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## Assumptions of Making a Good Deal with Bad Person: Empirical Evidence on Strong Form Market Efficiency

**Abstract** *Behavioral finance challenged paradigms of standard finance by questioning rationality assumptions posed by market efficiency that had been a focal point for researches in finance and economics. This study aimed to test Strong-Form Efficient Market Hypothesis by employing data from emerging Stock Markets of Pakistan before its amalgamation and applied a different methodology. Firms were tested upon data availability and accordingly, ten firms were selected out of sixteen further for usability criteria of data. A part of the current study also validates the usefulness of dividend announcements for valuing the stock of KSE listed firms and suggested utilizing it in stock price revision. The market was found weak and strong form inefficient whereas the hypothesis for semi-strong form sustained overall.*

**Key Words:** Capital Market Efficiency, Strong form Efficiency, Emerging Markets, Dividend Announcements, Insider Trading.

### Introduction

Capital markets are generally perceived as growth engines for efficiently allocating capital by pooling funds from dispersed savers and directing to dispersed entrepreneurs, e.g. stock exchanges. Stock exchanges today are an integral part of a country's capital market and are organized markets, facilitating centralized trading in securities. The chief objective of the stock exchange is to provide an efficient transaction forum for trading shares and securing investors' concerns. The healthy and developed market uplift economy in numerous ways and efficiency is enhanced by the well-regulated market as fair prices prevail coupled with fewer costs of transaction, growth stimulation and full employment.

Corporate insiders are considered those people who have such information that are not available to common traders and which provide them abnormal gains in investment activities ([Baesel and Stein, 1979](#)) and existence of insider trading is tested by Strong-form Efficient Market Hypothesis. Moreover, common investors also endeavor to utilize information on insider trading activities as a basis to plan for their investment tactics. As insiders are capable of getting hold of privileged news and they use it to reap returns before the news goes public and constantly earn above-normal profits on their risk dealings ([Rozeff and Zaman, 1988](#)).

As middle-income people usually constitute the majority of investors in every country and most of them are not professionals of investment intricacies so they lack expertise, time pressure tolerance, and resources to predict potential patterns for upcoming prices and make money on basis of such analysis. If they are assured that EMH prevails in some form in stock markets, they become confident to invest their savings here. To put it differently, common investors eagerly participate in stock markets provided they have the guarantee of not being beaten by some future price predictor. On the contrary, they will shy away from the capital markets if they have any hint of market inefficiencies. This discussion indicates that stock markets can duly mobilize savings and better perform their

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function as an economic health barometer if the EMH holds in its absolute form. Further, a stock that may be inefficient at one time can achieve efficiency at a later time and vice versa.

[Mouen \(2016\)](#) examined a couple of prominent insider trading cases in India and reviewed previous cases from developed countries and found that insider trading does negatively affect market volatility, and deteriorates confidence of investors especially in the emerging economy due to market immaturity. Mainly due to the time taken by an adjustment in prices in response to information flow. Furthermore, speculation also sometimes leads to high market volatility.

The efficiency of a capital market is fundamentally reliant on the amount and assortment of listed securities. PSX is highly dynamic and volatile as compared to the rest of the financial markets world over although its functioning grew a bit higher than its infancy, turmoil experienced due to some reasons make it significant for EMH studies.

## **Rationale**

An employee, officer, director, manager or any chief shareholder is known as beneficiary of 10% or above in a firm and is anticipated to have valuable information is termed as an insider ([Baesel and Stein, 1979](#)). Insiders are officially required to report their monthly sales and purchases in stocks as per regulations of SEC in-country by a tenth of each month by filling out and submitting Form 31, 32 and 34 in case of Pakistan. In developed and advanced economies this information is published as SEC's monthly or quarterly document known as Official Summary which is not the case of Pakistan.

Regulators in western and European countries have obligated insiders to report their trading activities and later on placed restrictions on such activities. But this domain of strong-form efficiency is not explored in Pakistan and needs attention also in the sense that many empirical studies verified the existence of inefficient markets in developed economies ([Finnerty, 1976](#); [Baesel and Stein, 1979](#); [Huddart, Ke and Shi, 2006](#); [Durnev and Nain, 2007](#); [Kallunki, Nilsson, and Hellstrom, 2009](#); [Jagolinzer, 2005](#)) and India ([Raja, Sudhahar and Selvam, 2009](#), [Mouen, 2016](#)).

In less developed countries like Pakistan, access to insider data is forbidden and is kept under guard although regulations of SEC allow any citizen to pay inspection fee to go through files of companies in respective CROs (Companies Registration Office).

In past, this type of shortcoming was experienced by USA Capital Markets due to the same reason for data unavailability because neither precise share price nor dates of inside trades were reported to SEC before 1965 for NYSE ([Finnerty, 1976](#)). Despite this, some work was done by few researchers on an experimental basis by analyzing returns earned by insiders by operating their accounts, evidence was found that insiders earn abnormal profits ([Rogoff, 1964](#); [Pratt and DeVere, 1970](#); [Jaffe, 1974](#); [Finnerty, 1976](#)). Doubtlessly need is to develop, establish and align our system with developed economies for countries like Pakistan.

The study aimed to test Strong Form EMH of KSE listed firms to investigate insider trading behavior in PSX and for that purpose analysis is restricted to firms whose data was provided by SECP. The findings of this research will benefit trading firms, common investors, the Security Exchange Commission of Pakistan (SECP), regulatory bodies, Company Registration Offices (CROs), brokerage firms, firms listed on PSX and potential IPOs.

## **Literature Review**

Abnormally large returns earned by insiders in the USA are confirmed by many ([Jaffe, 1974](#); [Finnerty, 1976](#); [Collin, Rozeff and Dhaliwari, 1981](#); [King and O'Keefe, 1986](#); [Givoly & Palmon, 1985](#); [Rozeff & Zaman, 1988](#); [Kabir and Vermaelen, 1996](#); [Hebner and Kato, 1997](#); [Jabbour, Jalilvand and Switzer, 2000](#); [Rose, 2003](#); [Etebari, Tourani and Gilbert, 2004](#)) and found huge abnormal returns. Insider sells the stock for many reasons like meeting liquidity requirements and re-harmonizing portfolios but the foremost motive for buying stocks is profit. [Durnev & Nain, \(2007\)](#) found that insiders can effectively time up their transactions as they purchase stocks after a decrease in price and then sell them upon increases. Empirical research instituted that both insiders and outsiders can earn considerable

abnormal returns by buying and selling stocks over both short and long investment periods ([Bettis, Coles, & Lemmon, 2000](#)) and found that insider transactions are somehow instigated by outsiders to earn above-normal returns.

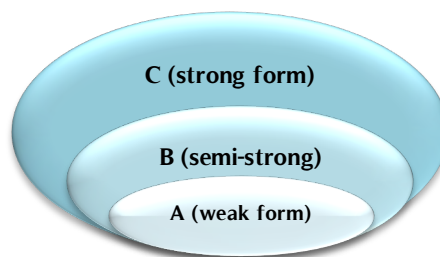
Although a large number of studies found evidence of insiders earning abnormal returns but scanty literature is found on contrary evidence. Oslo Stock Exchange was examined for abnormal returns through insider trading but detected none ([Eckbo and Smith, 1998](#)) suggesting underperformance of professional group managed funds. Kara and Denning (1998) measured the profitability of insider trading as a function of risk aversion and transaction costs and found US securities markets as inefficient.

Studies on NYSE ([Rogoff, 1964](#); Glass, 1966; [Pratt and DeVere, 1970](#); [Jaffe, 1974](#)) before [Finnerty \(1976\)](#) tested only a special category of high-performance insiders and excluded average insiders from the sample. Whereas [Finnerty \(1976\)](#) ruled out this prejudice and tested the entire population of insiders and refuted strong-form EMH. Prior studies suffered data unavailability issues as no reporting of share price traded by insiders and their trade dates were made to SEC before 1965, so they measured insiders' returns from their accounts and found inefficiency. The study concluded that even the regulatory process for controlling insiders did not prevent them.

[Rozeff and Zaman \(1988\)](#) found outsider profiteers as a serious exception as they earn abnormal returns by imitating insider trades. Although corporate insiders possess insider information on a routine basis no evidence was found to suggest their substantial return earnings from direct use of this information. Trading on inside information was investigated differently by [King and O'Keefe \(1986\)](#). Lobbyier-insiders were found to be net buyers in comparison to non-lobbyier insiders. It was concluded that lobbying activities are correlated with the management's expected wealth. Few other researchers found a significant correlation between lobbying behavior and expected wealth of the firm's management and their findings were later on reexamined and confirmed ([Collin, Rozeff, & Dhaliwari, 1981](#); [King, & O'Keefe, 1986](#)).

[Teall \(2008\)](#) opined that insiders either have superior ability in trading overstocks or they utilize some private information to beat the market. Another view is that insiders might possess advanced investing skills or may utilize the unpublicized source of information through their resources to earn extra money ([Givoly & Palmon, 1985](#)). [Jagolinzer \(2005\)](#) found that irrespective of these situations insider trading within the plans discussed above surpass the market by 5.6% every semi-annual period.

**Figure 1:** *Cumulative Concept of EMH with Associated Information Set of each.*



**Source:** Akhter and Misir (2005)

**H:** There is no significant difference between the general trading done by common investors and insider trading done by insiders based on information (the market is strong-form informational efficient).

## **Pakistani Stock Markets—Background and Overview**

Pakistan is mainly an agrarian economy had a growth rate of 6.6% during 2005-06 and had an

average rate of around 7% annually (2002/03—2005/06), and remained one fastest growing economies of Asia but declined in later years ([Economic Survey of Pakistan, 2017-18](#)). Market capitalization grew slowly in the 80s and remained \$0.317 billion in the early years, increasing to 0.833 billion in mid-decade and reached 1.982 billion in 90. It grew 50 times more than in 1980. This amount cumulated to \$ 49.17 billion in March 2019 ([Economic Survey of Pakistan, 2018-19](#))

Initially, Pakistan had three stock exchanges KSE, LSE & ISE instituted respectively in 1947, 1970 and 1989, had indexes as KSE-100, KSE All, LSE-25 & ISE-10. On January 11, 2016, these three exchanges were merged into one entity as PSX (Pakistan stock exchange) with trading floors in Lahore, Karachi & Islamabad and now has a listing of 559 companies with a market cap of \$84 billion in total. Currently, these exchanges have about 220,000 retail investors, 883 are domestic institutional investors and foreign institutional investors are around 1,886 in number. In December of 2016, 40% of its strategic shares were sold to a Chinese Consortium for \$85 Million after open bidding (Tribune, 2015; [Dawn.com, 2016](#)).

In 2002, Business Week awarded the status of “Best Performing Stock Market of the World” to KSE and it remained among best performing global stock markets from 2009 till 2015 for delivering 26% annually. In April 2008 index improved hastily approaching new elevations of around 15,500. Nevertheless, in 2008, the demonic financial crunch crashed it low to 9,187 points by 22- November 2008 ([www.ise.com.pk](#)).

## **Research Methodology**

Efficient market prices reflect increased variability of information more efficiently to the general public. Although some future price predictor who can beat the market and shy away willingness of common investors is symbolic of market inefficiencies. However, it is possible to test Strong-form EMH only if the effectiveness of the trading policy devised by regulatory bodies like SEC is inspected ([Jabbour, Jalilvand and Switzer, 2000](#); [Rose, 2003](#); [Etebari, Tourani and Gilbert, 2004](#)).

There are multiple famous cases & evidence of insiders earning supernormal profits consequently impeached for their trading. [Jaffe \(1974\)](#) provided substantiation of insiders being capable of generating abnormal income on apparently legal transactions and are registered with SEC. Jaffe inspected SEC insider transaction filings and found evidence of the difference between market and stock performance of insider after months especially when purchases of insider surpass their selling. Shares sold by insiders always outperformed the market later.

## **Data**

Data is collected from SECP consisting of employee ID, trading dates, transaction types (selling/purchase), stock volumes bought and sold by insiders, the trading price for their trades. Due to the unavailability of data, only sixteen firms' data for the period from 2003 till 2008 was accessible which was further restricted to only two years in the case of few firms due to restrictions and unavailability somewhere. Firm's mandatory data of Form 31 and 32 were not available with CROs and this problem was brought to the attention of SECP during this research. This data was taken from Form 31, 32 and 34 issued by SECP and mandatory to be filled in and submitted by employees who buy stocks of their employer firm e.g. Directors, managers, CEOs, etc and are treated as 'beneficiary of 10% and above'. The financial theory treats them as insiders i.e. people who have access to inside information and their trading activities are different from those of normal stockholders.

## **Procedures**

The Chow Breakpoint test was applied individually for each subsample to analyze noteworthy differences. Chow breakpoint examines the existence of structural alteration in all parameters of the equation. Data was divided into two or more subsamples for investigation purpose and the same equation is estimated for each sub-sample discretely for checking the existence of momentous

variances in the assessed equations. A substantial difference designates a fundamental change in a tested relationship. To estimate the equation, every subsample should hold observations above the number of coefficients in the equation. This test contrast the sum of squared residuals acquired by appropriating single equation to whole data set by the sum of squared residuals achieved after fitting separate equations to each sub-data sample (Chow, 1960; Fisher, 1970; Greene, 1993). Chow breakpoint test report three test statistics; first,  $F$ -statistic, second is Log-Likelihood Ratio (LR) statistic and third is Wald Statistic with  $(m-1)k$  degrees of freedom where  $m$  represents a sub-samples quantity.

## Data Analysis and Interpretations

This section of the study provides evidence on insider trading in Pakistan by examining and comparing the trading volume and closing prices traded by corporate insiders and the common investors. The sample consists of 10 listed companies and all have varying time slots. Initially, data of 16 listed companies from 8 sectors; two from each was made available for the study by SECP but only 10 companies qualified for inclusion in the sample because sufficient data were not available for the rest of the 6 firms. Chow Breakpoint test was applied to 10 companies from eight sectors, specifically banking, chemical, cement, textile, petroleum, securities, packing-manufacturers, and financial services sector. The data for the insiders of respective firms was taken from SECP whereas the data for the outsiders for the same companies were taken from KSE records for the respective years. It was observed that insiders traded even on the market holidays and on a price different from the daily closing price of that particular day or even different from weekly closing prices. Upon the instructions of SECP the names of involved companies are not disclosed rather they are named as A, B, C and so on due to a few unavoidable reasons. These results include two types of disclosures: results from the measurement of overall data available for each firm and then year-wise testing of the data for a few firms. The overall company-wise and the year-wise respective results and analysis are as under:

**Table 1.** Chow Breakpoint Test Results of Sample Companies

Companies	F Ratio	Prob	likelihood	Prob	Wald Test	Prob
Company A (overall)	335.5031	0.0030	34.91164	0.0000	671.0062	0.0000
Company B (overall)	12.78589	0.0018	17.76555	0.0001	25.57179	0.0000
Company C (overall)	12.676543	0.0043	18.749681	0.0005	25.76331	0.0015
Company D (overall)	1.246979	0.3378	3.256297	0.1963	2.493958	0.2874
Company E (overall)	1.027845	0.3872	2.529931	0.2822	2.055691	0.3578
Company F (overall)	4.016899	0.0442	8.200226	0.0166	8.033798	0.0180
Company G (overall)	11.176770	0.0501	14.99715	0.0006	22.35340	0.0000
Company H (overall)	3.565979	0.0504	7.372529	0.0251	7.131959	0.0283
Company I (overall)	0.587059	0.5740	1.554211	0.4597	1.174117	0.5560
Company J (overall)	2.705960	0.0105	6.055787	0.0424	5.411921	0.0508
Company F (2006)	3.520157	0.0427	7.386431	0.0249	7.040314	0.0296
Company G (2007)	21.78016	0.0044	18.75534	0.0001	43.56031	0.0000
Company H (2001)	16.17544	0.0492	17.06088	0.0002	32.35088	0.0000
Company I (2005)	3.499461	0.1323	8.092024	0.0175	6.998923	0.0302
Company J (2007)	5.129120	0.0160	9.936873	0.0070	10.25824	0.0059

The Table reveals the results of the Chow Breakpoint test explaining the existence of a significant difference between two subsamples. The largest sample period available for the study is of company H and I from textile and financial services sectors respectively from 1997 to 2009, whereas companies A and C are from the banking sector and their data is available for 2007-09 and 2004-09 respectively. Data for company B being the affiliate of securities sector was available for period 2000-09, company D is constituent of cement sector with data from 2000 to 2009, company E and F belongs to the

chemical sector with data available for 2001- 09 and 2004-08 respectively, company G is a member of petroleum sector with data range 2005-08 and J is the associate of the packing-manufacturer sector with data available for 2001-09. The names of the companies have been concealed upon the request due to several inevitable and obligatory reasons.

The results of almost all companies in the study sample reveal the highly momentous difference between trading behavior of insiders and common investors with significant values of F-ratio, Log-Likelihood Ratio and Wald test ( $p < 0.05$ ). This is due to massive insider trading taking place concerning several individuals involved in insider activities, and a huge volume of trading at very low share prices offered to insiders in contrast to the common investors. Company A, from the banking sector among all, is the most significant in insider trading as coefficients of its F-stat, log-likelihood and Wald test statistics are very large and highly significant ( $p < 0.05$ ). The findings for this company reject the hypothesis of no significant difference between the trading behavior of insiders and common stock traders for complete available data and duration. Similarly, upon testing overall data of rest of companies i.e. B, C, F, G, H and J from securities, banking, chemical, petroleum, textile, and financial sector respectively are also found strong-form inefficient as all their three ratios calculated for each respective firm are highly significant ( $p < 0.05$ ) hence refuting the null hypothesis for strong-form EMH in favor of the alternative hypothesis of significant difference. On the contrary, results failed to reject the null hypothesis of insider trading ( $p > 0.05$ ) when the overall available data was tested for cement, chemical, and financial sector respectively under strong-form EMH. Therefore, these seven companies from different sectors are overall strong-form inefficient.

It is observed from SECP raw data that few companies exhibited strong form inefficiency in only a few years instead of being inefficient throughout the sample period. Company A significantly proved to be inefficient in each year of its data availability whereas Companies F, G, H, I and J were found to be significantly inefficient not only for the overall total trading throughout the study period but also in years 2006, 2007, 2001, 2005 and 2007 respectively. All three ratios calculated by Chow Breakpoint for each of these years are significant ( $p < 0.05$ ) depicting the existence of insider trading. It is noteworthy that company I am found strong-form efficient when tested for total years' available data but high-level insider trading can be detected in only one year's trading i.e. in 2005. Findings suggest that during these particular years these companies were involved in heavy insider trading i.e. employees of these companies owning shares bought the share at low rates as compared to prices offered in the market and sold them when prices increased later on. Somewhere traders even created an artificial hype as well to sell out their shares when they received private information about the change in the value of the firm or firm stocks. Data revealed that insiders even traded shares on holidays like Saturday and Sunday when stock markets were closed for the common public.

## **Discussion**

The success of insider trading has been the focus of various researchers. Generally, these studies state that company scenarios are known better by the insiders making them superior in trading profitably by utilizing their information. The hypothesis was refuted as the results from overall total available data revealed the highly momentous difference between the trading behaviors for seven out of ten companies. The hypothesis is sustained for only three companies. Highly significant abnormal insider trading returns are earned in Company A (banking sector), B (securities sector), C (banking sector), F (chemical sector), G (petroleum sector), H (textiles sector) and J (packing-manufacturer sector) and are found involved in insider trading. Whereas no involvement was found in D (Cement sector), E (chemical sector) and I (financial sector) for earning abnormal returns from insider trading, thus sustaining the hypothesis. Likewise, the same group of companies was tested for the same reason each year separately and again few companies were found deeply involved in earning the above-normal profits by taking advantage of being insider traders. Insider trading was detected for some particular year in the following: Company F in 2006, G in 2007, H in 2001, I in 2005 and J in 2007. Interestingly results from the company I substantiated the hypothesis for overall total data and refuted

it in case of one particular year (2005) signifying high insider trading taking place in that year. The analysis of the present study supports previous findings in the literature.

## **Suggestions**

Findings indicated that information dissemination in the market is a time taking process therefore proper measures are imperative for improving informational efficiency to assist potential investors and ensure the prevalence of impartiality in stock prices. In 2002, A code of conduct for listed firms was issued but compliance to code is still missing. So the main concern and need of the time is the implementation of the law, process and establishing control channels by authorities. The control measures for strict compliance should be equal for each individual & institutional trader irrespective of political and financial influences.

The provision of information that is mandatory to be provided in form 31 and 32, by the owners and beneficiaries of 10 percent and above termed as 'insiders' should be followed up properly, timely and strictly instead of being indifferent to the supply and submission of this particularly sensitive information. Further such information is published in developed markets in a document titled "SEC Official Summary" whereas such is not in case of developing an economy like Pakistan. Therefore, this document is recommended to be an essential publication on a semi-annual and annual basis to ensure transparency.

Furthermore, a proper database is needed to obligate firms for judicious and worthy data provision for potential investors e.g. PROWESS by India is a leading database containing data about their economy and firms' statistics handled by CMIE (Centre for Monitoring India Economy). A variety of indices are established and preserved by this independent think-tank, BSE 500 being one of them. It also provides databases formed upon analysis besides provisions of research reports ([CMIE, 2009](#)) and this is also a requirement of the Pakistani economy as well.

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