_4\, Equity\ Issue_{it} + \beta_4\, Leverage_{it} - - - - - - - - + \mathrm{e}_{it}$$

$$Earning\ Inflation_{it} = \boldsymbol{\alpha}_o + \beta_1 \mathrm{INSS}_{it} + \beta_2 BM_{it} + \beta_3 \mathrm{Size}_{it_1} + \beta_4\, \text{Equity issue}_{it} + \beta_4\, \text{Leverage}_{it} - - - + \mathrm{e}_{it}$$

b. Abnormal Return Model

$$ABRET_{it} = \boldsymbol{\alpha}_o + \beta_1 \mathrm{INSS} + \beta_2 BM_{it} + \beta_3 \mathrm{EI}_{it} + \beta_4 \mathrm{size}_{it} + \beta_5 \text{Leverage} + \beta_6\ \text{Net equity issue}_{it} - + \mathrm{e}_{it}$$

$$Prebubble\ ABRET_{it} = \boldsymbol{\alpha}_o + \beta_1 \mathrm{INSS} + \beta_2 BM_{it} + \beta_3 \mathrm{EI}_{it} + \beta_4 \mathrm{size}_{it} + \beta_5 \text{Leverage} + \beta_6\ \text{Net equity issue}_{it} - + \mathrm{e}_{it}$$

$$Bubble\ Peak\ ABRET_{it} = \boldsymbol{\alpha}_o + \beta_1 \mathrm{INSS} + \beta_2 BM_{it} + \beta_3 \mathrm{EI}_{it} + \beta_4 \mathrm{size}_{it} + \beta_5 \text{Leverage} + \beta_6\ \text{Net equity issue}_{it} - + \mathrm{e}_{it}$$

$$EI = Earnngs\ Inflation$$

Methodology

Sampling and Data

Research is based on COMPUSTAT data of(2002-17) & for bubble detection data of 354 companies of PSX was used. For regression analysis four industriesi.e.Cement, textile, Pharmaceutical& Chemical were targeted. Data of equity issuance & Insider trading was taken from Annualreports.

$$\textbf{Proxies:} Insider\ Trading = \left(\frac{share\ Purc\,hased\,. - Share\ Sold\,.)}{Outstanding\ \ .}\right)$$

The proxies have been used in insider trading w.r.t both insider selling (INSS)& buying (INSB) as a single entity it doesn't provide accurate results (usingThomson&Reuter& Benish & Vargus 2002 procedure). $EarningInflation = \frac{Total\ Acc_t}{TA_{t-1}} - \boldsymbol{\alpha}_0 \frac{1}{TA_{t-1}} + \boldsymbol{\beta}_1 \left(\frac{\Delta Rev_t}{TA_{t-1}} - \frac{\Delta AR_t}{TA_{t-1}}\right) + \boldsymbol{\beta}_2 \frac{GPPE_t}{TA_{t-1}} + \boldsymbol{\beta}_3 ROA + \boldsymbol{\beta}_4 BM$, $Levrage = \left(\frac{Total\ Liabilities\ \ -Current\ Liabilities}{Total\ Asset}\right)$; $\frac{P}{E} ratio = \left(\frac{Market\ Value\ of\ Common\ Stocks}{Before\ extraordinary\ Items}\right)$; $BM = \left(\frac{\text{book value equity}}{\text{market Value of equity}}\right)$; $Size = Log\ Total\ Asset$;$BHAR = (1 + Return_{firms} - (1 + Return_{KSE\ firms})$

Results & Discussion

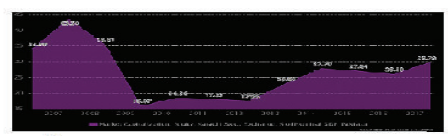
Bubble Detection in PSX

The bubble detection techniques have been derived from research papers of Basu (1977), Joos et al., (2010) &Gilcrist (2005) for illustration of diagrams data of 354 companies was used for the period from 2003-17, in which three bubbles i.e. bubble of 2006, bubble of 2009 & bubble of 2016 were detected.

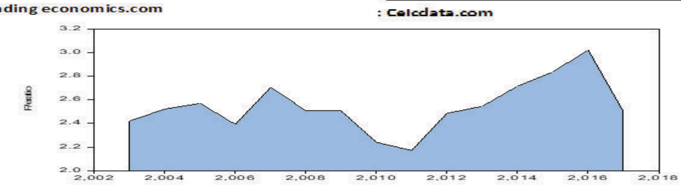
KSE 100 index Market Capitalization 2001 to 2016

Source: Trading economics.com

Pakistan Market capitalization: percentage of GDP 2017



: Celcdata.com



Descriptive Statistics

Table 1

The below mentioned descriptive statistic table indicates that EI, BM, Leverage, Equity issuance, Insider trading & Abnormal returns possess a linear relationship. If one element varies the others also vary accordingly. Furthermore, the respective data are not normally distributed.

	EI	BM	INSB	INSS	Leverage	equity issue	Size
Mean	1.572352	0.017883	0.003446	0.002762	0.034377	0.000737	0.320425
Median	1.604828	0.007461	0	0	0.010315	1.32E-17	0.309514
Maximum	3.752845	1.626952	1.146616	0.724164	0.98274	0.648555	0.561562
Minimum	-3.76983	-0.33158	0	0	0.00026	-1.603735	0.07545
Std. Dev.	0.433141	0.0715	0.044041	0.02461	0.074602	0.05082	0.091195
Observations	1458	1458	1458	1458	1458	1458	1458

Results & Discussion

Table 2

Above tables display that insider trading & EI are in direct relation with each other. In Abnormal Return models, insider trading, Earnings inflation & BM maintain linear relations with Abnormal Return. The leverage keeps -ve relations with all tables accept chemical & pharmaceutical tables. The equity issuance in all models kept +ve relations with all dependent variables Less Peak bubble period Abnormal return model which was -ve. The adj-R square remained (27-71) percent & F- stat (2.59 -10).

	Hypothesis	Status
H1:	Earnings Inflation is grossly affected by Insider trading & managerial incentives(BM) in the Bubble epic.	"Accepted +ve Significant" "Increase Managerial Based Compensation as well as Insider trading & Earnings Management"
H2:	Stock Returns are -vely effected by legal Insider trading in the Bubble Periods.	"Accepted (Significant) during Bubble Period"
H3:	Stock returns enjoy a +ve relation with Illegal Insider Trading in theall stages of Bubble Phase.	"Accepted (Significant) " "Overall existence of Illegal Insider trading"
H4:	Firms Capital Structure is sig. effected by Firms Earnings Management & Insider Trading in all stages of Bubble Phases	"Accepted (Negative Insignificant)." "Change in Firms Capital structure"
H5:	Insider trading has Sig. Assocciation with Stock Market Bubble.	"Accepted (Positive Significant)"

Table2

Cement Industry of Pakistan

Dependent Variable EI			Dependent Variable: INSS			Dependent Variable : AR			Dependent Variable : Pre Bubble AR			Dependent Variable :Bubble Peak Period AR		
Variables	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficien	t-Statistic	Variable	Coefficient	t-Statistic
C	2.9784	(12.227)***	C	-5.024963	(-7.8203)***	C	-2.3826	-0.4863	C	4.0632	(10.7352)***	C	7.7356	(2.805)***
INSS	0.1851	(4.5175)***	EI	0.797371	(4.2937)***	INSS	2.1834	(3.0324)***	INSS	0.5708	(3.6911)***	INSS	-0.9648	(-2.9505)***
BM	0.4435	(1.8712)*	BM	0.205591	(6.0322)***	EI	0.4322	(2.9178)***	BM	0.2113	(2.4559)***	BM	-0.7439	(-4.911)***
Leverage	-0.015	(-2.6052)***	Leverage	-0.001193	-0.0808	BM	0.8127	(4.0459)***	Levrage	-0.0264	(-1.8922)*	Levrage	-0.1716	(-2.5331)***
Equity Issuance	0.9919	1.2536	Equity issuance	0.217224	(2.0899)***	Levrage	-0.1519	(-1.7652)*	Equity Issuance	5.0431	(4.6897)***	Equity issuance	-10.4055	-0.8411
Size	-0.2968	(-4.9743)***	Size	0.862118	(3.8537)***	Equity Issuance	0.1175	1.0442	Size	-0.9398	(-4.76288)***	Size	-1.6585	(-2.5642)***
						Size	-1.2515	-1.5929				AR(-1)	-0.3579	(-4.369)***
						AR(-1)	-0.3098	(-3.6017)***						
Effects Specification			Effects Specification			Effects Specification			Effects Specification			Effects Specification		
Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)		
Ad R-squared	0.576033		Ad R-squared	0.713983		Ad R-squared	0.414217		Ad R-squared	0.611427		Ad R-squared	0.27489	
F-statistic	8.007896		F-statistic	13.87563		F-statistic	3.828463		F-statistic	7.956617		F-statistic	2.592224	
N	100		N	100		N	85		N	100		N	85	

Chemical & Pharmaceutical Industry Of Pakistan

Dependent Variable:Earning Inflation			Dependent Variable: INSS			Dependent Variable:AR			Dependent Variable : Pre Bubble AR			Dependent Variable :Bubble Peak Period AR		
Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic
C	1.1386	(2.836)***	C	0.0739	0.3449	C	-3.7469	(-4.7409)***	C	-0.4465	-1.0192	C	-2.5702	(-3.496)***
INSS	0.1034	(2.2007)***	EI(-1)	0.5155	(1.9622)**	INSS*BM(-1)	0.1087	(2.412)***	INSS*BM(-1)	0.1355	(3.8601)***	(INSS*BM(-1))	-0.052	(-2.3278)***
BM(-1)	0.3172	(1.7031)*	BM	0.7557	(3.1316)***	EI	0.2216	(2.4476)***	Leverage	-0.1417	(-3.5658)***	Leverage	0.0176	0.3901
Levrage	0.5559	1.697	Levrage	0.0122	0.6377	Leverage	-0.2542	(-3.696)***	Equity Issuance	0.0401	1.5835	Net equity Issuance	0.044	(5.2393)***
Net equity issuance	0.5116	(4.5375)***	Equity Issuance	-0.0163	-1.2456	Equity Issuance	0.0892	(4.6994)***	Size	0.0995	0.7947	Size	0.6472	(3.1258)***
Size	0.0789	0.6741	Size	-0.0661	-1.2122	Size	-0.9759	(-4.3707)***						
Effects Specification			Effects Specification			Effects Specification			Effects Specification			Effects Specification		
Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)		
Adj R-squared	0.451382		Adj R-squared	0.625336		Adj R-squared	0.381886		Adj R-squared	0.533103		Adj R-squared	0.26189	
F-statistic	4.016795		F-statistic	7.946885		F-statistic	3.320608		F-statistic	5.288714		F-statistic	2.332705	
N	155		N	155		N	155		N	155		N	155	

INSS = Insider trading W.r.t Selling

Textile Industry of Pakistan

Dependent Variable: EI			Dependent Variable: INSS			Dependent Variable:AR			Dependent Variable : Pre Bubble AR			Dependent Variable :Bubble Peak Period AR		
Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficient	t-Statistic	Variable	Coefficien	t-Statistic	Variable	Coefficient	t-Statistic
C	1.9547	(5.7486)***	C	0.0174	1.4892	C	3.0966	(5.3782)***	C	4.4731	(5.779)***	C	3.9708	(8.8833)***
INSS	4.4067	(1.974)*	EI	0.0045	(1.974)*	INSS	7.3799	(2.6415)***	INSS	0.456	(2.2197)***	INSS	-7.6194	(-3.512)***
BM	0.1229	1.7619	BM	0.2425	(3.2896)***	EI	0.3159	(3.0204)***	BM	0.18174	(2.372)***	BM	1.9745	(3.5791)***
Leverage	-0.0045	-1.7699	Leverage	-7.18E-05	-0.8694	BM	1.83E+08	(2.5719)***	Leverage	-0.0039	-0.6957	LEVRAGE	-0.0081	(-2.8662)***
Equity Issuance	0.0094	0.5213	Equity Issuance	-6.70E-05	-0.1151	Leverage	-0.0001	-0.0412	Equity Issuance	3.81E-05	0.0035	Net Equity Issuance	0.0083	0.434299
Size	-0.121	-1.035	Size	-0.0082	(-2.2129)***	Equity Issuance	-0.003	-0.1221	Size	-1.395	(-5.2935)***	Size	-1.1956	(-7.878)***
						Size	-0.9446	-4.8319						
Effects Specification			Effects Specification			Effects Specification			Effects Specification			Effects Specification		
Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)		
Adj R-squared	0.347456		Adj R-squared	0.654988		Adj R-squared	0.534568		Adj R-squared	0.50632		Adj R-squared	0.711836	
F-statistic	3.358056		F-statistic	9.407437		F-statistic	5.32269		F-statistic	4.859996		F-statistic	10.29709	
N	277		N	277		N	277		N	277		N	277	

INSS = Insider trading W.r.t Selling

T-value =Partially sig.*, Sig.** &Strongly Sig.***

Conclusion & Recommendations

The aim of this research was to establish causes of bubble in PSX& to assess the effect of Insider trading, Earning inflation, firm & managerial incentives &Equity issuance by executives. The results of insider trading & Earnings inflation indicate excessive manipulation by firms to enhance stock prices during bubble stages.

The regression results of Abnormal return Models display existence of huge earnings manipulation & insider trading in all of bubble less Bubble Peak Period. Abnormal return models also predicate on existence of illegal insider trading in PSX less Bubble Peak Period. Because Abnormal return models has +ve relation with Insider trading Less Bubble peak Period where it was -ve. BM results also depicted that firms & managerial incentives are also increase in all bubble stages. Results also highlight clearly Pakistani firms enhance their share prices and financing actives through earning manipulation, insider trading & issuance of equity.

Recommendation & Suggestions

SECP must employ expert financial analysts to counter Stock Market Bubble, implement its policies & laws ruthlessly through dedicated body of legal experts& provide online sensitiveinformation about the firmsas is done in USA.

References

Abarbanell, J., &Lehavy, R. (2003). Biased forecasts or biased earnings? The role of reported earnings in explaining apparent bias and over/underreaction in analysts' earnings forecasts. Journal of Accounting and Economics, 36(1-3), 105-146.

Agrawal, A., & Cooper, T. (2015). Insider trading before accounting scandals. Journal of Corporate Finance, 34, 169-190.

Aharon, D. Y., Gavious, I., & Yosef, R. (2010). Stock market bubble effects on mergers and acquisitions. The Quarterly Review of Economics and Finance, 50(4), 456-470.

Ahmed, A. (1998). Stock Market Interlinkages in Emerging Markets (No. 1998: 159). Pakistan Institute of Development Economics.

Ball, R., &Shivakumar, L. (2005). Earnings quality in UK private firms: comparative loss recognition timeliness. Journal of accounting and economics, 39(1), 83-128.

Ball, R., &Shivakumar, L. (2008). Earnings quality at initial public offerings. Journal of Accounting and Economics, 45(2-3), 324-349

Basu, S. (1977). Investment performance of common stocks in relation to their price- earnings ratios: A test of the efficient market hypothesis. The journal of Finance, 32(3), 663-682.

Beneish, M. D., &Vargus, M. E. (2002). Insider trading, earnings quality, and accrual mispricing. the accounting review, 77(4), 755-791.

Bhattacharya, N., Demers, E., &Joos, P. (2010). The relevance of accounting information in a stock market bubble: evidence from internet IPOs. Journal of Business Finance & Accounting, 37(3- 4), 291-321.

Bhattacharya, U., &Daouk, H. (2002). The world price of insider trading. The Journal of Finance, 57(1), 75-108.

Bohl, M. T. (2003). Periodically collapsing bubbles in the US stock market? International Review of Economics and Finance, 12, 385–397

Brandouy, O., Barneto, P., & Leger, L. A. (2000). Insider trading, imitative behaviour and price formulation in a stimulated double-auction stock market.

Brooks, C., &Katsaris, A. (2003). Rational speculative bubbles: An empirical investigation of the London Stock Exchange. Bulletin of Economic Research, 55, 319–346

Chakravarty, S. (2001). Stealth-trading: Which traders' trades move stock prices?. Journal of Financial Economics, 61(2), 289-307.

Chang, T., Gil-Alana, L., Aye, G. C., Gupta, R., &Ranjbar, O. (2016). Testing for bubbles in the BRICS stock markets. Journal of Economic Studies, 43(4), 646-660.

Chowdhury, A., Mollah, S., & Al Farooque, O. (2018). Insider-trading, discretionary accruals and information asymmetry. The British Accounting Review, 50(4), 341-363.

Clark, S. R. (2014). Essays in insider trading, informational efficiency, and asset pricing. The University of Iowa.

Costa, C. T., da Silva, W. V., de Almeida, L. B., & da Veiga, C. P. (2017). Empirical evidence of the existence of speculative bubbles in the prices of stocks traded on the São Paulo Stock Exchange. Contaduría y Administración, 62(4), 1317-1334.

Cuñado, J., Gil-Alana, L. A., &Gracia, F. P. D. (2007). Testing for stock market bubbles using nonlinear models and fractional integration. Applied Financial Economics, 17(16), 1313-1321.

Dai, L., Fu, R., Kang, J. K., & Lee, I. (2016). Corporate governance and the profitability of insider trading. Journal of Corporate Finance, 40, 235-253.

Dargenidou, C., Tonks, I., &Tsoligkas, F. (2018). Insider trading and the post- earnings announcement drift. Journal of Business Finance & Accounting, 45(3-4), 482-508.

Elliott, J., & Douglas, H. (1996). Repeated Accounting Write-Offs and the Information Content of Earnings. Journal of Accounting Research, 34, 135-155.

Fama, E. F. (1965). The behavior of stock-market prices. The journal of Business, 38(1), 34-105.

Ferreira, J. E. de A. (2009). Periodically collapsing rational bubbles in exchange rates: A Markov-switching analysis fora sample of industrialized markets. Studies in Economics, 1–32.

Friederich, S., Gregory, A., Matatko, J., & Tonks, I. (2002). Short- run returns around the trades of corporate insiders on the London Stock Exchange. European Financial Management, 8(1), 7-30.

Gilchrist, S., Himmelberg, C. P., & Huberman, G. (2005). Do stock price bubbles influence corporate investment?. Journal of Monetary Economics, 52(4), 805-827.

Hoppit, J. (2002). The Myths of the South Sea Bubble. Transactions of the Royal Historical Society, 12, 141-165.

Huddart, S., & Louis, H. (2006). Managerial stock sales and earnings management during the 1990s stock market bubble. Unpublished working paper, The Smeal College of Business, The Pennsylvania State University.

Huddart, S., Ke, B., & Shi, C. (2007). Jeopardy, non-public information, and insider trading around SEC 10-K and 10-Q filings. Journal of Accounting and Economics, 43(1), 3-36.

Jaffe, J. F. (1974). Special information and insider trading. The Journal of Business, 47(3), 410-428.

Ke, B., Huddart, S., &Petroni, K. (2003). What insiders know about future earnings and how they use it: Evidence from insider trades. Journal of Accounting and Economics, 35(3), 315-346.

Khozem A. Haidermota. 1993). Insider trading Law in Pakistan: A CRITIQUE

Lakonishok, J., & Lee, I. (2001). Are insider trades informative?. The Review of Financial Studies, 14(1), 79-111.

Piotroski, J. D., &Roulstone, D. T. (2005). Do insider trades reflect both contrarian beliefs and superior knowledge about future cash flow realizations?. Journal of Accounting and Economics, 39(1), 55-81.

Porter, D. P., & Smith, V. L. (2003). Stock market bubbles in the laboratory. The Journal of Behavioral Finance, 4(1), 7-20.

Rozeff, M. S., & Zaman, M. A. (1998). Overreaction and insider trading: Evidence from growth and value portfolios. The Journal of Finance, 53(2), 701-716.

Tirole, J. (1985). Asset bubbles and overlapping generations. Econometrica: Journal of the Econometric Society, 1499-1528.

Tran, T. B. N. (2017). Speculative bubbles in emerging stock markets and macroeconomic factors: A new empirical evidence for Asia and Latin America. Research in International Business and Finance, 42, 454-467.

Yang, Q. (2006). Stock bubbles: The theory and estimation(Doctoral dissertation, Brunel University Brunel Business School PhD Theses).

1. SECP, Securities act 2015 Pakistan, the gazette of Pakistan Registration No M-302/L-7646
2. SECP, Securities Ordinance 1969(ORDINANCE NO. XVII of 1969).
3. SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN Islamabad, March 27, 2001. LISTED COMPANIES (PROHIBITION OF INSIDERS TRADING) GUIDELINES

http://www.na.gov.pk/uploads/documents/1432894244_956.pdf;
http://www.wipo.int/edocs/lexdocs/laws/en/pk/pk082en.pdf
https://insidertrading.procon.org/view.resource.php?resourceID=001516
https://tradingeconomics.com/pakistan/stock-market
https://www.legislation.gov.uk/ukpga/1993/36/part/V
https://www.sec.gov/fast-answers/answersinsiderhtm.html
https://www.seclaw.com/securitiesregulations/