Technical Analysis in the Stock Markets of Pakistan: A Case of Commercial Banks

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Executive Summary

This research report focuses primarily on the profitability of "Technical Trading Rules" in the stock markets of Pakistan using Banking Sector listed in Karachi Stock Exchange as a case study including MCB, UBL, NBP, ABL, BOP, BAFL, Bank-Al-Habib, Bank AL-Faysal, Soneri Bank and Mezzan Bank. The ultimate objective of the study is to demonstrate that financial volatility can be recognized to the heterogeneity of traders with respect to trading strategies they used.

Due to the restriction of time, this study considers only six technical trading and one-year data of the sample stocks. The tools include moving average, Bollinger band, Moving Average Convergence Divergence, Relative Strength Index, Money Flow Index and Support and Resistance Level. The Profitability of each trading rule has compared to the passive buy and hold strategy. Based on the profitability of these rules, Ranks has also assigned to each strategy that generate good profit.

With the help of this research and the past strategies that had done on technical analysis, an ample evidences have proved that the technical analysis can be profitable in the stock markets. This research also includes and point out the stocks on which the analyzed tools are not appropriate or using them cause losses. This research has formulated all the calculation for average return and average profits, means researcher does not want the readers to expect strategies for high returns and profits behind this research. This study also presents some evidences of the role played by Big Investors in financial price determination.

Chapter 1
Introduction, Background of the subject/topic & statement of the problem

1.1. INTRODUCTION

1.1.1. Introduction of the topic

In emerging economies capital market is a widely useable and popular source for the residents to boost their income and living standards. The reason behind that is the people of the developing countries do have knowledge about the living standards of the developed countries, they set benchmark based on developed countries standards in every field and gauge everything from developed country's point of view. In the present scenario of Pakistan, Stock Markets and Real State are the only two major sources of earning high profits in the shortest time.

In the hunt of high income Pakistanis jump into Stock Market and Real State (This Report will only focus on Stock Market) investment and their investment strategies are not same as they use to follow their benchmark country practices in every field of life. Investing in Stock Markets has worldwide considered as a Risky activity that could lead to abnormal profits resulting people run towards stock markets. In a country like United States Investing in Stock Markets has proper code of Conduct (NASDAQ 2006) which guides investors to should have certain knowledge (Fair Value, Risky ness, Required Rate of Return, Beta, etc) about their investing in any stocks.

In present dynamics of world, many authors of the finance books do not support the usefulness of any analysis in the stock markets and say nobody can beat the market (Mishkin 1998) and (Timmermann and Granger 2004). On the other hand, there are authors who support the analysis and witness the profitability of Stock Valuation and analysis (Hsu 2000). There are two broad branches use for the Stock valuation, which are as follows:

1) Fundamental Analysis (Not Cover in this Report)

2) Technical Analysis

1.1.1.1 Fundamental Analysis

Fundamental Analysis works on establishing the intrinsic value of stocks on the grounds of inter-relationships of Financial Statements, Demand Forecasts, Industry Analysis, Economic Analysis, Quality of Management, Earning per Share, Future Growth etc. All of the above information require for fundamental analysis based on company's basics that their management always show best and perfect.

1.1.1.2 Technical Analysis

Technical Analysis is a class of investments strategies in which past patterns of stock prices have analyzed for the future price predictions. Technical analysis also study Investors Behavior and its effect on the subsequent price action of financial instruments. The main data required for the technical analysis is past data of prices with High-Low levels and trading volume of the understudy stocks.

Many authors support fundamental analysis and many support technical analysis to beat market but in reality combination of both analysis produces better results for the investments (investorsintelligence 2005). This research has only focused on the usefulness of technical analysis in Karachi Stock Exchange and recommends further work in fundamental Analysis in order to find out whether investment strategies could beat the Karachi Stock Exchange or not.

1.1.3 International scenario

Technical Analysis is a subjective and Qualitative process; resulting analyst do not fell comfortable with it and follows fundamental analysis being quantitative in nature. Nevertheless, in actual the fundamental analysis is more subjective in nature because the fundamentalist future expectation regarding company might have not as perfect as technicians. The linguistic barriers underscore an important difference between

technical analysis and quantitative analysis. Technical analysis is primarily visual whereas quantitative analysis is algebraic and numerical. Technical analysis employs the tools of geometry and pattern recognition and quantitative analysis employs tools of mathematics and probability statistics.

To solve this problem with the help of advance mathematics, statistics, computer technology and financial engineering, scholars of finance are trying to formulate the algorithms and different formulas to develop some quantitative tool and make technical analysis as quantitative process. Scholar's has produced some tools like smoothing estimators and kernel regression and empirically test their algorithms in the market and achieve some success (Andrew 2000).

In developed countries, funds (Liquidity of Investors) information is easily available; these funds information accounts much importance. Hence, tools those are very common and easy to use in developed countries like flow of fund or cash position of brokerage houses could not use in Pakistan. Therefore, it is the time to recognize KSE and SECP for doing some arrangement for the investor to provide relative information required for the investment decisions.

1.1.4 The Behavior of Technicians

According to Technicians, the analysis of trading volume has very importance in Technical Analysis. Trading volume provides clues as to the strength of a given price trend. Low-volume levels are characteristic of the indecisive expectations that typically occur during consolidation periods, i.e. periods in which prices move sideways. High-volume levels are characteristic of persistent price trends when there is a strong consensus that prices will move further in their current direction. The Technical Analyst explanation of why volume determines the health of an existing trend is as follows: "Rising prices coupled with high volume signifies increased upside participation (more buyers) that should lead to a continued move, whereas falling prices coupled with high volume signifies increased downside participation (more sellers). On the other hand, price trends accompanied by low volume are

suspect. Whether or not the logic behind this reasoning is correct is not crucial. What matters is that chartists act in accordance with this directive". (Wasterhoff 2001)

1.1.5 Present Status of Technical Analysis

In Pakistan Technical Analysis is very popular among fund mangers of Mutual funds, Investment firms, and Brokerage Houses. Since last six months, there are newspapers (Financial Daily) and business websites (scsecurities.net) available for investor that tries to do good technical analysis.

1.2. SIGNIFICANCE OF STUDY

In Pakistan, educated and uneducated investors have same strategies for investment; they all rely on floating unreliable information that results in heavy Loss. The author wants that, there should be some difference between educated small investor and uneducated small investors, loss should be different from educated investors to un-educated investors. It is time for educated small investor to think something about their investments and never rely on everything for granted. If they rely on rumors than what would be the difference between educated investors and uneducated investor.

Uneducated investors have also very strong reasoning and logics but they are restricted to their expertise whereas educated investors can enhance their strategies with the help of their education and could help them in earning high profits. Educated investors have now required performing some strong study and hard analysis themselves. It is not mean that to stop reviewing newspaper but after reviewing, do some analysis and make transaction decision on the grounds of their own analysis rather than agents fictitious rumors spinning in the Market.

This research will first try to find out whether on the grounds of technical analysis we could earn high profits or not. What sort of technical analysis could be best applicable in the scenario of Karachi Stock Exchange?

This research will also help in finding out stocks that can be best predictable in the Karachi Stock Exchange with the help of technical analysis. This analysis of this

research will help a lot to the small investor in enhancing their portfolio management ability. This research will also change the investors perception regarding not only big investor can earn profit but small investor with smart strategies can also earn high unusual profits.

This research will also be very fruitful for the finance students because this study will add their skills that could help them to maintain their own portfolio and it will also open job opportunities in the security analysis firms which also in the growth phase of product life cycle.

1.3. SCOPE

In this research analysis, sample includes ten stocks of Commercial Banks i.e. MCB, NBP, UBL, ABL, Bank Al Fallah, Bank AlHabib, Soneri, Faysal Bank, BOP and Mezan. The stocks selected for the analysis are older enough so to allow their prices to depict a long-term pattern. The daily data of sample stock has used for the analysis from 3 January 2007 to 31 Dec 2007. After Analysis, the practical test from January 1 2008 to 31 March 2008 has also done to verify usefulness of the tools with respect to individual stock by creating artificial portfolio of one stock each. At the end the author has also calculated net returns over the period of time and ranked each tool accordingly. To gauge the usefulness of returns, this research has also find out the required rate of return with the help of CAPM, if the returns provided are somewhat close to CAPM than we must say that opportunities for investment is available in the market and it will be termed as successful work.

The tools that are being use in this analysis are Dual Moving average (50/10 Days), RSI, Bollinger Band, MACD, MFI and Support and Resistance level. The interpretation of numerical, Graphs and Charts finding was the main step of this research and smart work has done in this area to achieve objectives.

Predicting future while observing long trend might be not difficult as predicting Short trends. Karachi Stock Exchange is highly volatile market therefore knowledge of time series analysis would also required for proper prediction. To predict the future trends

long trends have divided into small short trends and from those short trends, future short trends will predicted.

1.5. LIMITATIONS

Due to restriction of time, this research includes only ten stocks and only selected SIX tools. This do not means that more data is not required and good results can generate with the help of these main ratios. The readers can further enhancing results with this research by extending tools and data (of around ten years).

New allegorical techniques have also developed and it recommended that after this research those algorithms should be test in the Karachi Stock Exchange in order to identify the full profits opportunities. Technical analysis tools are not hard and fast rules that have to follow strictly; it could be tailor according to different markets and situations.

Chapter 2
Overview of Karachi Stock Exchange

2.1 KARACHI STOCK EXCHANGE:

2.1.1 History of KSE

Karachi Stock Exchange is the biggest and most liquid exchange and has been declared as the "Best Performing Stock Market of the World for the year 2002". As on March 19, 2008 652 companies were listed with the market capitalization of Rs. 4,579,139.32 (US $ 72.68 billion) having listed capital of Rs. 681.398 billion (US $ 10.81 billion). The KSE 100 Index closed at 14075.83 on December 31, 2007. KSE has been well into the 6th year of being one of the Best Performing Markets of the world as declared by the international magazine "Business Week". Similarly, the US newspaper, USA Today, termed Karachi Stock Exchange as one of the best performing bourses in the world.

The market performing during the period June 1998 to December 2007 is given under.
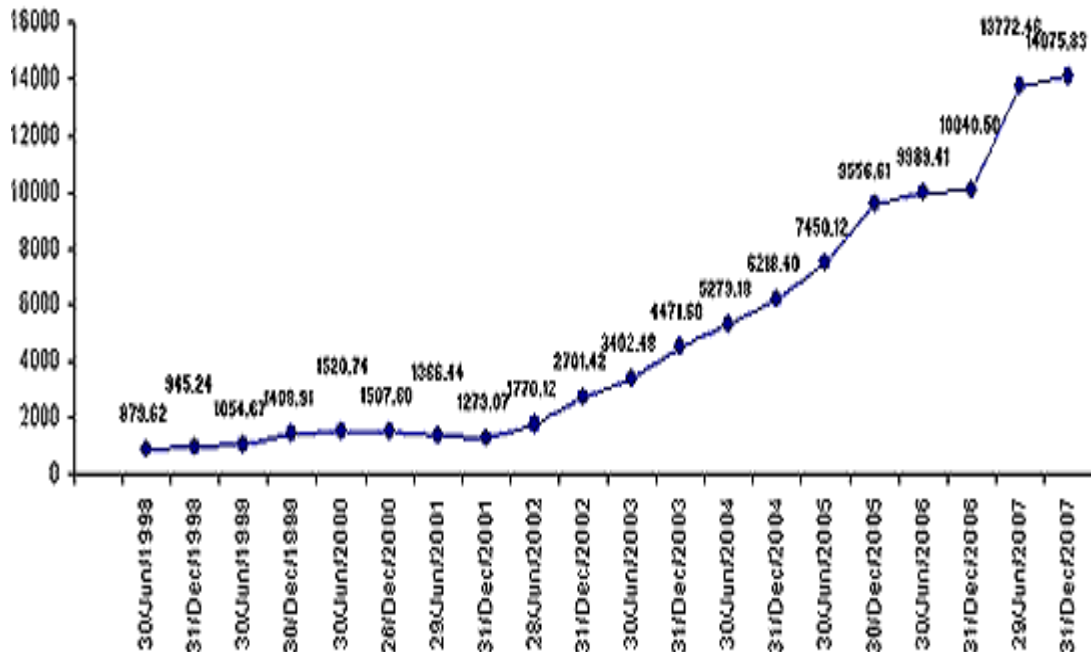
DECADE WISE PROGRESS			
YEAR	NO. OF LISTED COMPANIES	LISTED CAPITAL (Rs. in million)	MARKET CAPITALIZATION (Rs. in million)
1950	15	117.3	-
1960	81	1,007.70	1,871.40
1970	291	3,864.60	5,658.10
1980	314	7,630.20	9,767.30
1990	487	28,056.00	61,750.00
2000	762	236,458.50	382,730.40
2008	777	681398.00	4,579,139.32

2.1.2 Growth & Progress

Today KSE has emerged as the key institution of the capital formation in Pakistan with:-

I. Listed companies 777, securities listed on the exchange 750: ordinary share 743, Preference shares 14 and debt securities (TFC's) 24.

II. Listed capital Rs. 681.398 billion (US $ 10.81 billion).

III. Market capitalization Rs. 4,579,139.32 (US $ 72.68 billion)

IV. Average daily turnover 268.23 million shares with average daily trade value Rs. 27,671.86 million.

V. Membership strength at 200.

VI. Corporate Members are 174 out of which 9 are public listed companies.

VII. Active Members are 163.

VIII. Fully automated trading system with T+2 settlement cycle.

IX. Deliveries through central depository company.

X. National Clearing and Settlement System in place.

2.1.3 Equity Markets in Pakistan

The secondary market was opened for foreign investors in 1991 on an equal basis with the local investors. This measure along with the government policy of privatization has resulted in the rapid growth of Stock Market. The government has been able to privatize Habib Bank Limited, United Bank Limited, Allied Bank Limited, KESC, etc. It may also be mentioned that "Privatization" has been adopted as a philosophy and most of the business and finance activities that were previously reserved for the public sector now opened for the private sector. The change of the policy is most visible in the financial sector where a number of commercial banks, Investments Banks, discount houses, leasing companies, Modaraba, life insurances companies and mutual funds have been allowed in the private sectors.

Liberalization Policy has led to rapid deregulation of the national economy and the impediments to the private initiative have been speedily removed. Foreign Exchange holdings and transfers have been liberalized, industrial sanctioning has been done away with except for few sectors where, for strategic reasons, prior permission of the government necessary.

2.1.4 Legal Framework

The securities market and the corporate sector are regulated by the provisions of:

1) The Companies Ordinance 1984;
2) The Security and Exchange Ordinance 1969 and rules framed there under in 1971;
3) The Security and Exchange Commission Act 1999.

There are also Federal legislations relating to specific areas like:

1) Monopolies and Restrictive Trade Practices (Control and Presentation) Ordinance, 1970;
2) Modaraba Companies and Modaraba (Floating and Control) Ordinance, 1980;
3) Companies (Issue of Capital) Rules 1996;

4) Non Banking Finance Companies (Establishment and regulations) Rules, 2003;

5) Insurance Companies Ordinance 2000;

6) Guidelines for insider trading;

7) Listed Companies (Substantial Acquisitions of Voting Shares and take-over) Ordinance 2002.

In addition to above, the listed companies are also subject to the rules and regulations of the stock exchanges.

2.1.5 The Regulators (SECP)

The regulatory authority for the securities markets and corporate sectors in Pakistan is the Security and Exchange Commission of Pakistan. The Commission was established on January 01, 1999 to replace the corporate law authority that was formed in 1981 under a Special Law. The commission administers the compliance of the corporate law of the country (SECP).

The Asian Development Bank's Capital Markets Development Program visualized the conversion of CLA (Corporate Law Authority) into Security and Exchange Commission of Pakistan, as an autonomous regulatory authority. The new system provides administrative, Operational and Financial autonomy to the commission and at the same time provides and accountability mechanism through establishment of a security and exchange board policy. The board on the recommendations of the commission that is also empowered to take suo motto action makes all policy decisions. The board is directly answerable to the parliament.

Members of the Stock Exchange are also subject to the discipline of self-regulation under various rules and regulations of the stock exchanges. Self-Regulations is the essence of market regulation and for this purpose the legal framework is being amended to facilitate the attainment of SRO status by the stock exchanges.

2.1.6 General Tax Policy for Listed Stocks

1. All Mutual Funds and Modaraba (Other than Trading Modaraba) are exempt from income tax , Subject to the distribution of 90% of their Income Tax.
2. Listed companies are toned at 35%.
3. Provident funds can now invest in approved listed securities. They are also allowed to invest in open end mutual funds established under the Asset Management Companies Rules 1996.
4. No turnover tax is payable by companies on their turnover representing transactions in securities listed on stock exchanges.

2.1.7 Membership

Membership of KSE is limited and fixed at 200 and prospective members have to purchase a seat from existing members. The price of the membership seat is freely negotiable between the buyers and sellers which vary according to the interaction of the forces of demand and supply. The KSE does not interfere with these transactions. However, the membership is allowed subject to fulfillment of criteria and qualification laid down by the Board.

Since June 1990, membership has been opened to corporate entities. Corporate members are required to have a minimum paid up capital of Rs. 20 million and are subject to criteria fixed by the Board. The Membership of KSE is also available to foreign entities if the Nominee Director of the company is a citizen of Pakistan.

On January 28, 2006, a memorandum of understanding was signed between SECP and KSE for demutualization of KSE, Whereby KSE presently a company limited by guarantee, will be converted into company limited by shares and 100% of its shares will be issued to its members. Subsequently the member would be required to disinvest 60% of their share holding both 40% to Financial Institution and 20% to General Public by having the Exchange listed locally.

2.1.8 Risk Management

In the line with international best practices, KSE has replaced its old slab based Risk Management system with Value at Risk (VaR) based margining system to improve the risk management of the exchange. The new risk management system was introduced in December 2006. New Risk management caters for elimination of netting across the markets, across the scripts, across clients and across settlement period. It also include process of calculation of margins, Their acceptable forms, declaring securities eligible as collateral and valuation of such securities by applying the specific hair cuts.

This system has following features:

- Separation of CFS and Ready Markets.
- New Netting Regimes for ready and, CFS and Future Markets.
- Removal of Cross- Settlement Netting from ready market.
- New VaR Based Marging regime.

2.1.9 Market Surveillance

A Market Control and surveillance department has been established to monitor the fluctuations and to discover and investigate undesirable trading activity.

The main objective of the surveillance function is to promote market integrity by monitoring and investigating price and volume movements as well as detecting potential markets abuse at a nascent stage, with a view to minimizing the ability of the market participants, to influence the price of the scrip in the absence of any meaningful information.

As a part of Risk Management, KSE has also devised circuit breakers. In case of price fluctuates 5% or Rs. 1/- which ever is higher from the closing price of the previous day. Accordingly trading will be restricted within upper and lower limit of 5% of Rs. 1/- which ever is higher from the last closing.

2.3 KSE INDICES

2.3.1 INTRODUCTION

KSE began with a 50 shares index. As the market grew a representative index was needed. On November 1, 1991 the KSE-100 was introduced and remains to this date the most generally accepted measure of the Exchange. The KSE-100 is a capital weighted index and consists of 100 companies representing about 86 percent of market capitalization of the Exchange.

In 1995 the need was felt for an all share index to reconfirm the KSE-100 and also to provide the basis of index trading in future. On August 29, 1995 the KSE all share index was constructed and introduced on September 18, 1995.

KSE has also introduced KSE-30 Index which is calculated using "Free Float Market Capitalization Methodology". The primary objective of the KSE 30 Index is to have a benchmark by which the stock price performance can be compared to over a period of time. In particular, the KSE-30 Index is designed to provide investors with a sense of how large company's scrip's of the Pakistan's equity market are performing

2.3.2 KSE 100 INDEX

2.3.2.1 Objective

The primary objective of the KSE 100 index is to have a benchmark by which the stock price performance can be compared to over a period of time. In particular, the KSE 100 is designed to provide investors with a sense of how the Pakistan equity market is performing. Thus, the KSE 100 is similar to other indicators that track various sectors of the Pakistan economic activity such as the gross national product, consumer price index, etc.

2.3.2.2 Brief About KSE-100 Index

The KSE-100 Index was introduced in November 1991 with base value of 1,000 points. The Index comprises of 100 companies selected on the basis of sector

representation and highest market capitalization, which captures over 80% of the total market capitalization of the companies listed on the Exchange. Out of the following 35 Sectors, 34 companies are selected i.e. one company from each sector (excluding Open-End Mutual Fund Sector) on the basis of the largest market capitalization and the remaining 66 companies are selected on the basis of largest market capitalization in descending order. This is a total return index i.e. dividend, bonus and rights are adjusted.

2.3.3 KSE-30 INDEX

2.3.3.1 Introduction

The primary objective of the KSE-30 Index is to have a benchmark by which the stock price performance can be compared to over a period of time. In particular, the KSE-30 Index is designed to provide investors with a sense of how large company's scrips of the Pakistan's equity market are performing. Thus, the KSE-30 Index will be similar to other indicators that track various sectors of country's economic activity such as the gross national product, consumer price index, etc.

Globally, the Free-float Methodology of index construction is considered to be an industry best practice and all major index providers like MSCI, FTSE, S&P, STOXX and SENSEX have adopted the same. MSCI, a leading global index provider, shifted all its indices to the Free-float Methodology in 2002.

KSE-30 Index is calculated using the "Free-Float Market Capitalization" methodology. In accordance with methodology, the level of index at any point of time, reflects the free-float market value of 30 companies in relation to the base period. The free-float methodology refers to an index construction methodology that takes into account only the market capitalization of free-float shares of a company for the purpose of index calculation.

Free-float Methodology improves index flexibility in terms of inclusion any stock from all the listed stocks. This improves market coverage and sector coverage of the index. For example, under a Full-Market Capitalization Methodology, companies with large market capitalization and low free-float can be included in the Index.

However, under the Free-float Methodology, since only the free-float market capitalization of each company is considered for index calculation, it becomes difficult to include closely held companies in the index while at the same time preventing their undue influence on the index movement.

2.3.3.2 Free - Float Methodology

Free-Float means proportion of total shares issued by a company that are readily available for trading at the Stock Exchange. It generally excludes the shares held by controlling directors / sponsors / promoters, government and other locked-in shares not available for trading in the normal course.

2.3.3.2 Objective and Description:

• Free-Float calculation can be used to construct stock indices for better market representation than those constructed on the basis of total market capitalization of companies.

• It gives weight for constituent companies as per their actual liquidity in the market and is not unduly influenced by tightly held large-cap companies.

• Free-Float can be used by the Exchange for regulatory purposes such as risk management and market surveillance.

Chapter 03
Literature Review

3.1 SECURITY VALUATION

3.1.1 BACKGROUND

Two traditional methods for analyzing stock valuation and selecting stock valuation are as follows:

1) Fundamental Analysis
2) Technical Analysis

3.1.1.1 Fundamental Analysis

The objective of fundamental security analysis is to apprise the "Intrinsic Value" of a security. The intrinsic value is the true economic worth of a financial asserts or underlying variables that combine to produce an expected return and an accompanying risk. The fundamentalists maintains that any point of time every share has an intrinsic value which should in principle be equal to th present value of future stream of income from that share discounted at an appropriate risk rate of interest. The actual price of security, therefore, is consider to be a function a set of anticipated capitalization rate. Price changes as an anticipation changes which in turn changes as result of new information. The fundamentalists then argue that in case there is something less than value. Thus they believe that market can often be wrong in appraising the value of a share of a company. hence the job of a fundamental security analyst is to sort out the temporary disequilibrium from the true shifts in the national economy and the accounting trick from the true changes in the firms income in order to arrive at an unbiased estimate of the intrinsic value (Bhalla 2007)

Relying upon this reasoning, the fundamentalists attempt to estimate the real worth of a security by considering the earning potential of a firm, which in turn will depend on investment environmental factors such as state and growth of the national economy, monitory polices of the central bank, Corporate laws, Social and political

environment and the factor. Relating to specific industry such as state of product and growth potential of the industry. It will depend largely, on the firms competitiveness, is quality of management, Operational efficiency, Profitability and capital structure and dividend policy. However, the firm or the stock market cannot be analyzed in the vacuum. All firms worth with in the economic environment, their survival will depend upon how the economy as a whole is facing. During periods of economic prosperity the demands for the goods and services of the firms is likely to result in increased sales and higher profits. The exception of the growth of the economy is favorable to the economy.

In order to obtain investment perspective, we must determine the state of the economic environment in which we invest. Essentially, we must determine the current conditions of the economy, where it is headed, and the implications for the investment decisions. Such an analysis allows us to select the sectors of the economy that appear profitable opportunities. This analysis will also help establish what type of investment should be undertaken among real assets, Risk Less investment, Intermediate or Long term Bonds, or Common Stocks.

3.1.1.2 Technical Analysis:

3.1.1.2.1 Introduction

Technical analysis is the oldest strategy and can be trace back to at lest nineteen century and it had always most controversial aspect of the investment management. The technical analysis is a delusion, that it can never be any more useful in predicting stock performance than examining the indices of a dead sheep, in the ancient Greek traditions.

The term Technical analysis refers to the methodology of forecasting fluctuations and it is used to mean fairly wide range of techniques, all based on the concept that past information on the prices and trading volume of stock gives the enlightened investors picture of what lies ahead. It is use to study not only stock but as well as it uses to study metal prices, Indices etc. It attempt to explain and forecasts changes in the security prices by studying only the market data rather than the company information

or its prospects as is done by fundamental analysis. Bahalla (2007) claims that, "The technicians have elected to study not the mass of fundamentals but certain abstraction namely the market data alone. He is fully aware that is not all......also he is aware that what he is looking it is needed a fairly high order of subtraction and that on the back of it lies the whole complicated world of thing and events. But this technical view provides a simplified and more comprehensible picture of what is happening to the price of the stock. It is like a shadow or reflection in which can be seen the board outline of the whole situation. Furthermore, It works."

The technical analyst believe that the price of a stock is depends on the supply and demand in the market and has little relationship to its value, if any such concepts even exists. Price is governed by the basic economic and psychological inputs so numerous and complex that no individual can hope to understand and measure them correctly. The technician thinks that the only important information to work from is the picture given by the price and volume statistics.

The technician sees the market, disregarding minor changes, moving in the discernible trends with continue for the significant periods. A trend is believed to continue until there is no definite information to change. The past performance of a stock can then be harnessed to predict the future. The direction of price changes is as important as the relative size of the change. With this various tools, The technicians attempts to correctly catch changes in the trend and take advantage of them.

3.1.1.2.2 A Framework for Technical Analysis

Technical Analysis is applied to both an integrate of price and individual stocks. Technical Analysis include the use of Graphs and Indicator. Pricing and volume are the primary tools of the technical analysis and charts are the most common mechanism for displaying that information. Technicians believe that the forces of supply and demand results in particular pattern of price behavior Achelis (2000), The most important is the trend of the overall action of price. Using charts the technicians hopes to identify trend and patterns in the stock that provides signals for the trading.

Volume data used to gauge the general condition in the market and to help assess its trends. The evidence seems to suggest that rising (falling) volume. If stock prices rose but volume activity did not keep pace, technicians would be doubtful about the upward trend. An upward rush on contracting volume would be particular suspect. A downside movement from some pattern or holding points accompanied by heavy volume would be bearish Signal.

3.1.1.2.3 Underlying Assumptions of Technical Analysis

According to Edwards & Magee (1966), the Assumption Technical Analyst base trading decisions on examinations of prior price and volume data to determine past market trend from which they predict future behavior of the Market as a whole and for individual securities. Several Assumptions leads to view this view of price movements.

1) The Market value of any Goods and services is determined solely by the interaction of supply and demand.

2) The numerous factors, Both Rational and irrationals govern supply and Demand. Included in these factors are those economic variables relied on the fundamental analysis as well as opinions, moods and guesses. The market weights all these factors continually and automatically.

3) Disregarding minor fluctuations, the prices for the individual securities and the overall values of the market tend to move in trends, which persist for appreciable length of time.

4) Prevailing Trends change in reactions to shifts in supply and demand relationships. These shifts, no matter, why they occur, can be detected sooner or late in the action of the market itself.

Technicians and non-technicians alike almost universally accept the first two Assumptions all of us known the price is set on the ground of Basic Economic demand and supply rule. In addition, many researchers believe that the demand and

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supply rules governed upon some variables. The difference in the opinion is might be only due to the influence of irrational factors. The technician would influence the irrational factor would resist for long term and the market analyst expect the irrational behavior would be for the short run. Certainly, investors would believe that the market would account for all these factors.

A stronger difference of opinion arises over the technical analyst 3rd assumption about the speed of adjustments of the stock price to changes in supply and demand. Technical analysts expect the stock prices moves in the trend that persist for the long period. Because they believe that, the new information that affects the supply and demand of the stock does not come in the market at the particular point of time but rather enter in the market with over a period of time. This effect occurs because the different investor gets the new at different point of time from different recourse. As various groups of investors from insider trader to the highly professionally traders then to average or small investor hence with this long procedure the price of the stock sets to the new equilibrium gradually. Therefore, technicians do not expect the abrupt price adjustment as the fundamentals and the efficient markets supporters do, but expect a gradual price adjustment to reflect the gradual flow of information (Mosa and Murkraikhi 2007).

3.1.1.2.4 Advantages of Technical Analysis

Although technicians understand the logic of fundamental analysis, technicians see benefits in their approach compared to fundamental analysis. Most technical analyst admits that fundamental analyst with good information, good analytical ability, and a keen sense of information impact on the market should achieve the above average returns. However, this statement requires qualifications. According to technical analysis, it is important to recognize that the fundamental analysis can experience superior returns only if they gets the new information as before the any investor in the market (Irwin and Diego 1987).

In Addition, technical analysis claims that major advantage of their method is that it is not heavily dependent on financial accounting statements. The major sources of information about are the past performance of the firm or industry. The technicians point out the several problems in the accounting statements discussed as below:

1) They lack of great deal of information needed by security analyst, such as details on the sales and general expenses or information related to sales, earnings and capital utilization by product line and customers.
2) According to GAAP Corporation are allowed to record their expense, income, assets and liabilities according to different procedures or these different procedure different results resulting deviating valuation.
3) Many non-Quantifiable and psychological factors do not appear in the financial statements like Goodwill, Honesty, Loyalty of Customer, Training of Human Resources etc.

Therefore, technicians are suspicious about the financial statement and they consider advantages to not depend on them. As you will see that this report only consider the Stock market data regarding sample stock and nothing else.

3.1.1.2.5 Challenges to Technical Analysis Assumptions

The major challenges top the technical analysis is based on the results of the empirical tests of the efficient market hypothesis. Technical trading rules to generate superior risk-adjusted returns after taking account of transaction costs, the market would have to be slow to adjust the prices of the new arrival of the information that is it would have to be inefficient (Ojah and Karemera 1999). The two sets of each form EMH are: (1) the technical analysis of the prices to determine if prices moved in the trend or were a random walk. (2) The analysis of specific trading rules to determine if their use could beat the buy and hold policy after considering the transaction costs and risks. Almost all the study testing the weak form of efficient market hypothesis

using statistical analysis have found that prices do not move in trends based on statistical tests. These results support the efficient Market Hypothesis.

3.1.1.2.6 Challenges to Technical Analysis Trading Rules

An obvious challenge to technical analysis that the past price pattern or relationships between specific market and variables and stock market prices may not be supported. As, a result, a technique that previously worked might miss subsequent market turns. The Possibility leads most technicians to follow several trading rules to seek a consensus of all of them to predict the future market pattern (Coutts and Cheung 2000).

Technical analysis problem is that success of particular trading rules will encourage the many investors to adopt it. It is contended that this popularity and the resulting completion eventually neutralize the value of the technique. If numerous investors focus on the specific technical trading rule, some of them will attempt to anticipate what will happen prior to complete price pattern and either damage the historical price pattern.

3.2 TECHNICAL TRADING TOOLS

Before reviewing historical research, it is useful to first introduce and explicitly define major types of technical trading systems. A technical trading system comprises a set of trading rules that can be used to generate trading signals. In general, a simple trading system has one or two parameters that determine the timing of trading signals. Each rule contained in a trading system is the results of parameterizations.

These systems have been widely used by academics, market participants or both, and, which have been prominently featured in well-known books on technical analysis, such as Schwager (1996), Kaufman (1998), and Pring (2002).

This section describes trading systems which has used for the analysis: Dual Simple Moving Average (10/50 Days) Crossover, Outside Price Channel (Support and Resistance), Relative Strength Index, Bollinger Bands, Moving Average Convergence Divergence (12/26 Days Exponential Moving Average) and Money Flow Index Rule.

3.2.1 Dual Moving Average Crossover

Moving average based trading systems are the simplest and most popular trend-following systems among practitioners (Taylor and Allen 1992) According to Neftci (1991) the dual moving average method is one of the few technical trading procedures that are statistically well defined. The Dual Moving Average Crossover system generates trading signals by identifying when the short-term trend rises above or below the long-term trend. (Lui and Mole 1998). Specifications of the system are as follows:

1. Shorter Moving Average over s days at time t $(SMA_t) = \sum_{i=1}^{s} P_{t-i+1}^{c} / s$, where P_t^c is the close at time t and $s < t$.

2. Longer Moving Average over l days at time t $(LMA_t) = \sum_{i=1}^{l} P_{t-i+1}^{c} / l$, where $s < l \le t$.

B. Trading Rules: Equation 1

In our Case SMA = 10 Days

LMA = 50 Days

SMA (10) < LMA (50)

1. Buy at P_{t+1}^{o} if   &

SMA (10) > Actual Price (Intersect from down)

SMA (10) > LMA (50)

2. Sell at P_{t+1}^{o} if   &

SMA (10) < Actual Price (Intersect from up)

The most commonly used moving averages are of 10, 20, 30, 50, 100, and 200 days. Each moving average provides a different interpretation on what the stock will do; there is not one right time frame it can be alter according to best fit situations. The longer the time spans, the less sensitive the moving average will be to daily price changes. Moving averages are used to emphasize the direction of a trend and smooth

out price and volume fluctuations (or "noise") that can confuse interpretation (Kirkpatrick & Dahlquist 2006). In this research, researcher has found that the use of 200 days and 90 days moving averages will not be appropriate in KSE. Therefore, after heavy working on developing combinations of days for Moving Average he reaches to the best combination of 50 Days moving average for longer period and 10 Days Moving Average for shorter period.

Now let us see how the tool generates trading signals with the help of moving averages. Typically, when a stock price moves below its moving averages it is a bad sign because the stock is moving on a negative trend means in the next period the stock would be bearish. In dual moving average crossovers (Used in Analysis) when 10 days moving average line is above from 50 days moving average line and actual price of Stock intersects the 10 days moving average line from top then this point is termed as sell signal. Similarly, in dual moving averages crossovers (use in our analysis) when 10 days moving average line is below from 50 days moving average line and actual price of Stock intersects the 10 days moving average line from down then this point is termed as buy signal means bullish in the coming days.

3.2.2 Moving Average Convergence Divergence - MACD

The Moving Average Convergence Divergence (MACD) is a trend following momentum indicator that shows the relationship between two moving averages of price. The MACD is the difference between a 26 day and 12 day exponential moving average. A 9 day exponential moving average called the "signal line" is plotted on top of the MACD to show bullish and bearish signals.

Calculation (Example)

MACD

N (EMA Periods) =**12**   K (Smoothing Factors of N) = **2/1+12**

                                                    = **0.15**

In Start, we will consider 12 Days MA as EMA

Lets assume 12 days EMA (Start) of Stock = 10 Rs & Actual Price on 13th day =11

12 Days EMA on 13th day = [(actual price-12 day EMA)*K] + 12 Days EMA

Therefore, 12 days EMA on 13th Day = [(11-10)*0.15] +10 = 10.15

Hence for 14th Day, Calculation of 12 days EMA will follow same practice as followed in calculation of 13th day 12 Days EMA (10.15).

Like If stock Price on 14th Day = 11.15 Rs

Than 12 Days EMA on 14th Day = [(11.15-10.15)*0.15]+10.15 = 10.30

Similarly: for calculating EMA of 26 Days:

N (EMA Periods) =**26**   K (Smoothing Factors of N) = **2/1+26**

                                                              = 0.07

In Start, we will consider 26 Days MA as EMA

Lets assume 26 days EMA (Start) of Stock = 12 Rs & Actual Price on 13th day =11.2

26 Days EMA on 27th day = [(actual price-26 day EMA)*K] + 26 Days EMA

Therefore, 26 days EMA on 27th Day = [(11.2-12)*0.07] +12 = 11.94

Hence, for 28th Day, Calculation of 26 days EMA will follow same practice as follows for 12 days EMA.

After Calculating 12 and 26 days EMA on 27th day

Now MACD on 27th Day Will be

MACD = 12 Days EMA – 26 Days EMA

Calculating Signal Line:

Signal = MA of 9 Days MACD

Hence, the above calculation can be summarizes as follow:-

MACD = EMA(CLOSE, 12)-EMA(CLOSE, 26)

SIGNAL = SMA(MACD, 9)

EMA = the Exponential Moving Average;

SMA = the Simple Moving Average;

SIGNAL = the signal line of the indicator

Trading Signals:

MACD> Signal Line = Bullish (Buy) when Signal Line intersects MACD line from

down it means buy the stock.

MACD< Signal Line = Bearish (Sell) when Signal Line intersects MACD line from

up it means sell the stock.

3.2.3 Relative Strength Index - RSI

RSI is calculated by measuring the ratio of average price gains against average price losses over a specific rolling period. The RSI is an oscillator that ranges between 0 and 100. There are two main signals that can be generated from this indicator:

When talking about the strength of a stock there are a few different interpretations, one of which is the Relative Strength Index (RSI). The RSI is a comparison between the days that a stock finishes up against the days it finishes down. This indicator is a big tool in momentum trading. The RSI is a reasonably simple model that anyone can use. It is calculated with the following formula.

RSI = 100 - [100/(1 + RS)]   **Equation 2**

Where:

RS = (Average of n-day up closes) / (Average of n-day down closes)

n= days (most analysts use 9 - 15 day RSI)

Oversold/overbought signals

When the RSI turns up, developing a trough from below 30, it suggests the price is oversold and likely to rally. Conversely, when the RSI turns down, making a peak above 70, it suggests that the price is overbought and likely to drop.

One point to make is that one should put this indicator into perspective: the fact that it has risen above 70 cannot be construed as entirely bearish, rather it is telling us that the security is making consistently higher closes - a sign of strength. We like to think

of the basic "overbought" signal as more of a warning that there is, in the short term, a higher *probability* of a pull-back or profit-taking rather than a sell signal. The RSI divergence signal below has greater longer term consequences for trend.

This research has used 15 days RSI. The over sold and over bought limits of 70 is not written on stone, in a bull market some believe that 80 is a better level to indicate an overbought stock since stocks often trade at higher valuations during bull markets. Likewise, if the RSI approaches 30 a stock is considered oversold and you should consider buying. Again, make the adjustment to 20 in a bear market. The shorter number of days used, the more volatile the RSI is and the more often it will hit extremes. A longer term RSI is more rolling, fluctuating a lot less. Different sectors and industries have varying threshold levels when it comes to the RSI. Stocks in some industries will go as high as 75-80 before dropping back and others have a tough time breaking past 70. A good rule is to watch the RSI over the long term (1 year or more) to determine what level the historical RSI has traded at and how the stock reacted when it reached those levels.

Therefore, as suggested above in this research oversold and overbought lines have been adjusted according to respected trends of individual sample stock in one year. Mean we have marked oversold and over bought line where maximum high and low, points of RSI had approached.

Bohan (1981) and Brush (1986) indicated that when used to rank securities, the relative strength index adds value. As a result of their testing of trading systems (involving cumulative volume, relative strength, and moving averages as applied to equity and options price).

3.2.4 Money Flow Index - MFI

As stated in 'Stock Charts' that the Money Flow Index (MFI) measures the strength of money flowing into and out of a stock. The difference between the RSI and Money Flow is that where RSI only looks at prices, the Money Flow Index also considers volume. Means looking the total amount of money being invested in the particular stock.

Calculating Money Flow is a bit more difficult than the RSI:
Equation 3

First, you need the average price for the day:

Average Price = (Day High + Day Low + Close)/3

Now we need the Money Flow:

Money Flow = Average Price x Day's Volume

Now, to calculate the money flow ratio you need to separate the money flows for a period into positive and negative. If the price was up in a particular day this is considered to be "Positive Money Flow". If the price closed down it is considered to be "Negative Money Flow".

Money Flow Ratio = Positive Money Flow/Negative Money Flow

Similarly, like RSI It is the Money Flow Ratio that is used to calculate the Money Flow Index.

MFI = 100 - [100/(1 + MFR)]

The Money Flow index ranges from 0 to 100. Just like the RSI, a stock considers an overbought in the 70- 80 range and oversold in the 20-30. The MFI can interpret in similar way of RSI and similarly it signal divergences and overbought/oversold condition.

3.2.5 Bollinger Bands

Developed by John Bollinger, Bollinger Bands are an indicator that allows users to compare volatility and relative price levels over a period time. The indicator consists of three bands designed to encompass the majority of a security's price action.

1. A simple moving average in the middle (SMA discussed above)
2. An upper band (SMA plus 2 standard deviations)

3. A lower band (SMA minus 2 standard deviations)

Standard deviation is a statistical unit of measure that provides a good assessment of a price plot's volatility. When the markets become more volatile, the bands widen and they contract during less volatile periods. The closer the prices move to the upper band, the more overbought the stock is. The closer the prices move to the lower band, the more oversold the stock is. (Bollinger 2001). Among above discussed over bought and over sold situation, actual price line has also used in between of three lines for generating signals at correct appropriate point. Closing prices are most often used to compute Bollinger Bands. Other variations, including typical and weighted prices, can also be used.

Bollinger recommends using a 10/20-day simple moving average for the center band and 2 standard deviations for the outer bands. The length of the moving average and number of deviations can be adjusted to better suit individual preferences and specific characteristics of a security. Trial and error is also a method to determine an appropriate moving average length. A simple visual assessment can be used to determine the appropriate number of periods hence this research has used 10 days moving average. Bollinger Bands should encompass the majority of price action, but not all. After sharp moves, penetration of the bands is normal. If prices appear to penetrate the outer bands too often, then a longer moving average may be required. If prices rarely touch the outer bands, then a shorter moving average may be required.

A more exact method to determine moving average length is by matching it with a reaction low after a bottom. For a bottom to form and a downtrend to reverse, a security needs to form a low that is higher than the previous low. Properly set Bollinger Bands should hold support established by the second (higher) low. If the second low penetrates the lower band, then the moving average is too short. If the second low remains above the lower band, then the moving average is too long. The same logic can be applied to peaks and reaction rallies. The upper band should mark resistance for the first reaction rally after a peak.

Now lets we look how the Bollinger band generates signals. The selling signal (Bearish) would be generated when moving average line is above the actual stock price line, while at the same time it also touching the upper band. Similarly when moving average line is below the actual stock price line while at the same time it is also touching the lower band than this would termed as buy signal (Bullish). Many researchers has consensus upon that the Bollinger band is not useful tool for generating the trading signals for the stock. (Flaskerud 2000)

3.2.6 Support and Resistance

Understanding the concepts of Support and resistance is vital in developing a disciplined trading strategy. Prices are dynamic, reflecting the continuing change in the balance between supply and demand. By identifying the price levels at which these balances change, we can plan not only the price level at which to purchase but also the level at which we can subsequently sell (and vice versa for a short trade). Whilst these levels may be created by the markets subconsciously, they represent the collective opinions of the participants in the markets.

In the financial markets, prices are driven by excessive supply (down) and demand (up). Supply is synonymous with bearish, bears and selling. Demand is synonymous with bullish, bulls and buying. These terms are used interchangeably throughout this and other articles. As demand increases, prices advance and as supply increases, prices decline. When supply and demand are equal, prices move sideways as bulls and bears slug it out for control.

What Is Support?

Support is the price level at which demand is thought to be strong enough to prevent the price from declining further. The logic dictates that as the price declines towards Support and gets cheaper, buyers become more inclined to buy and sellers become less inclined to sell. By the time the price reaches the Support level, it is believed that demand will overcome supply and prevent the price from falling below support.

Support does not always hold and a break below Support signals that the bears have won out over the bulls. A decline below Support indicates a new willingness to sell or a lack of incentive to buy. Support breaks and new lows signal that sellers have reduced their expectations and are willing sell at even lower prices. In addition, buyers could not be coerced into buying until prices declined below Support or below the previous low. Once Support is broken, another Support level will have to be established at a lower level.

What is Resistance?

Resistance is the opposite of Support and is the level at which the volume of selling (supply) outweighs the volume of buying (demand). These mini-levels can change frequently but over time a clear pattern emerges and firm levels become established. Resistance does not always hold and a break above resistance signals that the bulls have won out over the bears. A break above resistance shows a new willingness to buy and/or a lack of incentive to sell. Resistance breaks and new highs indicate buyers have increased their expectations and are willing to buy at even higher prices. In addition, sellers could not be coerced into selling until prices rose above resistance or above the previous high. Once resistance is broken, another resistance level will have to be established at a higher level.

Methods to Establish Support Resistance

Support and resistance are like mirror images and have many common characteristics. Highs and Lows Support can be established with the previous reaction lows. Resistance can be established by using the previous reaction highs. After each bounce off Support, the stock traded all the way up to resistance.

3.3 EMPIRICAL STUDIES

Numerous empirical studies have tested the profitability of various technical trading systems, and many of them included implications about market efficiency. Most early

studies generally examined one or two trading systems and considered transaction costs to compute net returns of trading rules. However, risk was not adequately handled, statistical tests of trading profits and data snooping problems were often disregarded, and out-of-sample verification along with parameter optimization were omitted, with a few exceptions. In contrast, modern studies simulate up to thousands of technical trading rules with the growing power of computers, incorporate transaction costs and risk, evaluate out-of-sample performance of optimized trading rules, and test statistical significance of trading profits with conventional statistical tests or various bootstrap methods.

It is note worthy that during the last decade academics' interest in technical trading rules has increased dramatically, particularly in stock markets and foreign exchange markets. The number of technical trading studies over the 1995-2004 period amounts to about half of all empirical studies conducted since 1960.

3.3.1 Technical Analysis in Madrid Stock Exchange

Fernando (1999 p.25) maintains that "we have investigated the possibility that technical rules contain significant return forecast power........Our results suggest that technical trading rules generate buy signals that consistently yield higher returns than sell signals, suggesting that technical analysis does have power to forecast price movements. our results provide strong Support for profitability of simple technical trading rules and are in general consistent with those previously reported by BLL (1992) for the Dow Jones Index from 1897 to 1986, suggesting that earlier conclusions that found technical analysis to be useless might have been premature."

Fernando has evaluated simple forms of technical analysis for the General Index of the Madrid Stock Exchange (IGBM), using daily data for the thirty-one-year period from 1966 to 1997. In his research, he found that the returns following buy signals are less volatile than returns on sell signals. He also finds that returns following sell signals are negative, which could not easily explained by any of the currently existing equilibrium models. He also used bootstrap methods and technical trading rules for

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checking the adequacy of several models frequently used in finance. At the end Fernando, find that returns obtained from buy (sell) signals from the actual IGBM series are not likely generated by any of these models. Not only do they fail in predicting returns, but they also fail in predicting volatility.

Therefore, He strongly Support for profitability of simple technical trading rules to be useless might have been premature. Nevertheless, He also witnessed that the reported gains may not seem to be high enough to translate into profits after transaction costs are considered. It would be worthwhile to investigate the performance more elaborate trading rules and their profitability after transaction costs and brokerage fees taken into account.

3.3.3 Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation

LO, MAMAYSKY & WANG (2000) proposed a new approach to evaluating the efficiency of technical analysis. Based on smoothing techniques such as nonparametric kernel regression, their approach incorporates the essence of technical analysis: to identify regularities in the time series of prices by extracting nonlinear patterns from noisy data. Although human judgment is still superior to most computational algorithms in the area of visual pattern recognition, recent advances in statistical learning theory have had successful applications in fingerprint identification, handwriting analysis, and face recognition.

Technical analysis may well be the next frontier for such methods. In its study he found that certain technical patterns, when applied to many stocks over many time periods, do provide incremental information, especially for NASDAQ stocks. Although this does not necessarily imply that technical analysis can be used to generate "excess" trading profits, it does raise the possibility that technical analysis can add value to the investment process.

Their methods suggest that technical analysis can be improved by using automated algorithms such as ours and that traditional patterns such as head-and-shoulders and

rectangles, although sometimes effective, need not be optimal. In particular, it may be possible to determine "optimal patterns" for detecting certain types of phenomena in financial time series. Moreover, patterns that are optimal for detecting statistical anomalies need not be optimal for trading profits, and vice versa. Such considerations may lead to an entirely new branch of technical analysis, one based on selecting pattern-recognition algorithms to optimize specific objective functions.

3.3.4 The Profitability of Technical Analysis: A Review

Park and Irwin (2004) point out the evidence on the profitability of technical Analysis with the help of survey, theoretical and empirical studies regarding technical trading strategies. In their study, they directly investigated market participants' experience and views on technical analysis. Their survey literature indicates that technical analysis has been widely used by market participants in futures markets and foreign exchange markets, and that about 30% to 40% of practitioners appear to believe that technical analysis is an important factor in determining price movement at shorter time horizons up to 6 months.

They also incorporated an overview of theoretical models that include implications about the profitability of technical analysis. Conventional efficient market theories, such as the martingale model and random walk models, rule out the possibility of technical trading profits in speculative markets, while relatively recent models such as noisy rational expectation models or behavioral models suggest that technical trading strategies may be profitable due to noise in the market or investors' irrational behavior. In this study, the empirical literature is categorized into two groups, "early" and "modern" studies, according to the characteristics of testing procedures. Early studies indicated that technical trading strategies were profitable in foreign exchange markets and futures markets, but not in stock markets before the 1980s. Modern studies indicated that technical trading strategies consistently generated economic profits in a variety of speculative markets at least until the early 1990s. Among a total of 92 modern studies, 58 studies found positive results regarding technical trading strategies, while 24 studies obtained negative results. Ten studies indicated mixed

results. Despite the positive evidence on the profitability of technical trading strategies, it appears that most empirical studies are subject to various problems in their testing procedures, e.g., data snooping, ex post selection of trading rules or search technologies, and difficulties in estimation of risk and transaction costs.

3.3.5 Simple Technical Trading Rules and Stochastic Properties of Stock Returns

Brock, Lakonishok and LeBaron (1992 p.1757) highlight that, "The recent studies on predictability of equity returns from past returns suggest that the conclusion reached by many earlier studies that found technical analysis might have been premature". In their research, they tried to investigate only two most simple and popular trading rules i.e. moving averages and trading range breakout strategies. After utilizing a very long data series of DJIA from 1897 to 1986. The results of their efforts had strongly Supported the technical strategies. In their research, they found that the trading signals generated returns are higher (or lower) than normal returns, typically difference in returns over a 10-day between buy and sell signals is about 0.8% that is sizable when compared to a "Normal" 10-day upward drift of about 0.17%. Their results are consistent with technical trading rules having predictive power. They further said that the returns generated by previously tools is probably more complicated it is quit possible that technical trading rules pick up some of the hidden patterns.

3.3.6 Charting: Chaos Theory in Disguise

Clyde and Osler (1997 p.489) postulated, "Technical modeling methods may represent crude but useful ways of exploring non linear qualities in Data". By testing moving averages among a number of technical indicators, Taylor's (1994) application of a channel rule to a number of different futures currency contracts and Blume, Easley and O'Hara's (1994) study of sequencing in volume and price data provided further Support for technical analysis.

Chapter 04
Research – Methodology & Procedures

4.1. RESEARCH DESIGN

This research is completely base on the secondary data. The required data for this research has gathered mainly from Karachi Stock Exchange and Newspapers Business Recorder and Financial daily. This is a quantitative research and in this research, the problems and profitability regarding the Technical Analysis in Stock Markets of Pakistan has highlighted.

4.2. RESPONDENTS OF THE STUDY

This research is directly relates to the three stock exchanges of Pakistan i.e. KSE, LSE and ISE. SECP being the regulator is the main concern with this study. Broker community is the mainly effected party of this issue and the study can bring awareness among the respondents with the help of international scenario analysis.

4.3. RESEARCH INSTRUMENTS

The research instruments that will be helpful in extraction of price data are Internet, books, newspaper, magazines and Financial Journals. For the analysis, this research has chosen Banking Sector of the Karachi Stock Exchange.

4.4 POPULATION

The population of this research is the entire socks listed in Karachi Stock Exchange. The available time does not allow author for going population research. Another reason is that, the technical analysis is most useful items for the key volume leaders or blue-chip items. It is useless to utilize the research analysis for the entire stock. It has also proved in this research that less attractive stocks of the research sample do not produce sufficient results with technical trading rules.

4.5 SAMPLE

The sample stocks for this research include only commercial banks listed in the stock markets of Pakistan. The selection criteria for the sample stocks were a) The stock should be old enough 2/3 years, b) No merging acquisition has taken place. The names of the sample Banks stocks are as follows:

- MCB Bank
- United Bank Limited
- National Bank Limited
- Allied Bank Limited
- Bank of Punjab
- Bank-Al-Fallah
- Bank-Al-Faysal
- Soneri Bank
- Mezaan Bank Limited
- Bank-AL-Habib

4.4. TREATMENT OF DATA

This research gathered complete one year (3-1-2007 to 31-12-2007) daily data (open, close, high, low & Volume) of Sample Banks Prices. All the gathered prices have comparatively analyzed with the popular international Technical trading rules (discussed above). The report has also included the practical test of the research analysis on the 1st quarter of 2008. At the end, this report also Ranks the technical trading rules according to the highest return provided on all samples stocks.

4.5. PRESENTATION ANALYSIS

The presentation of the research analysis is in the form of graphs and Tables. The graphical presentation is helpful and mainly used in Technical Analysis because Technicians mostly works on the Charts for predicting the stock and they even called as CHARTISTS.

Chapter 05
Findings and Analysis

5.1 DESCRIPTIVE STATISTICS of SAMPLE BANKS

Table 1 DESCRIPTIVE STATISTICS of SAMPLE BANKS *(From Jan 07 to Dec 07)*

No	Banks	S.D	CV	Price			Return (Daily)		
				Mean	Maximum	Minimum	Mean	Maximum	Minimum
1	MCB	0.0222	7.5753	325.4772	433	258	0.2930%	5%	-5%
2	UBL	0.0213	12.5548	183.2953	224.25	155	0.1910%	5%	-5%
3	NBP	0.0190	19.8372	251.5632	297.8	220.05	0.1167%	5%	-5%
4	ABL	0.0225	8.9990	116.9358	145.45	93	0.2720%	5%	-5%
5	Al Fallah	0.0232	9.7881	52.76255	65.1	42.85	0.2588%	5%	-5%
6	Al Habib	0.0173	8.3548	67.5969	83	55.65	0.2317%	5%	-5%
7	Faysal	0.0178	11.2212	69.55144	80.1	61.35	0.1795%	5%	-5%
8	BOP	0.0217	13.2580	105.6097	128.4	86.55	0.1851%	5%	-5%
9	Soneri	0.0245	23.2294	49.95185	62.85	38.2	0.1260%	5%	-5%
10	Mezan	0.0204	6.8274	28.71214	42.5	19.1	0.3203%	5%	-5%

DESCRIPTION

After the Analysis of Table 5.1, in the CV column we can simply understand that Soneri and NBP Bank stocks are most risky. ABL, Al-Fallah, Al-Habib and Mezan Banks lie in the least risky stocks category. UBL, BOP and Fysal Bank Lie in the Average risky stocks category listed in commercial bank sector of KSE. If you see the CV of Soneri Bank, it shows that investment in Soneri bank associate 23 times risk with every 1 unit of return. Similarly, least risky stocks have around 7 to 9 time risks associated with 1 unit of return and with average risky stock the CV stands to 11 to 14 times.

The other important think is the minimum and maximum percentage of changes in the price of the observed data is restricted to 5% to -5%, it is because the upper and lower cap for every stock listed in KSE is +-5% or 1 Rs which ever is greater. Therefore, sample stock prices are more than 30 Rs and lies in +-5 percentage cap rule.

5.2 RISK AND RETURN

Table 2 RISK AND RETURN OF SAMPLE BANKS

No	Banks	r	b	CAPM
1	MCB	0.67312	1.30407	29.73%
2	UBL	0.54805	1.02419	25.38%
3	NBP	0.80771	1.3456	30.37%
4	ABL	0.59867	1.18337	27.85%
5	Al Fallah	0.64256	1.3097	29.82%
6	Al Habib	0.55309	0.83721	22.47%
7	Faysal	0.49515	0.77177	21.45%
8	BOP	0.70415	1.34288	30.33%
9	Soneri	0.46223	0.99183	24.87%
10	Mezan	0.42639	0.76302	21.31%

Where: Values = From 3-Jan-2007 to 31-12-2008 (Analysis Sample)
*   r   = Correlation with KSE-100 Index*
*   b   = Beta of the Stock*
*   CAPM =Required Rate of Return from the Stock.*

Equation 4

CAPM = [Krf+(Km-Krf)b]

5.2.1 CAPM FACTORS ASSUMPTIONS

1) Risk Free Rate has considered being 9.45% for the One Year Government T-Bill.

2) Market Rate has considered as 25% because in the analysis of our Commercial Bank sector the average return from Banks stock is around 25%.

5.2.2 RISK AND RETURN ANALYSIS of THE SELECTED BANKS

The reason behind calculating CAPM of every sample bank is to find out the profitability of each trading rule on the benchmark of CAPM Return. If the tool is not providing the required rate of return up to the benchmark of CAPM than the tool would be termed as bad indicator for the stock trading.

5.3 ANALYSIS ON TECHNICAL TRADING RULES

ANALYSIS ASSUMPTIONS:

1) *We will not go for high risk and high return.*

2) *The Market should be closely monitored and awareness of all public Information (Financial and Non-Financial) should be known to the investor.*

3) *After dividend announcement, buying price of the stock should be clearly evaluated on the grounds of dividend receivable adjustments.*

4) *The Stock of healthy dividend Payments Company should buy after the payment of the dividends or after the ex out of dividends.*

5) *Our Analysis is based on One Year from 3-Jan-2007 to 31-December-2008 and practical test of these analysis on 1st quarter of 2008 means 1-January-2008 to 31-March-2008)*

6) *For calculating Return of each trading rules we will assume buying and selling of only one stock and compulsory sale on 31-March (if sell signal not generated previously) to evaluate the effectiveness of each tool.*

7) *Understanding of below discussed material requires complete understanding of literature review section of this report.*

5.3.1 MCB BANK

5.3.1.1 MOVING AVERAGE (50/10 DAYS)
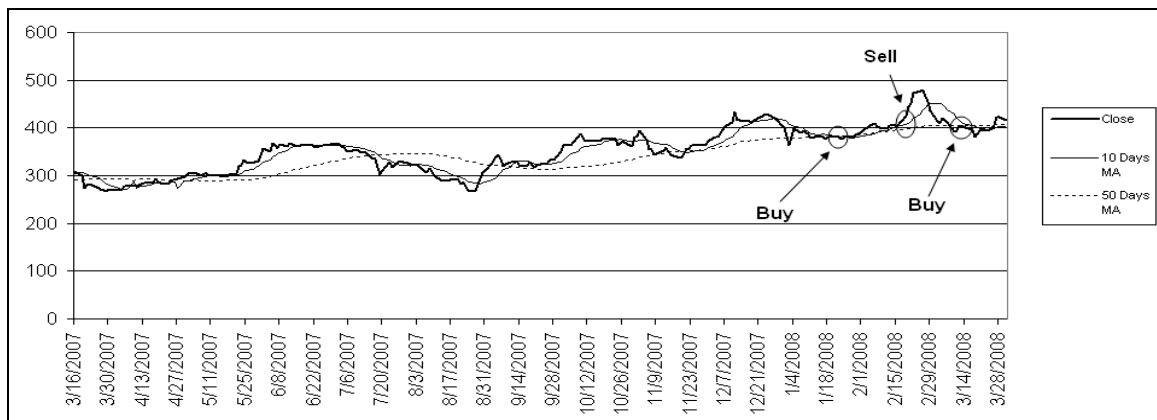
Figure 1 - MCB MOVING AVERAGE (50/10 DAYS)

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DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 1) on the one-year data of MCB stock prices for analysis and one-quarter year for empirical test. It found that on 14th of January when actual price intersect the 50 Days MA and 10 Days MA from down, generates the Buy Signal at price of Rs 379. Similarly, on 15th of February when actual price intersect the 50 Days MA and 10 Days MA from up, generates the Sell Signal at a price of Rs 402. In the sell signal of 15th of March, it seems to be not so profitable because within 10 days on 27th of February the high price was 485 Rs. As far as our assumption holds, the author would not go for the high risk and high return Therefore, at this point we could not get the full fruits of that speculation. This point also goes in the favor of technical analysis that within week the Price of MCB comes back to its technical value. It was a big issue criticized by every analyst and newspaper Parekh (2008) summarize that it was the foreign investment behind all that speculation. Similarly, on 20th of March when actual price intersect the 50 Days MA and 10 Days MA from down generates the Buy Signal at a price of Rs 400. Therefore, at the end of research analysis time i.e. 31st March If we sell the previously buy stock on 31st March at the price of Rs 415, then it found that the return provide from 10/50 Days MA is around 36.65% which is well above of required CAPM. The tabular detail of the above-discussed fact is available in Table 1.
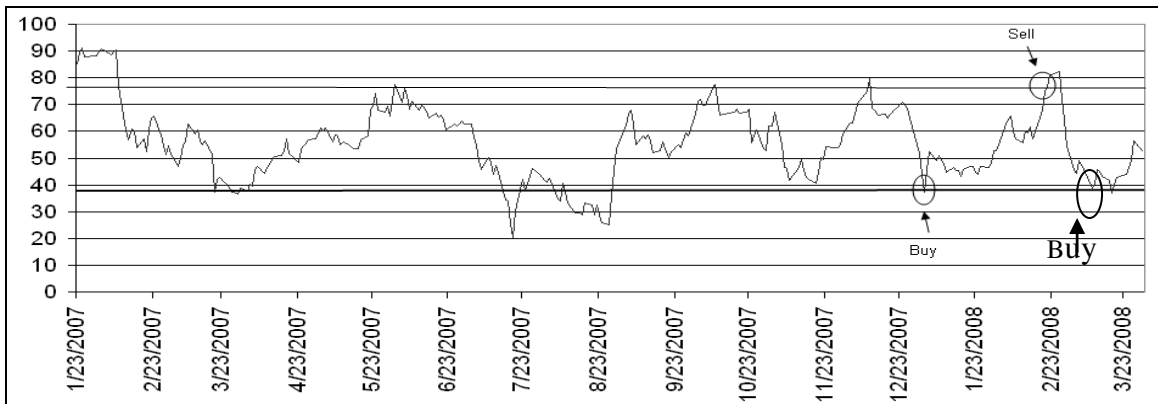
5.3.1.2 BOLLINGER BAND
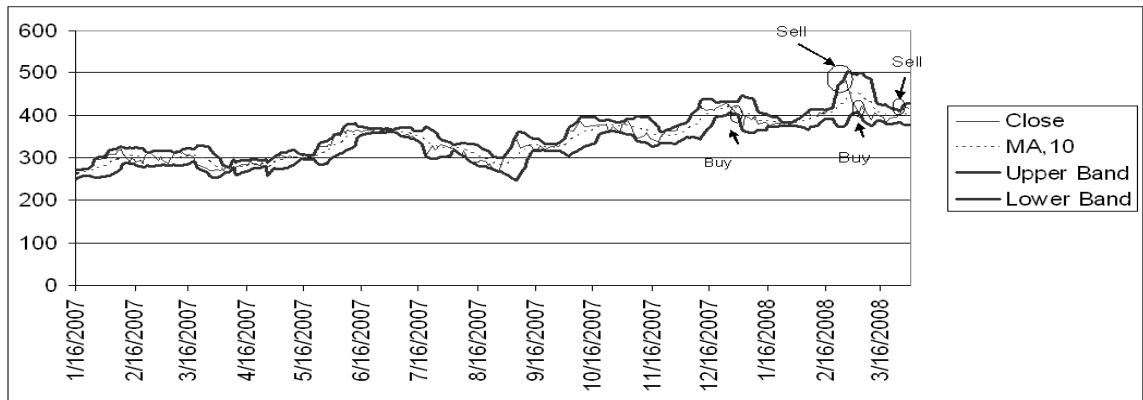
Figure 2 – MCB BOLLINGER BAND

DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 2) on the one-year data of MCB stock prices for analysis and one-quarter year for empirical test. It has found that, on January 1 when actual price was below the 10 Days MA and was touching the lower band, generated buy signal at the price of Rs 382. In the one-year analysis of Bollinger band it happened several times that the upper Bands, Lower bands, Closing and 10 Days MA comes on same point therefore, it do not generate any signal on these points. Similarly, after our buying the period from 20 January to 30 January the all-valuating factor keep adjacent and its do not generates sell signal. On 26th of February when the closing price leaves, the upper band or start declining from the point of upper band generated the sell signal at the price of Rs 480. The Bollinger band is quit successful in getting the full fruits of the foreign investment speculation. On 4th of March 2008 when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 408. Similarly, on 28th of March when the closing price leaves, the upper band or start declining from the point of upper band it generates the sell signal at the price of 421 Rs. The annual return provide by Bollinger band investment techniques for our three months empirical test is around 109% which is very high and witnessed that this tool can be used for earning profits in the speculative conditions too. The tabular detail of the above-discussed fact is available in Table 1.

5.3.1.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
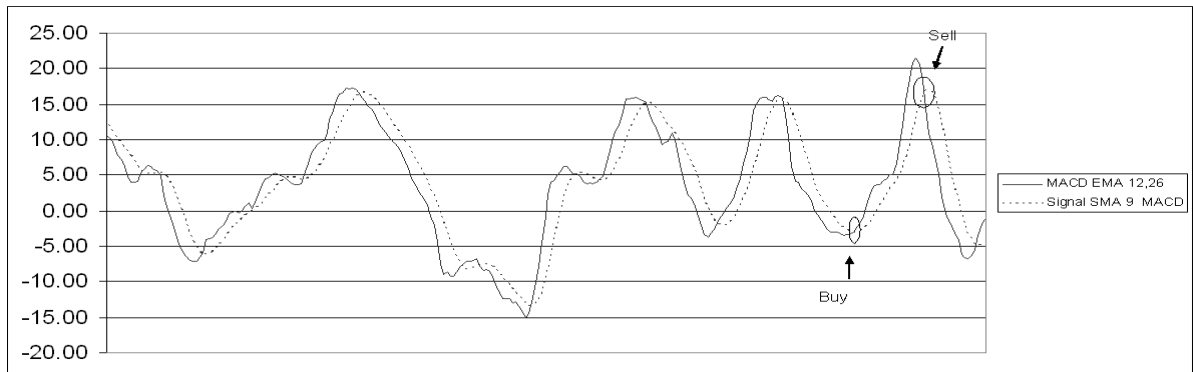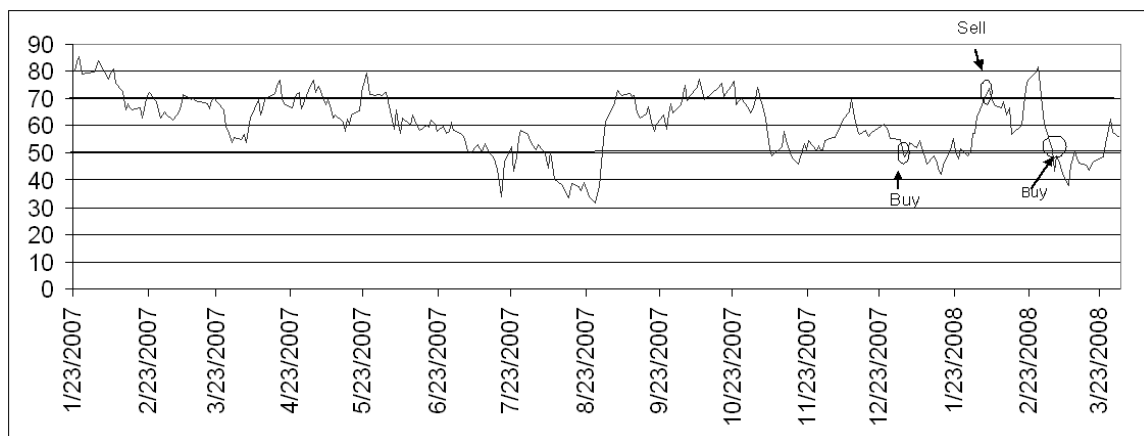

Figure 3 – MCB MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 3) on the one-year data of MCB stock prices for analysis and one-quarter year for empirical test. It is found that, on the 30th January when the MACD line intersects signal line from downward or when MACD > Signal line it generated buy signal at the price of Rs 388. Similarly, on 29 February when MACD line intersects signal line from upward or when MACD<Signal line it generated sell signal at the price of Rs 435. MACD fails to response the speculative price movement discussed above but generate comprehensive signals to earn annul profit of around 48% which is also well above from our required CAPM. and The tabular detail of the above-discussed fact is available in Table 1.

5.3.1.4 RELATIVE STRENGTH INDEX

Figure 4 – MCB RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 4) on the one-year data of MCB stock prices for analysis and one-quarter year for empirical test. We found that, the over sold line in the case of MCB will not workable at the 30 or 35 point level, It should be increase to 39-40 point levels where maximum low points are intersecting. Similarly the 70-75 point line for finding out the over bought situation is not appropriate for the MCB, it has to be increased to 78/79 point levels. After adjusting overbought and over sold lines on 2 January when the RSI line touched the

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oversold line, it generates the buy signal at the price of Rs 363. On 20 February when RSI touched the overbought line, it generated the sell signal at the price of Rs 445. On 18 March when the RSI line touched the oversold line again, it generates the buy signal at the price of Rs 382. Therefore, at the end of the analysis time i.e. 31 March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of Rs. 415 and try to find out the return provided by the stock with the help of RSI tool. Than it is found that, RSI had provided the good profit and the annual return is around 126% which is well above of our required CAPM and also RSI is responding perfectly to the speculative position appear in the market discussed above. The tabular detail of the above-discussed fact is available in Table 1.

5.3.1.5 MONEY FLOW INDEX

Figure 5 – MCB MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 5) on the one-year data of MCB stock prices for analysis and one-quarter year for empirical test. It found that, the over sold line in the case of MCB will not workable at the 30 or 35-point level. It should be increase to 50-point levels, where maximum low points are intersecting. The 70-point level for finding out the over bought situation is appropriate for the MCB. On 2 January when the MFI line touched the oversold line, it generates the buy signal at the price of Rs 363. On 4 February when MFI touched

the overbought line, it generated the sell signal at the price of Rs 404. On 5 March when the MFI line touched the oversold line again, it generates the buy signal at the price of Rs 420. Therefore, at the end of research analysis time i.e. 31 March our tool did not generate the sell signal. If we sell the previously buy stock on 31 March at the price of 415 Rs and try to find out the return provided by the stock with the help of MFI tool. Than it found that, MFI had provided the good profit and the annual return is around 40.22% that is well above of our calculated. The tabular detail of the above-discussed fact is available in Table 1.

5.3.1.6 SUPPORT AND RESISTANCE LEVEL
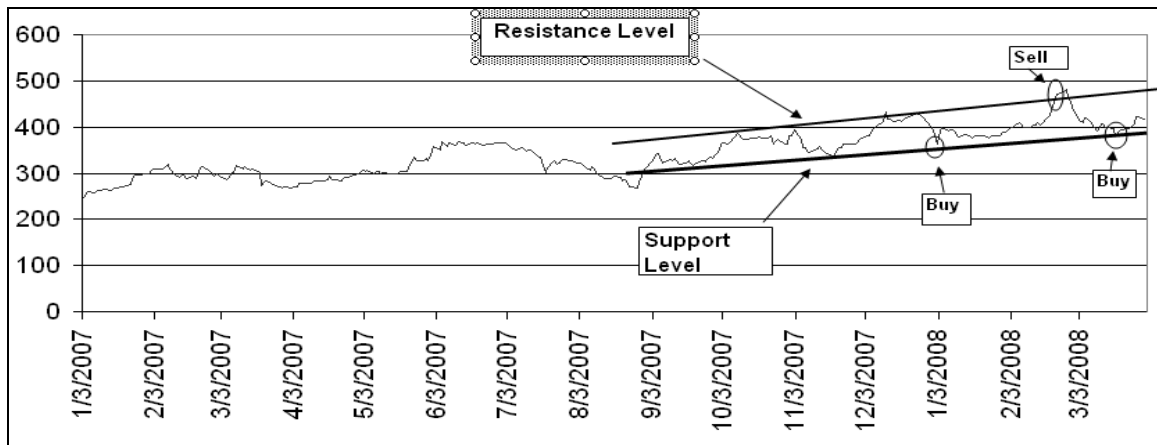
Figure 6 – MCB SUPPORT AND RESISTANCE

DESCRIPTION
The Support and resistance level for technical analysis is a very subjective approach and different point of views could be exist, but their actual return will provide the result for best gut feeling applied by the analyst. Therefore, in the case of MCB analysis of one year, the author have marked out the Support and resistance level for the first quarter of 2008 on his gut feeling represented in figure 6. According to marked Support and resistance levels on 2 January when the closing price line touched the Support level it generates the buy signal at the price of Rs 363. On 4 February when the closing price line touched the resistance level, it generates the sell signal at the price of Rs 404. Similarly, on 18 March when the closing price line

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touched the Support level, it generates the buy signal at the price of Rs 382. It also do not able responds the speculative opportunity in the market discussed above. Therefore, at the end of the research analysis time i.e. 31 March our tool did not generate the sell signal. If we sell the previously buy stock on 31 March at the price of Rs 415 than it is found that Support and resistance level had provided the good profit and the annual return is around 82% that is well above of our calculated CAPM. The tabular detail of the above-discussed fact is available in Table 1.

5.3.1.7 TOOLS RETURN ANALYSIS

Table 3 Tool Ranking for MCB

No	Moving Average 10,50 Days	Prices	Profit	Return	Annual Return	Rank
	Date					
1	14-Jan (Buy)	-382				
2	15-Feb (Sell)	402	20			
3	20-Mar (Buy)	-400				
	31-Mar (Sell)	415	15	9.16%	36.65%	
	Bollinger Band					
1	1-Jan (Buy)	-382				
2	25-Feb (Sell)	477	95.00			
3	3-Mar (Buy)	-413				
	27-Mar (Sell)	423	10.00	27.49%	109.95%	2
	MACD					
1	30-Jan (Buy)	-388				
2	29-Feb (Sell)	435	47.00	12.4%	48.4%	
	RSI					
1	2-Jan (Buy)	-363				
2	20-Feb (Sell)	445	82.00			
3	18-Mar (Buy)	-382				
	31-Mar (Sell)	415	33.00	31.68%	126.72%	1
	MFI					
1	2-Jan (Buy)	-363				
2	4-Feb (Sell)	404.5	41.5			
3	5-Mar (Buy)	-420				
	31-Mar (Sell)	415	-5	10.06%	40.22%	
	Suport and Resistance					
1	2-Jan (Buy)	-363				
2	4-Feb (Sell)	404.5	41.50			
3	18-Mar (Buy)	-382				
	31-Mar (Sell)	415	33.00	20.52%	82.09%	3

5.3.2 United Bank Limited

5.3.2.1 MOVING AVERAGE (50/10 DAYS)
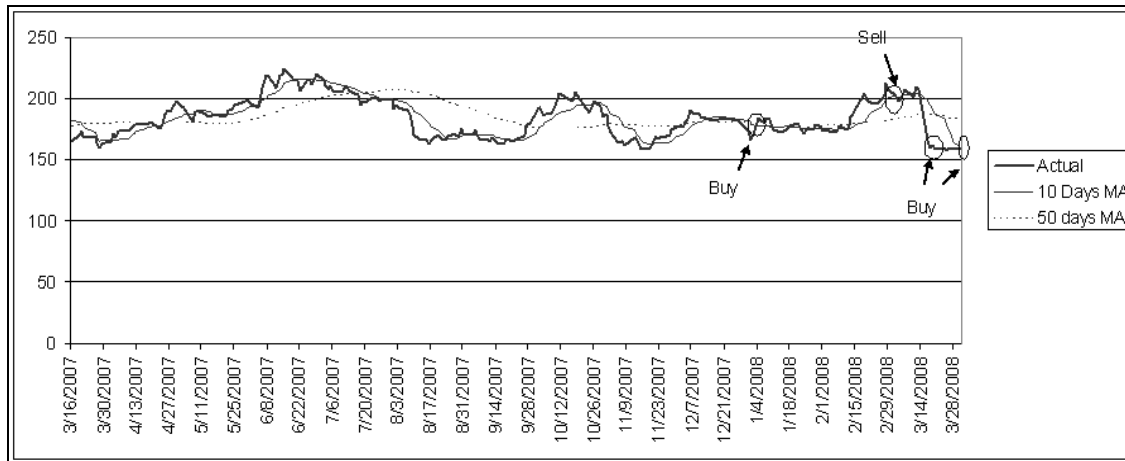
Figure 7 – UBL MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 7) on the one-year data of UBL stock prices for analysis and one-quarter year for empirical test. It found that, on 4th of January when actual price intersect the 50 Days MA and 10 Days MA from down, it generates Buy Signal at price of Rs 183. Similarly, on 3rd of March when actual price intersect the 50 Days MA and 10 Days MA from up it generates Sell Signal at a price of Rs. 202. On 17th March in figure 7 we can observe a sharp decline in price pointed out by the second buy arrow. This is because the company has paid out the dividend and the price is adjusted according to dividend payment. Hence, according to the research assumptions this point represents buy signal for the UBL Stock and even if we do not buy at that time our tool is giving a buy signal on 31st march at a price of Rs. 160 which is lesser than the dividend adjustment price as well as time of investment has been also reduced. Therefore, this point is going in the favor of technical analysis for generating buy signal but for sale, if your tool did not generate the sell signal and you forgot to sale, than you do not need to worry the difference will be received in the form of dividend latter and you would not have any loss. Nevertheless, the researcher recommendation is to sell the

stock on the last trading day before the book closure. It is because by doing that investor will reduce his investment time (by unblocking investment in the form of dividends that will be receive after minimum one month) resulting increase in yield. Therefore, at the end of our analysis time i.e. 31st March if we find out the return provided by the stock with the help of Moving average is around 41.2% annually which is well above of our calculated CAPM. The tabular detail of the above-discussed fact is available in Table 2.

5.3.2.2 BOLLINGER BAND
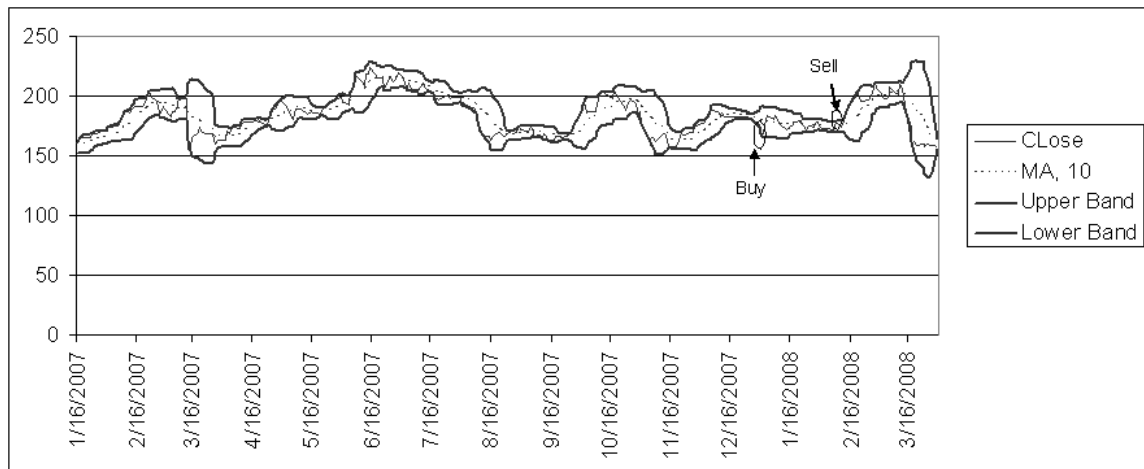
Figure 8 – UBL BOLLINGER BAND

DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 8) on the one-year data of UBL stock prices for analysis and one-quarter year for empirical test. It is found that on the 3rd of January when actual price was below the 10 Days MA and touched the lower band, it generated buy signal at the price of Rs 176. On 11th of February when the closing price leaves the upper band or start declining from the point of upper band, it generated the sell signal at the price of Rs 174 resulting loss of 2 Rs per Share. On 18th March 2008 when actual price was below the 10 Days MA and touched the lower band, it generated buy signal at the price of 158 Rs which is adjusted after dividend ex out. Therefore, at the end of the research analysis time i.e.

31st March our tool did not generates sell signal and if we want of to calculate the return by forced selling on 31st March it is found that the three months return provide by Bollinger band investment techniques for our empirical test is around -7.61%. That is very shocking and witnessed that Bollinger band is not useful tool for UBL. The tabular detail of the above-discussed fact is available in Table 2.

5.3.2.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
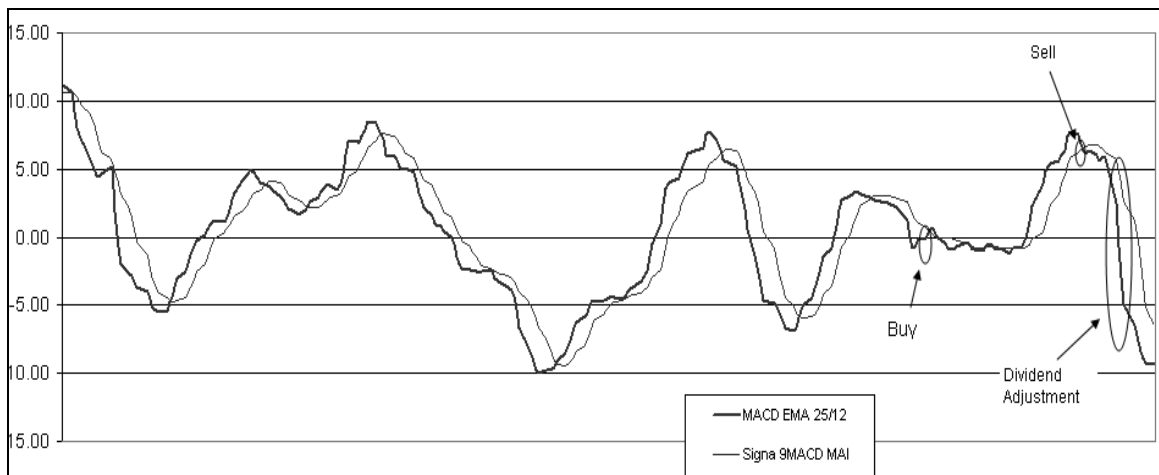
Figure 9 – UBL MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 09) on the one-year data of UBL stock prices for analysis and one-quarter year for empirical test. It is found that, on the 8th January when the MACD line intersects signal line from downward or when MACD > Signal line it generated buy signal at the price of Rs 184. Similarly, on 6th March when MACD line intersects signal line from upward or when MACD < Signal line it generated sell signal at the price of Rs 201. Therefore, the annul profit generated by the signal of MACD on UBL stock is around 38% which is above than required CAPM. The tabular detail of the above-discussed fact is available in Table 2.

5.3.2.4 RELATIVE STRENGTH INDEX
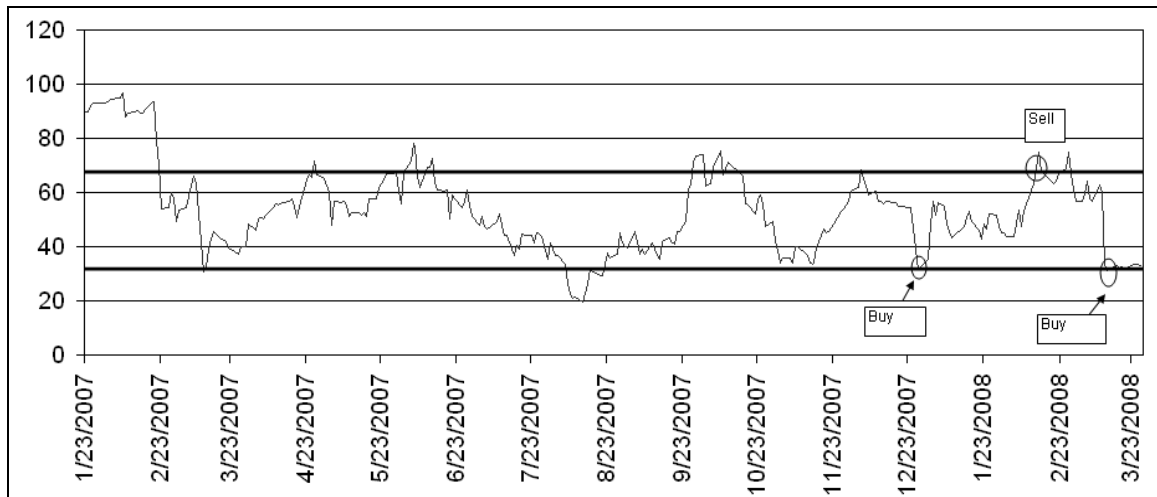
Figure 10 – UBL RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 10) on the one-year data of UBL stock prices for analysis and one-quarter year for empirical test. It is found that in the case of UBL the over bought line will not work at 70/75 point levels for finding out the over bought situation, It has to be decrease to 60/62 point levels. After adjusting overbought and over sold lines on 1st January when the RSI line touched the oversold line, it generates the buy signal at the price of Rs 166. On 13 February when RSI touched the overbought line, it generated the sell signal at the price of Rs 185. On 12 March when the RSI line touched again the oversold line, it generates the buy signal at the price of Rs 209 resulting 51 Rs loss on a share. Therefore, at the end of the research analysis time i.e. 31st March RSI tool did not generate Comprehensive signals to earn required CAPM profit and it annual return is around -77% which simply states that RSI is not responding perfectly to earn profit in the UBL stock. The tabular detail of the above-discussed fact is available in Table 2.

5.3.2.5 MONEY FLOW INDEX
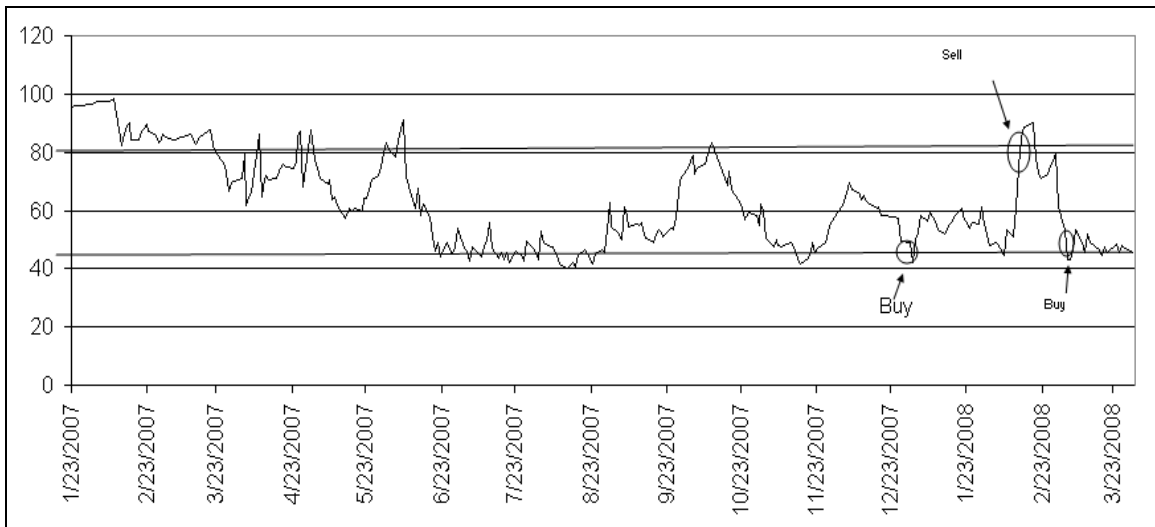
Figure 11 – UBL MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 11) on the one-year data of UBL stock prices for analysis and one-quarter year for empirical test. It found that the over sold line in the case of UBL will not workable at the 30 or 35 levels. It should be increase to 40-38 levels, where maximum low points are intersecting. After adjustments of line on 21st January when the MFI line touched the oversold line, it generated the buy signal at the price of Rs 166. On 14th February when MFI touched the overbought line, it generated the sell signal at the price of Rs 172. Similarly, on 5th March when the MFI line touched the oversold line again, it generates the buy signal at the price of Rs 198. Therefore, at the end of the research analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of Rs 158 and try to find out the return provided by the stock with the help of MFI tool, it is found that it is around -80%. This tool is also fails to earn profits in the market and produces heavy losses. The tabular detail of the above-discussed fact is available in Table 2.

5.3.2.6 SUPPORT AND RESISTANCE LEVEL
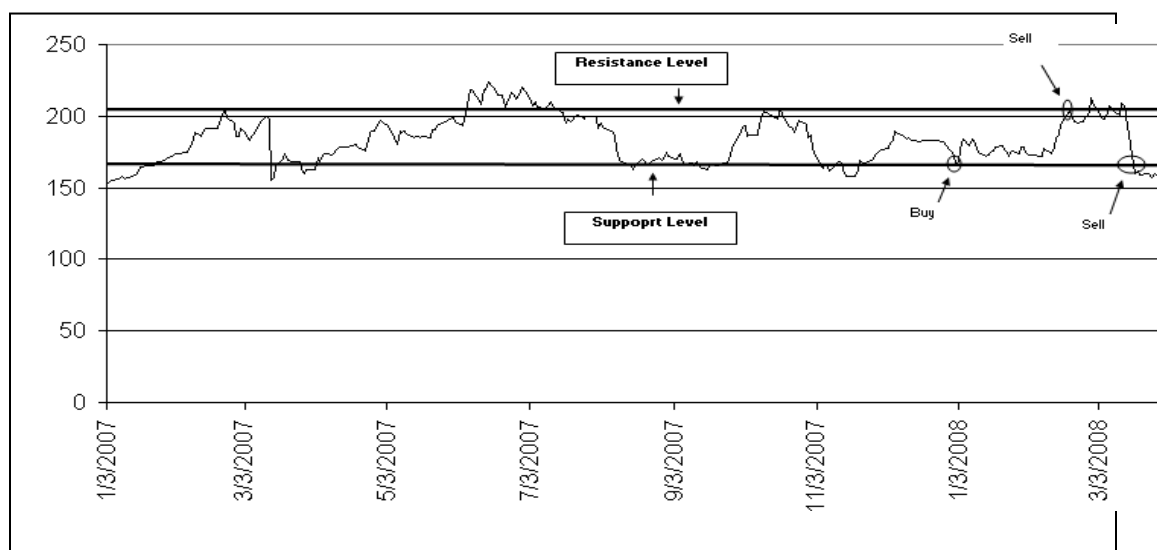
Figure 12 – UBL SUPPORT AND RESISTANCE

DESCRIPTION

As discussed above the Support and resistance level for technical analysis is a very subjective approach and different point of views could be exist but their actual return will provide the result for best gut feeling applied by the analyst. Therefore, in case of UBL analysis of one year, researcher have marked out the Support and resistance level for the first quarter of 2008 on his gut feeling represented in figure 12. According to marked Support and resistance, level on 1st January when the closing price line touched the Support level it generated the buy signal at the price of Rs 166. On 20th February when the closing price line touched the resistance level, it generated the sell signal at the price of Rs 198.95. Similarly, on 17 March when the closing price line touched the Support level, it generates the buy signal at the price of Rs 166.5 it also responds well to the dividend adjustment price and also generated buy signal their. Therefore, at the end of the research analysis time i.e. 31st March the tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of Rs. 158.8 than we found that the annual return provided by the stock with the help of Support and resistance level is around 60.8% which is well above of our required CAPM. The tabular detail of the above-discussed fact is available in Table 2

5.3.2.7 TOOLS RETURN ANALYSIS

No	Tool	Prices	Profit	Return	Annual Return	Rank
	Moving Average 10,50 Days					
1	4-Jan (Buy)	-183				
2	3-Mar (Sell)	202	19.00			
3	20-Mar (Buy)	-158.95				
	31-Mar (Sell)	158.8	-0.15	10.30%	41.20%	2
	Bollinger Band					
No	Date					
1	3-Jan (Buy)	-176				
2	11-Feb (Sell)	174.05	-1.95			
3	18-Mar (Buy)	-159.4				
	31-Mar (Sell)	158	-1.40	-1.90%	-7.61%	
	MACD					
No	Date					
1	8-Jan (Buy)	-184				
2	6-Mar (Sell)	201.5	17.50	9.51%	38.04%	3
	RSI					
No	Date					
1	1-Jan (Buy)	-166				
2	13-Feb (Sell)	185	19.00			
3	12-Mar (Buy)	-209				
	31-Mar (Sell)	158	-51.00	-19.28%	-77.11%	
	MFI					
No	Date					
1	1-Jan (Buy)	-166				
2	14-Feb (Sell)	172	6.00			
3	5-Mar (Buy)	-198				
	31-Mar (Sell)	158.8	-39.20	-20.00%	-80.00%	
	Suport and Resistance					
No	Date					
1	1-Jan (Buy)	-166				
2	20-Feb (Sell)	198.95	32.95			
3	17-Mar (Buy)	-166.5				
	31-Mar (Sell)	158.8	-7.70	15.21%	60.84%	1

Table 4 Tool Ranking for UBL

5.3.3 National Bank of Pakistan

5.3.3.1 MOVING AVERAGE (50/10 DAYS)
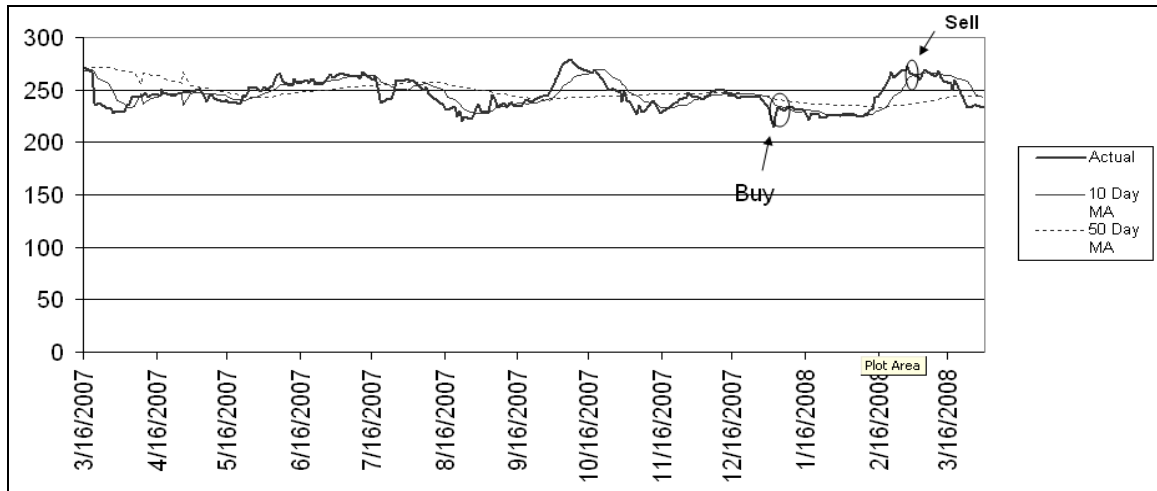
Figure 13 – NBP MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 13) on the one-year data of NBP stock prices for analysis and one-quarter year for empirical test. It is found that on 4th of January when actual price intersect the 50 Days MA and 10 Days MA from down it generated the Buy Signal at price of Rs 227. Similarly, on 3rd of March when actual price intersect the 50 Days MA and 10 Days MA from up generates the Sell Signal at a price of Rs 263. Therefore, at the end of the research analysis time i.e. 31st March if we find out the return provide by the stock with the help of Moving average tool is around 63.44% annually which is well above of our calculated CAPM. The tabular detail of the above-discussed fact is available in Table 3.

5.3.3.2 BOLLINGER BAND
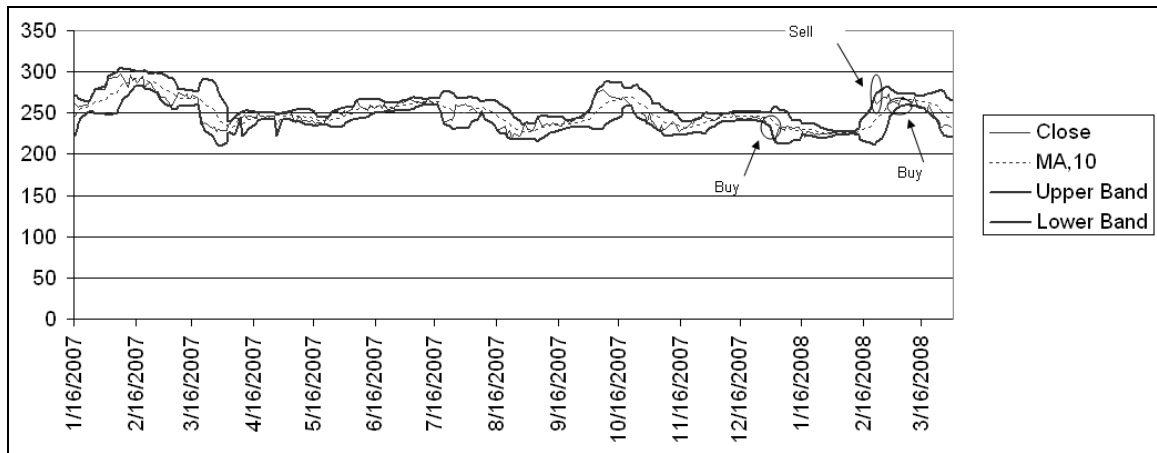
Figure 14 – NBP BOLLINGER BAND

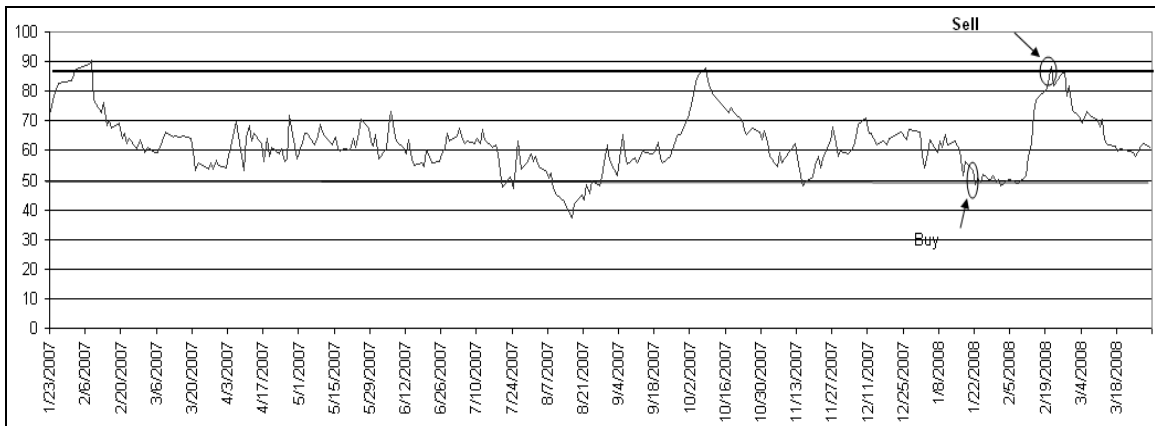### DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 14) on the one-year data of NBP stock prices for analysis and one-quarter year for empirical test. It found that on 2 January when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 214. On 21st of February when the closing price leaves, the upper band or start declining from the point of upper band generated the sell signal at the price of Rs 266 resulting it produces handsome profit. On 5th March 2008 when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 265. Similarly, on 14th of March our tool again generated the sell signal at a price of Rs. 158 resulting loss of 7 Rs per Share. Therefore, at the end of the research analysis time i.e. 31st March we found that the annual return provide by Bollinger band investment techniques for our three months empirical test is around -102%. That is very shocking and witnessed that Bollinger band is not useful tool for NBP. The tabular detail of the above-discussed fact is available in Table 3.

5.3.3.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
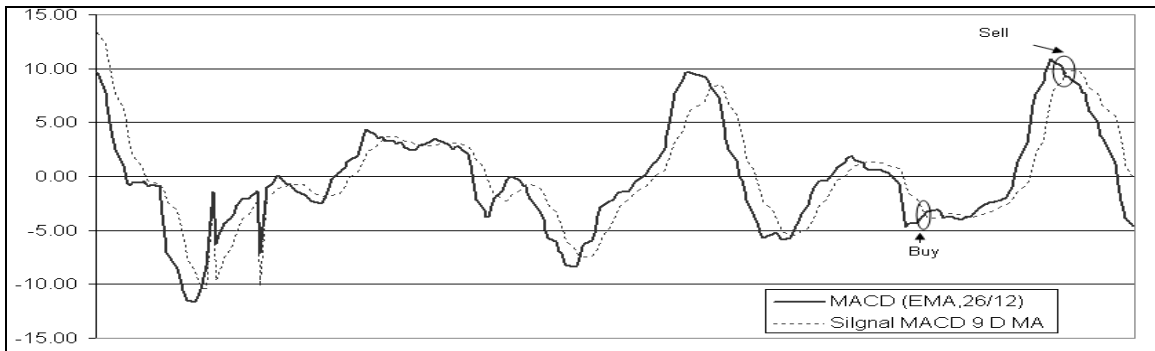
Figure 15 - NBP MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 15) on the one-year data of NBP stock prices for analysis and one-quarter year for empirical test. It found that, on the 10th January when the MACD line intersects signal line from downward or when MACD > Signal line it generated buy signal at the price of Rs 233. Similarly, on 4th March when MACD line intersects signal line from upward or when MACD < Signal line it generated sell signal at the price of Rs 260. Therefore, the annul profit generated by the signal of MACD on NBP stock is around 46.35% which is above than required CAPM. The tabular detail of the above-discussed fact is available in Table 3.

5.3.3.4 RELATIVE STRENGTH INDEX
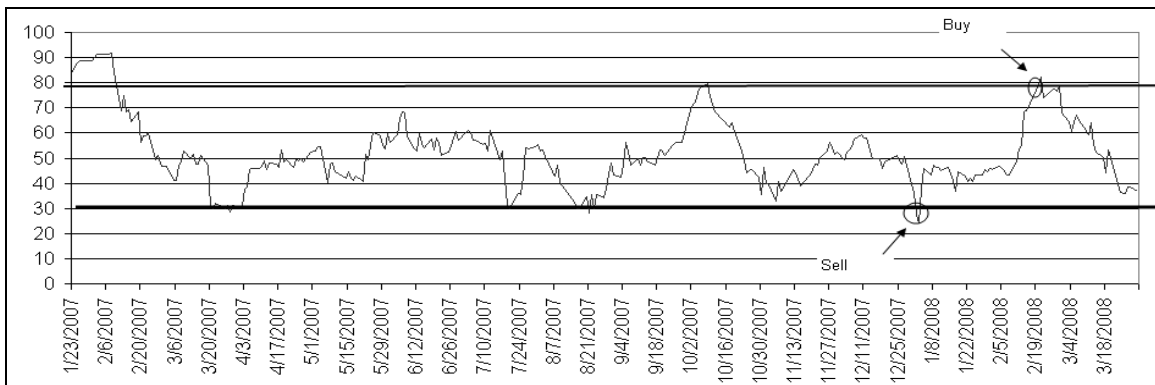
Figure 16 – NBP RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 16) on the one-year data of NBP stock prices for analysis and one-quarter year for empirical test. It found that in the case of NBP the over bought line will not work at 70/75 point level for finding out the over bought situation. It has increased to 80-point levels. After adjusting overbought line on 1st January when the RSI line touched the oversold line, it generates the buy signal at the price of Rs 221. On 21 February when RSI touched the overbought line, it generated the sell signal at the price of Rs 266. Therefore, at the end of our analysis time i.e. 31st March RSI tool generate Comprehensive signals to earn more than CAPM profit and its annual return is around 81% which simply states that RSI is responding perfectly to earn profit in the NBP stock. The tabular detail of the above-discussed fact is available in Table 3.

5.3.3.5 MONEY FLOW INDEX

Figure 17 – NBP MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 11) on the one-year data of NBP stock prices for analysis and one-quarter year for empirical test. It found that the over sold and over bought line in the case of NBP will not workable at the 30/35 and 70-75 point level. Oversold should be increase to 50-point levels and

overbought line should be increased to 88/90 point-levels, where maximum low and high points are intersecting. After adjustments of oversold and over bought line on 23rd January when the MFI line touched the oversold line, it generated the buy signal at the price of Rs 166. On 14th February when MFI touched the overbought line, it generated the sell signal at the price of Rs 224. Similarly, on 20th February when the MFI line touched the oversold line again, it generates the buy signal at the price of Rs 259. Therefore, at the end of research analysis time i.e. 31st March we found that the return provided by the stock with the help of MFI tool is around 63.66%. The tabular detail of the above-discussed fact is available in Table 3.

5.3.3.6 SUPPORT AND RESISTANCE LEVEL
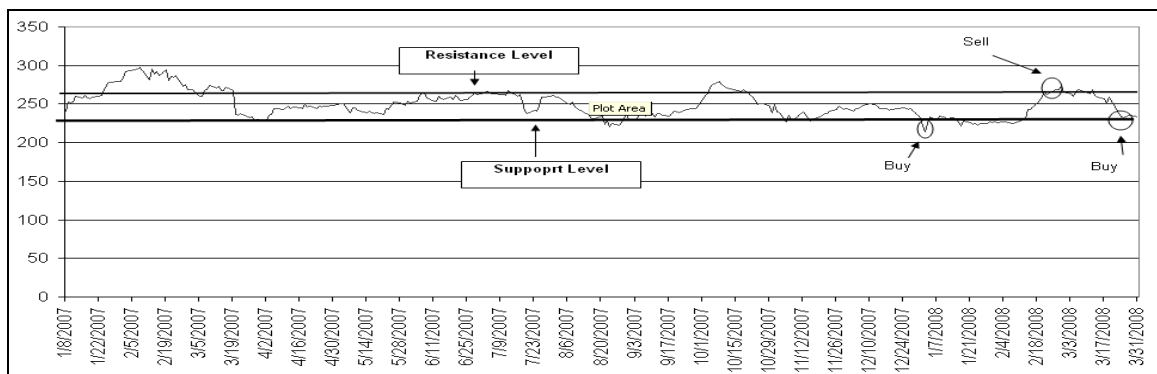
Figure 18 – NBP SUPPORT AND RESISTANCE

DESCRIPTION

As discussed in the analysis of above banks the Support and resistance level for technical analysis is a very subjective approach and different point of views could be exist, but their actual return will provide the results for best gut feeling applied by the analyst. Therefore, in case of NBP analysis of one year we have marked out the Support and resistance level for the first quarter of 2008 on the researcher gut feeling represented in figure 18. According to marked Support and resistance, level on 1st January when the closing price line touched the Support level it generates the buy signal at the price of Rs 221. On 21st February when the closing price line touched the resistance level, it generates the sell signal at the price of Rs 266.8. Similarly, on 25

March when the closing price line touched the Support level, it generates the buy signal at the price of Rs 232.75 it is price after the dividend ex out adjustment and it responds well to the our assumption of after dividend adjustment buy signal. Therefore, at the end of the research analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of Rs 233, we found that the annual return provided by the stock with the help of Support and resistance level is around 83.85 % which is well above than required CAPM and other analysis tools applied in our research on NBP. The tabular detail of the above-discussed fact is available in Table 3

5.3.3.7 TOOLS RETURN ANALYSIS

No	Tool	Prices	Profit	Return	Annual Return	Rank
	Moving Average 10,50 Days					
1	4-Jan (Buy)	-227				
2	3-Mar (Sell)	263	36.00	15.86%	63.44%	
	Bollinger Band					
1	2-Jan (Buy)	-214				
2	21-Feb (Sell)	266	52.00			
3	5-Mar (Buy)	-265				
	14-Mar (Sell)	158	-107.00	-25.70%	-102.80%	
	MACD					
1	10-Jan (Buy)	-233				
2	4-Mar (Sell)	260	27.00	11.59%	46.35%	
	RSI					
1	1-Jan (Buy)	-221				
2	21-Feb (Sell)	266	45.00			
3						
			0.00	20.36%	81.45%	2
	MFI					
1	23-Jan (Buy)	-224				
2	20-Feb (Sell)	259.65	35.65			
3						
			0.00	15.92%	63.66%	
	Suport and Resistance					
1	1-Jan (Buy)	-221				
2	21-Feb (Sell)	266.8	45.80			
3	25-Mar (Buy)	-232.75				
	31-Mar (Sell)	233	0.25	20.84%	83.35%	1

Table 5 Tool Ranking for NBP

5.3.4 ALLIED BANK LIMITED

5.3.4.1 MOVING AVERAGE (50/10 DAYS)
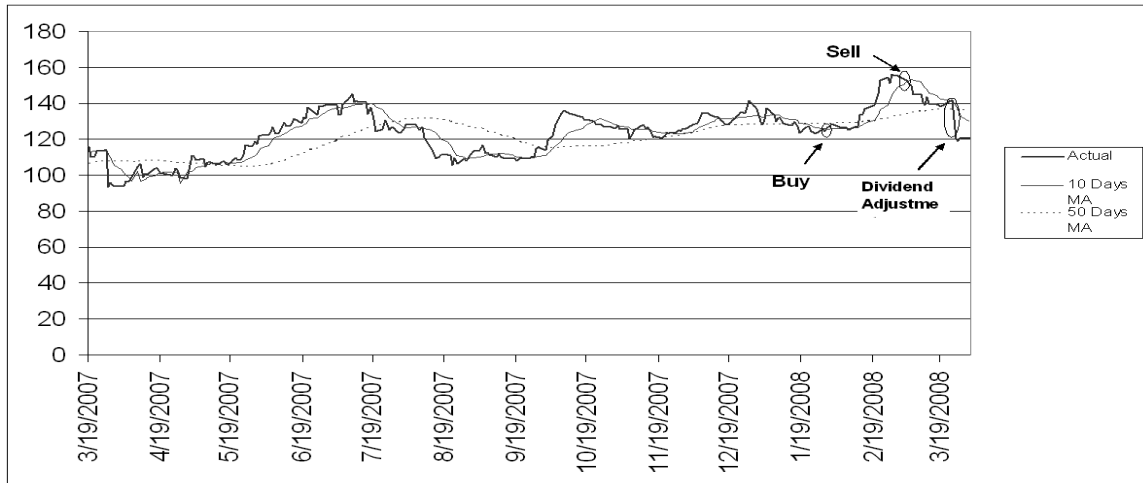
Figure 19 – ABL MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 19) on the one-year data of ABL stock prices for analysis and one-quarter year for empirical test. It found that on 28th of January when actual price intersect the 50 Days MA and 10 Days MA from down, it generated the Buy Signal at the price of Rs 124. On 5th of March when actual price intersect the 50 Days MA and 10 Days MA from up, it generated the Sell Signal at a price of Rs 150. On 24th of March ABL stock price had adjusted divided ex out (pointed out in figure 19), hence according to our assumption it was the buying time. Nevertheless, if we do not follows our assumptions our Moving average tool is also generating buy signal on almost 31st March when actual price intersect the 50 Days MA and 10 Days MA from down. Therefore, at the end of the research analysis time i.e. 31st March if we find out the return provides by the stock with the help of Moving average tool is around annually 83.87% which is well above of required CAPM as well as KSE-100 index 2007. The tabular detail of the above-discussed fact is available in Table 4.

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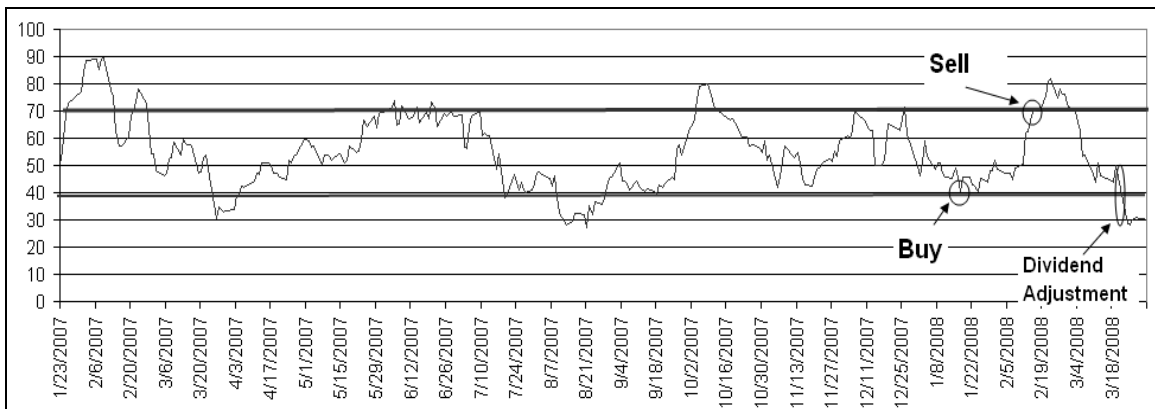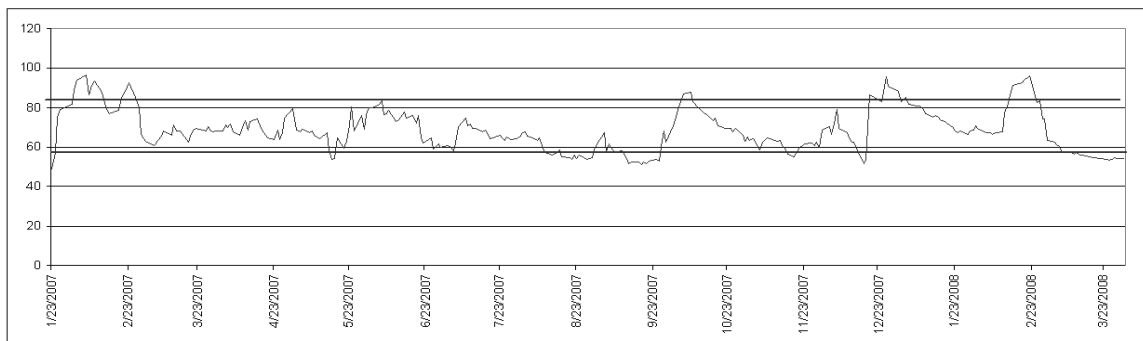
5.3.4.2 BOLLINGER BAND
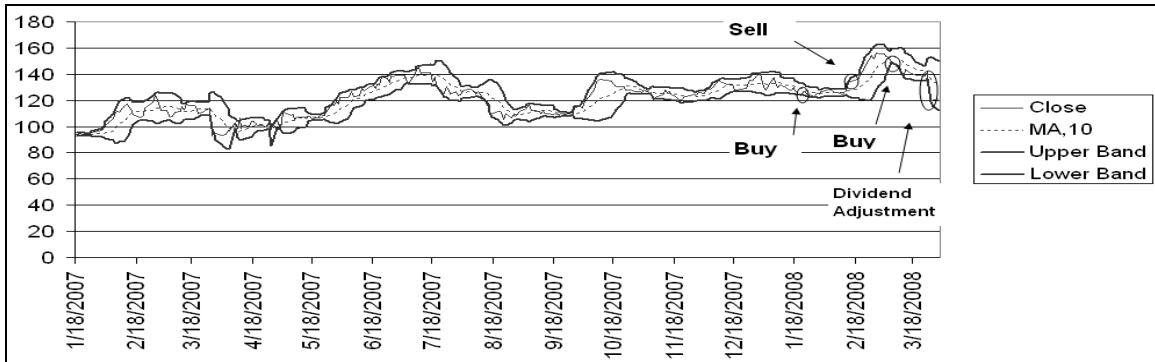
Figure 20 – ABL BOLLINGER BAND

DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 20) on the one-year data of ABL stock prices for analysis and one-quarter year for empirical test. It found that on 22nd of January when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 124. On 14th of February when the closing price leaves the upper band or start declining from the point of upper band generated the sell signal at the price of Rs 137 resulting handsome profit. On 7th March 2008 when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 145. Therefore, at the end of the research analysis time i.e. 31st March our tool did not generate the sell signal for our previously buy stock. If we sell on 31st March at the price of Rs. 120 to find out the net result of research, we found that the last transaction is reported heavy losses. In actual it is not loss it is dividend ex out, buying on 7th March and investor holding during that time will get dividend. Nevertheless, as discussed above we have recommended to investor to have strong information about everything regarding each stock and selling before book closer is more beneficial rather than holding and receiving dividend. Therefore, after the adjustment of dividends we found that the annual return provide by Bollinger band investment techniques for the research on three months empirical test is around 42.92% which is good and well above our required CAPM. The tabular detail of the above-discussed fact is available in Table 4.

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5.3.4.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
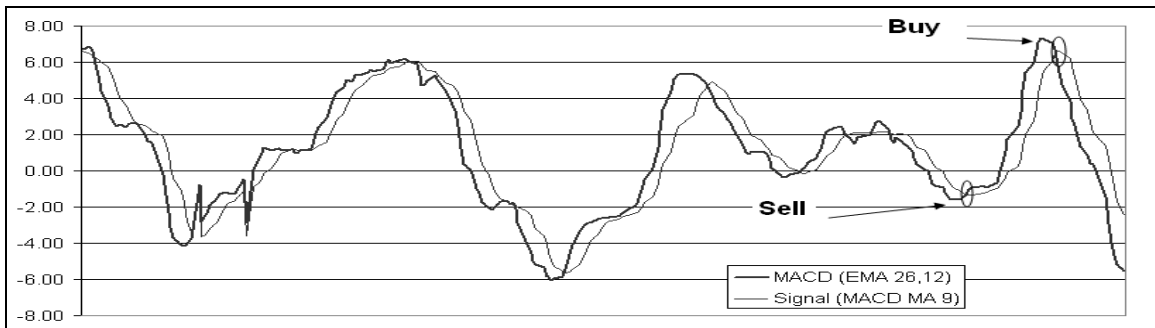
Figure 21 – ABL MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 21) on the one-year data of ABL stock prices for analysis and one-quarter year for empirical test. It found that, on 1 January when the MACD line intersects signal line from downward or when MACD>Signal line it generated buy signal at the price of Rs 127. Similarly, on 6th March when MACD line intersects signal line from upward or when MACD<Signal line it generated sell signal at the price of Rs 145. Therefore, the annul profit generated by the signal of MACD on ABL stock is around 56.69% which is well above than CAPM. The tabular detail of the above-discussed fact is available in Table 4.

5.3.4.4 RELATIVE STRENGTH INDEX

Figure 22 – ABL RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 22) on the one-year data of ABL stock prices for analysis and one-quarter year for empirical test. It found that in the case of ABL the over sold line will not work at 30/35 point level for finding out the over sold situation hence it has increased to 40-point levels where maximum low points are intersecting. After adjusting oversold line on 17th January when the RSI line touched the oversold line, it generated the buy signal at the price of Rs 123. On 15th February when RSI touched the overbought line, it generated the sell signal at the price of Rs 139. Therefore, at the end of research analysis time i.e. 31st March RSI tool generate Comprehensive signals to earn more than CAPM profit and it annual return is around 52% which simply states that RSI is responding perfectly to earn profit in the ABL stock. The tabular detail of the above-discussed fact is available in Table 4.

5.3.4.5 MONEY FLOW INDEX

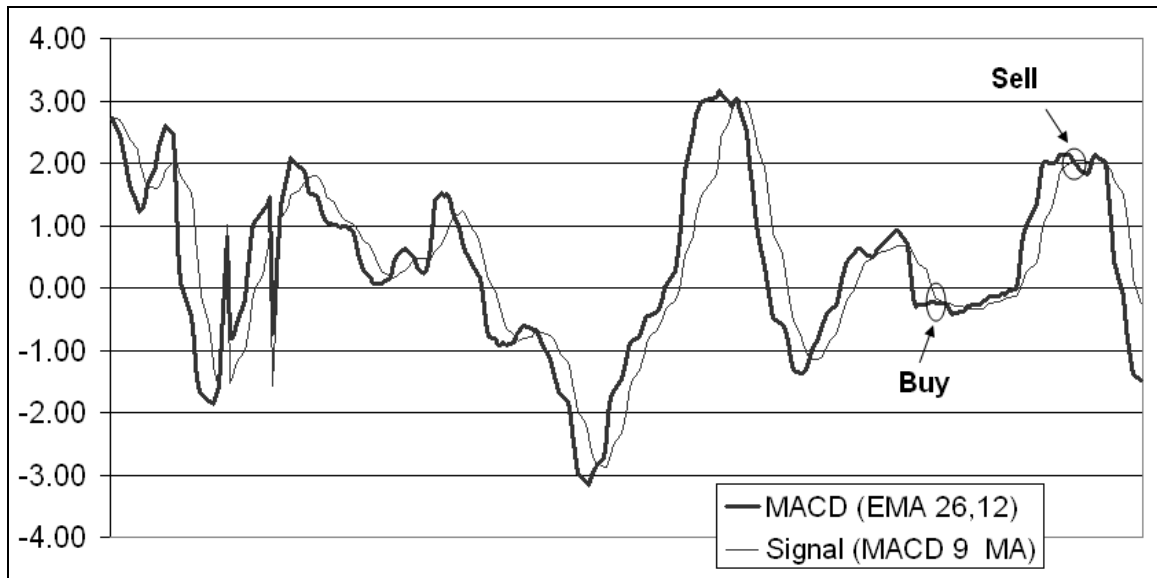**Figure 23 – ABL MFI**

DESCRIPTION

After the application of MFI trading rule (represented in figure 11) on the one-year data of ABL stock prices for analysis and one-quarter year for empirical test. It found that we could not generate any signals with the help of MFI tool for ABL. Therefore, in our research we found that the MFI tool is not helpful for the trading ABL Stocks.

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5.3.4.6 SUPPORT AND RESISTANCE LEVEL
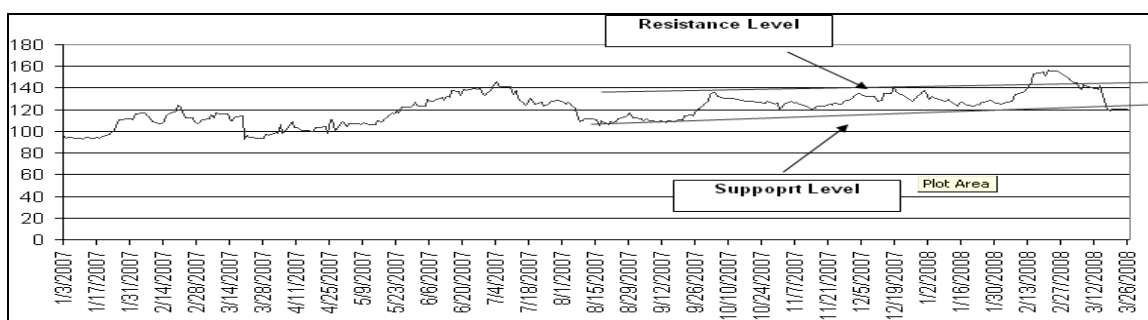
Figure 24 – ABL SUPPORT AND RESISTANCE

DESCRIPTION

After applying the Support and Resistance level tool to ABL it is found the same difficulty as discussed in the MFI tool that, the closing prices are very unusual and do not follow the same pattern. Thus, we did not able to mark out the Support and resistance levels hence could not generate the buy and sell signals. Therefore, our research proved that the Support and resistance level is not suitable tool for trading the ABL stock.

5.3.4.7 TOOLS RETURN ANALYSIS

No	Moving Average 10,50 Days		Profit	Return	Ann Return	Rank
	Date		**Profit**	**Return**	**Ann Return**	**Rank**
1	28-Jan (Buy)	-124				
2	5-Mar (Sell)	150	26.00			
3	24-Mar (Buy)	-120				
	31-Mar (Sell)	120	0.00	20.97%	83.87%	1
	Bollinger Band					
1	22-Jan (Buy)	-124				
2	14-Feb (Sell)	137	13.00	10.48%	41.92%	
	MACD					
1	1-Feb (Buy)	-127				
2	6-Mar (Sell)	145	18.00	14.17%	56.69%	2
	RSI					
1	17-Jan (Buy)	-123				
2	15-Feb (Sell)	139	16.00			
3						
			0.00	13.01%	52.03%	3

Table 6 Tool Ranking for ABL

5.3.5 *Bank-Al-Fallah*

5.3.5.1 MOVING AVERAGE (50/10 DAYS)
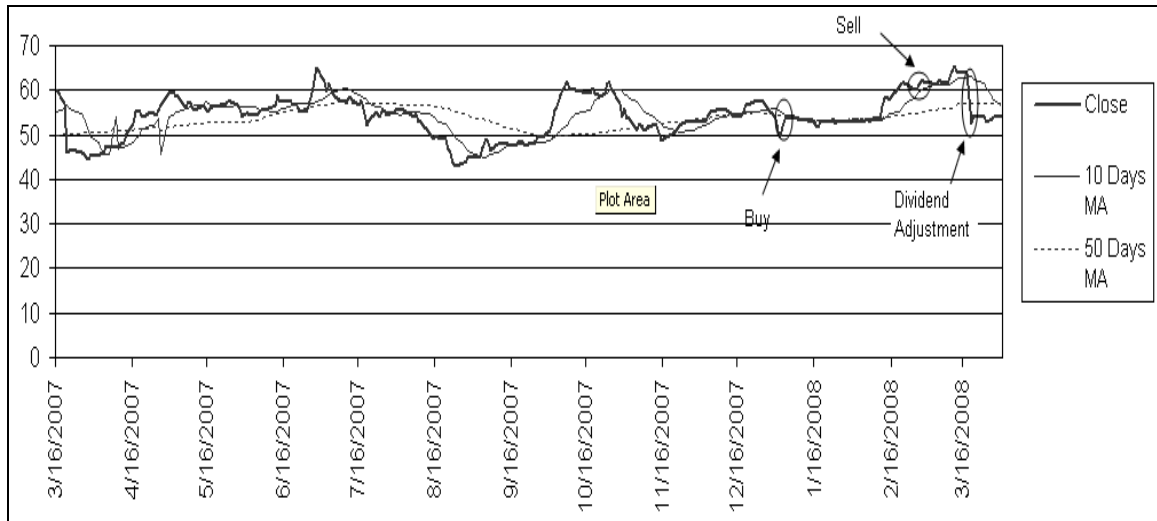
Figure 25 – BAFL MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 25) on the one-year data of BAFL stock prices for analysis and one-quarter year for empirical test. It found that on 4th of January when actual price intersect the 50 Days MA and 10 Days MA from down, it generated Buy Signal at price of Rs 53. On 4th of March when actual price intersect the 50 Days MA and 10 Days MA from up, it generated the Sell Signal at a price of Rs 61. Therefore, at the end of our analysis time i.e. 31st March if we find out the return provided by the stock with the help of Moving average tool was around annually 60.38% which is well above of required CAPM. The tabular detail of the above-discussed fact is available in Table 5.

5.3.5.2 BOLLINGER BAND
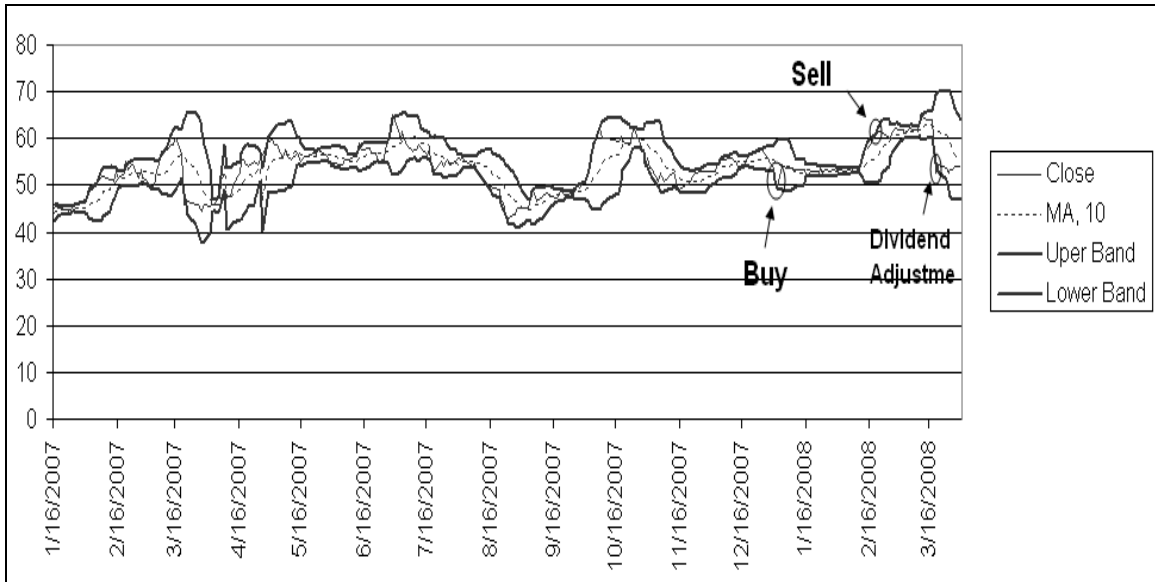
Figure 26 – BAFL BOLLINGER BAND

DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 26) on the one-year data of BAFL stock prices for analysis and one-quarter year for empirical test. It found that on 1st of January when actual price was below the 10 Days MA and touched the lower band, it generated buy signal at the price of Rs 51. On 14th of February when the closing price leaves the upper band or start declining from the point of upper band generated the sell signal at the price of Rs 58 resulting handsome profit. On 20th March 2008 when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of Rs 54. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal for our previously buy stock. If we sell on 31st March at the price of Rs. 54 to find out the net result of research, we found that the annual return provide by Bollinger band investment techniques for our three months empirical test was around 54.9% which is good and well above our required CAPM. The tabular detail of the above-discussed fact is available in Table 5.

## 5.3.5.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)

Figure 27 – BAFL MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 27) on the one-year data of BAFL stock prices for analysis and one-quarter year for empirical test. It found that, on 31 January when the MACD line intersects signal line from downward or when MACD>Signal line it generated buy signal at the price of Rs 53. Similarly, on 5th March when MACD line intersects signal line from upward or when MACD<Signal line it generated sell signal at the price of Rs 61. Therefore, the annual profit generated by the signal of MACD on BAFL stock is around 60.38% which is same as provided by moving average. The tabular detail of the above-discussed fact is available in Table 5.

5.3.5.4 RELATIVE STRENGTH INDEX
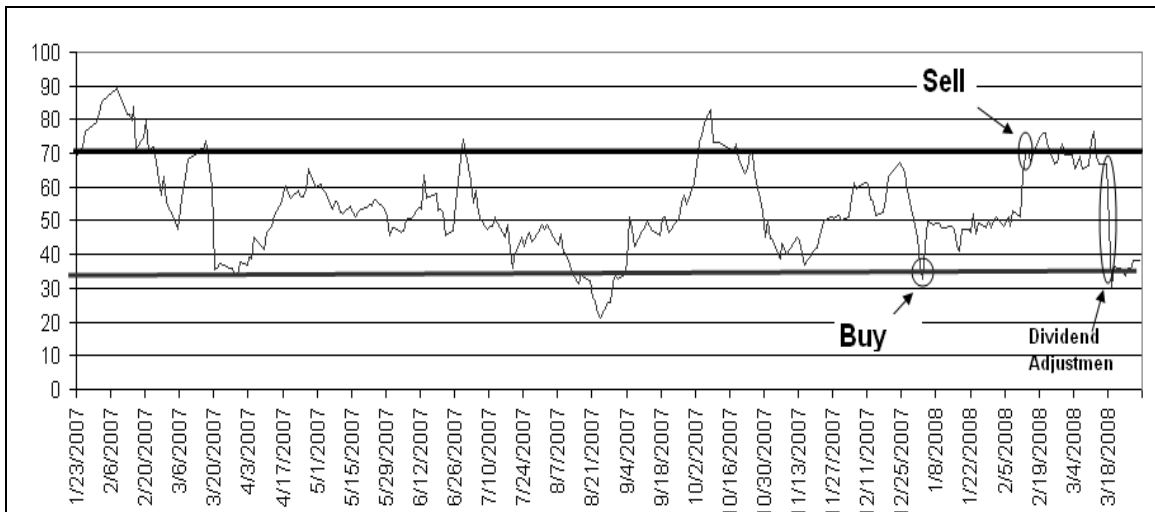
Figure 28 – BAFL RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 28) on the one-year data of BAFL stock prices for analysis and one-quarter year for empirical test. It found that on 2nd of January when the RSI line touched the oversold line, it generated the buy signal at the price of Rs 49. On 14th February when RSI touched the overbought line, it generated the sell signal at the price of Rs 58. Similarly, on 19th of March when the RSI line touched the oversold line, it generated the buy signal at the price of Rs 52. Therefore, at the end of our analysis time i.e. 31st March RSI tool did not generate the sell signal for our previously buy stock. However, if we wants to calculate the annual return by selling stock on 31st March at price Rs 54 than we found that the annual return is around 85.35% which simply state that RSI is responding superior for earning profits in the BAFL stock. The tabular detail of the above-discussed fact is available in Table 5.

5.3.5.5 MONEY FLOW INDEX
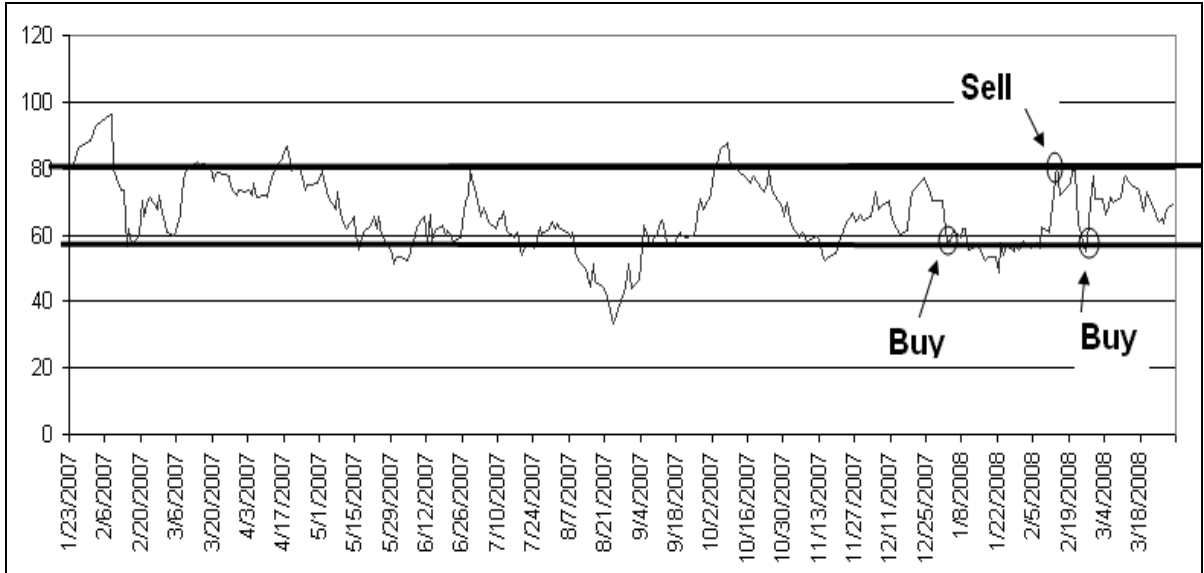
Figure 29 - BAFL MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 29) on the one-year data of BAFL stock prices for analysis and one-quarter year for empirical test. It found that the over sold and over bought line in the case of BAFL will not workable at the 30/35 and 70/75 point level. Oversold should be increase to 60-point levels and overbought line should be increased to 80 point-levels, where maximum low and high points are intersecting. After adjustments of oversold and over bought line On 23rd January when the MFI line touched the oversold line, it generated the buy signal at the price of Rs 53. On 20th February when MFI touched the overbought line, it generated the sell signal at the price of Rs 61. Therefore, at the end of our analysis time i.e. 31st March we found that the return provided by the stock with the help of MFI tool is around 57.25%. The tabular detail of the above-discussed fact is available in Table 5.

5.3.5.6 SUPPORT AND RESISTANCE LEVEL
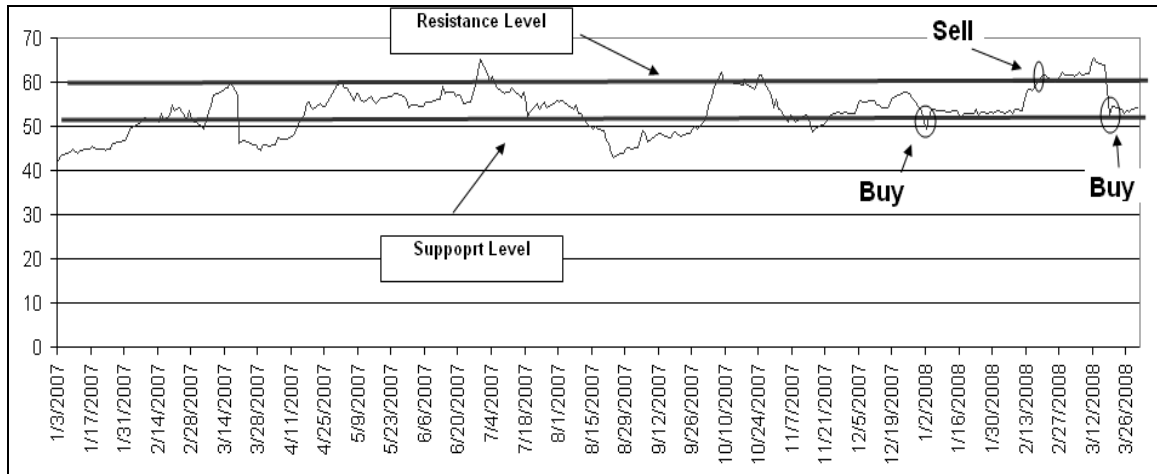
Figure 30 – BAFL SUPPORT AND RESISTANCE

DESCRIPTION

As discussed in the analysis of above banks the Support and resistance level for technical analysis is a very subjective approach and different point of views could be exist but their actual return will provide the result for best gut feeling applied by the analyst. Therefore, in the case of BAFL stock analysis of one year, the author have marked out the Support and resistance level for the first quarter of 2008 on his gut feeling represented in figure 30. According to marked Support and resistance, level on 2nd January when the closing price line touched the Support level, and generated the buy signal at the price of Rs 49. On 15th February when the closing price line touched the resistance level, it generated the sell signal at the price of Rs 58. Similarly, on 20th March when the closing price line touched the Support level, it generated the buy signal at the price of Rs 54. Therefore, at the end of our analysis time i.e. 31st March our tool did not generated the sell signal for the previously buy stock. If we sell the previously buy stock on 31st March at the price of Rs 54, we found that the annual return provided by the stock with the help of Support and resistance level is around 66.80 % which is well above of our calculated CAPM. The tabular detail of the above-discussed fact is available in Table 5

5.3.5.7 TOOLS RETURN ANALYSIS

No	Moving Average 10,50 Days Date	Prices	Profit	Return	Annual Return	Rank
1	4-Jan (Buy)	-53				
2	4-Mar (Sell)	61	8.00	15.09%	60.38%	3
3						
	Bollinger Band					
No	Date					
1	1-Jan (Buy)	-51				
2	14-Feb (Sell)	58	7.00			
3	20-Mar (Buy)	-54				
	31-Mar (Sell)	54	0.00	13.73%	54.90%	
	MACD					
No	Date					
1	31-Jan (Buy)	-53				
2	5-Mar (Sell)	61	8.00	15.09%	60.38%	3
	RSI					
No	Date					
1	2-Jan (Buy)	-49.4				
2	14-Feb (Sell)	58.5	9.10			
3	19-Mar (Buy)	-52.5				
	31-Mar (Sell)	54	1.50	21.46%	85.83%	1
	MFI					
No	Date					
1	23-Jan (Buy)	-53.8				
2	20-Feb (sell)	61.5	7.70			
3						
			0.00	14.31%	57.25%	
	Suport and Resistance					
No	Date					
1	2-Jan (Buy)	-49.4				
2	15-Feb (Sell)	58	8.60			
3	20-Mar (Buy)	-54.4				
	31-Mar (Sell)	54.05	-0.35	16.70%	66.80%	2

Table 7 Tool Ranking for BAFL

5.3.6 BANK AL HABIB

5.3.6.1 MOVING AVERAGE (50/10 DAYS)
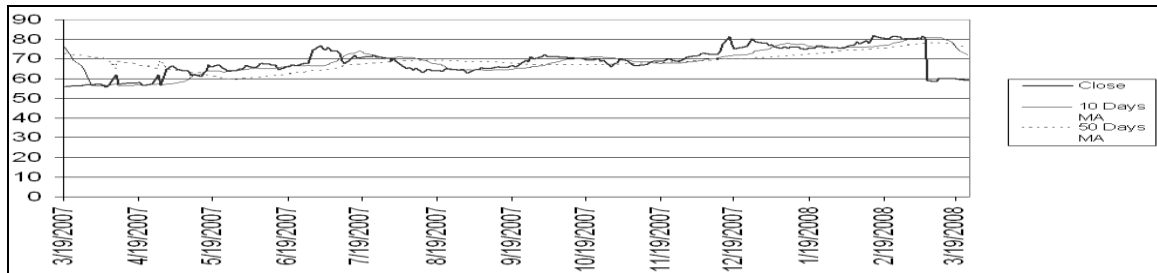
Figure 31 – BANK AL HABIB MOVING AVERAGE (50/10 DAYS)

5.3.6.2 BOLLINGER BAND
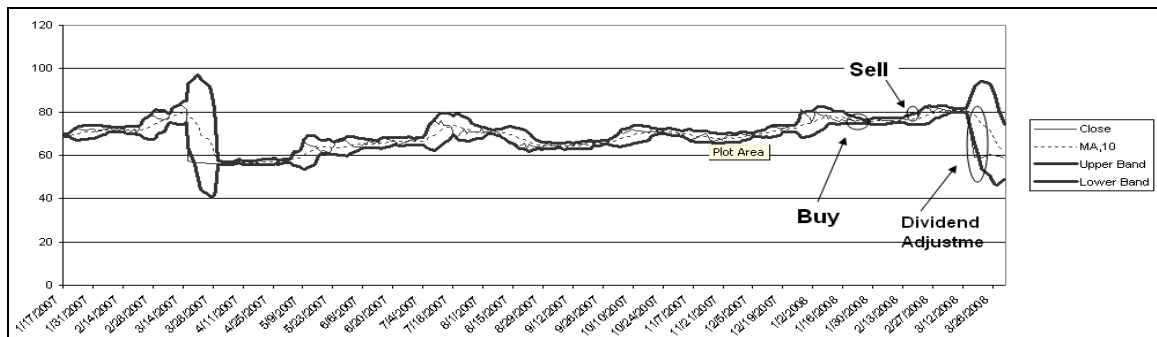
Figure 32 - BANK AL HABIB BOLLINGER BAND
DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 32) on the one-year data of Bank AL Habib stock prices for analysis and one-quarter year for empirical test. It found that on 23rd of January when actual price was below the 10 Days MA and touched the lower band, it generated buy signal at the price of Rs 51. On 14th of February when the closing price leaves the upper band or start declining from the point of upper band generated the sell signal at the price of Rs 58 resulting handsome profit. Therefore, at the end of our analysis time i.e. 31st March the annual return provide by Bollinger band investment techniques for our three months empirical test is around 19.44% which below from the required CAPM. The tabular detail of the above-discussed fact is available in Table 6.

5.3.6.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
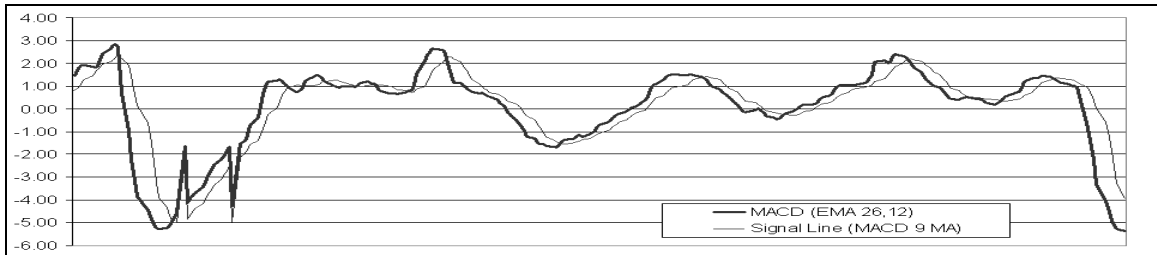
Figure 33 - BANK AL HABIB MACD

5.3.6.4 RELATIVE STRENGTH INDEX
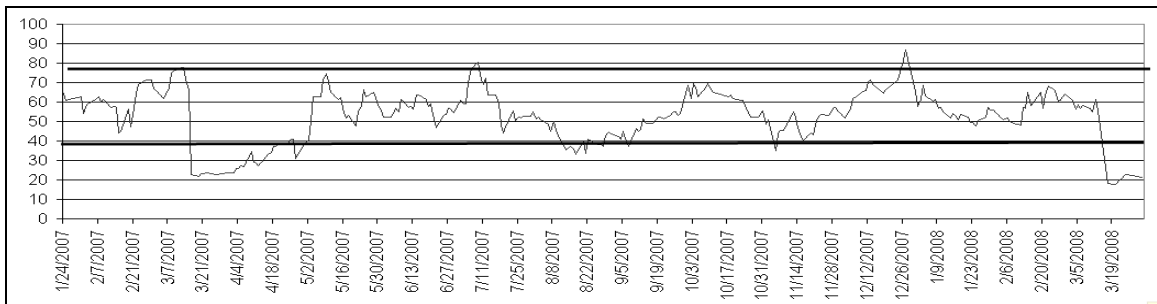
Figure 34 - BANK AL HABIB RSI

5.3.6.5 MONEY FLOW INDEX
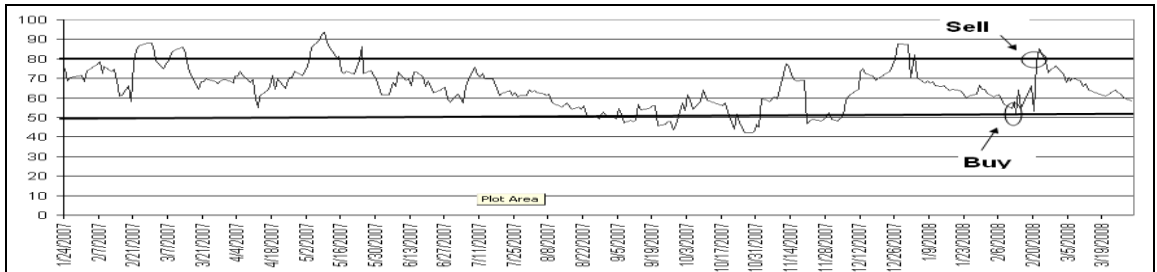
Figure 35 - BANK AL HABIB MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 35) on the one-year data of Bank Al-Habib stock prices for analysis and one-quarter year for empirical test. It found that the over sold and over bought line in the case of Bank al Habib will not workable at the 30/35 and 70/75 point level. Oversold should be increase to 50 point levels and overbought line should be increased to 80 point-levels, where maximum low and high points are intersecting. After adjustments of oversold and

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over bought line on 13th February when the MFI line touched the oversold line, it generated the buy signal at the price of Rs 76.9. On 21th February when MFI touched the overbought line, it generated the sell signal at the price of Rs 80.15. Therefore, at the end of our analysis time i.e. 31st March the return provided by the stock with the help of MFI tool is around 16.91% which less than the required CAPM means MFI is useless tool for bank AL Habib Stock. The tabular detail of the above-discussed fact is available in Table 6.

5.3.6.6 SUPPORT AND RESISTANCE LEVEL
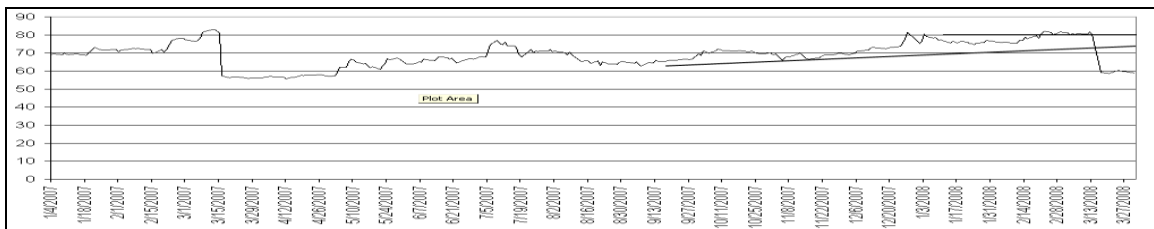
Figure 36 – BANK AL HABIB SUPPORT AND RESISTANCE

DESCRIPTION

As you can see above graphs of technical analysis applied on Bank Al Habib stock, other than Bollinger Band and MFI, none of the applied technical rule is useful. The researcher has tried a lot to generate some suitable models from different combinations of day's data but all efforts are useless. Therefore, our research proved that the technical tools are not fully suitable for trading the Bank Al Habib Stock.

5.3.6.7 TOOLS RETURN ANALYSIS

	Bollinger Band					
No	Date	Prices	Profit			Rank
1	23-Jan (Buy)	-75.1				
2	14-Feb (Sell)	78.75	3.65			
			0.00	4.86%	19.44%	1
	MFI					
1	13-Feb (Buy)	-76.9				
2	21-Feb (Sell)	80.15	3.25			
			0.00	4.23%	16.91%	2

Table 8 Tool Ranking for Bank Al Habib

5.3.7 Bank AL Faysal

5.3.7.1 MOVING AVERAGE (50/10 DAYS)
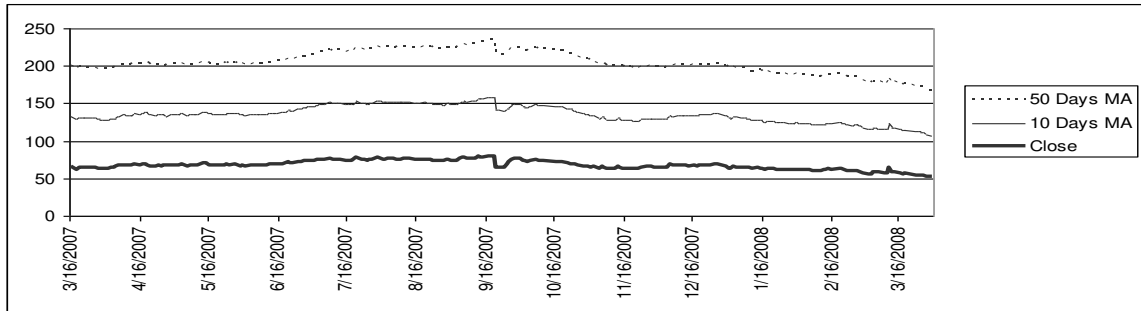
Figure 37 – BANK AL FAYSAL MOVING AVERAGE (50/10 DAYS)

5.3.7.2 BOLLINGER BAND:
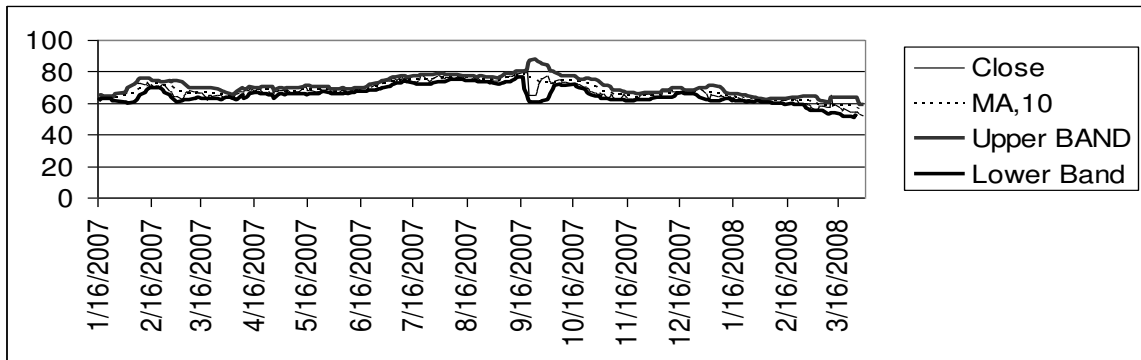
Figure 38 – BANK AL FAYSAL BOLLINGER BAND

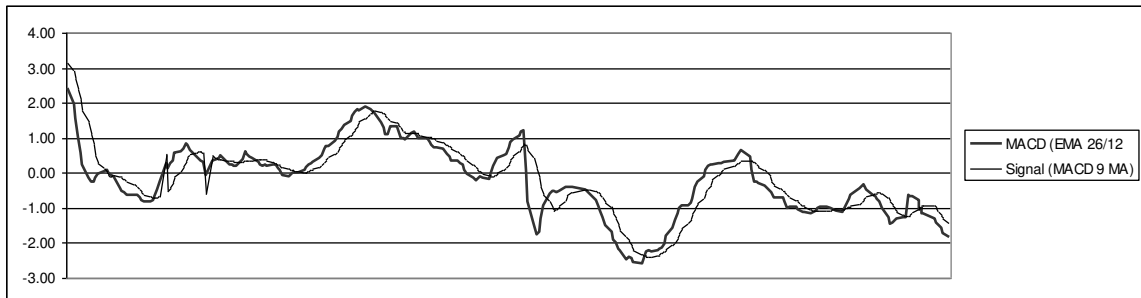### 5.3.7.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)

Figure 39 – BANK AL FAYSAL MACD
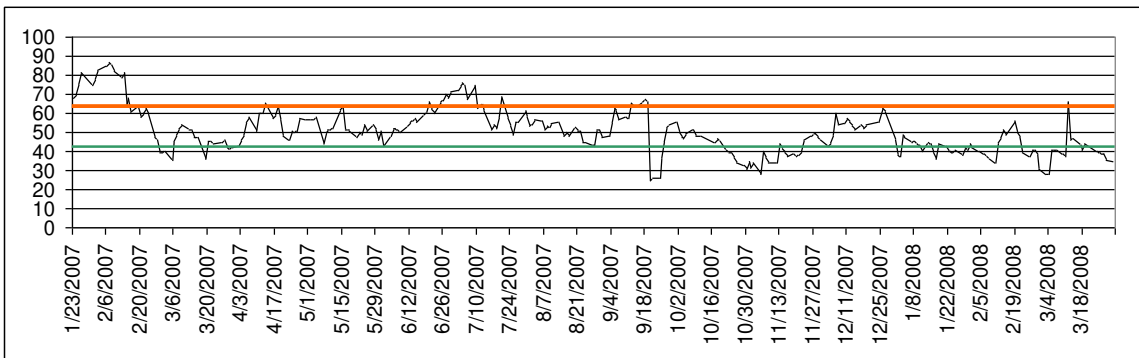
5.3.7.4 RELATIVE STRENGTH INDEX

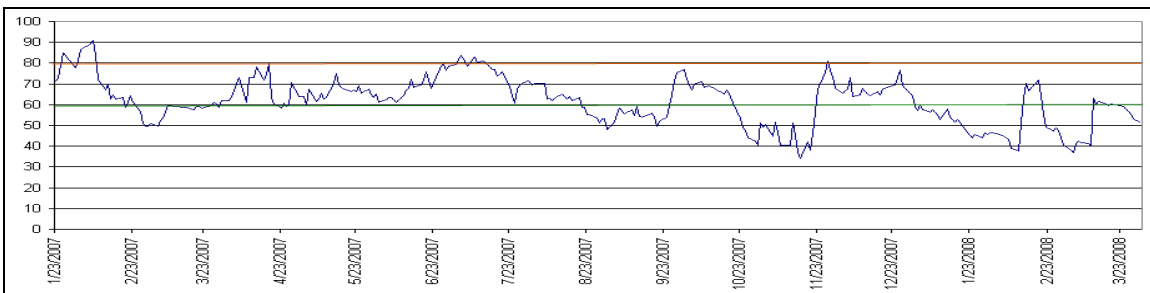**Figure 40 – BANK AL FAYSAL RSI**

5.3.7.5 MONEY FLOW INDEX
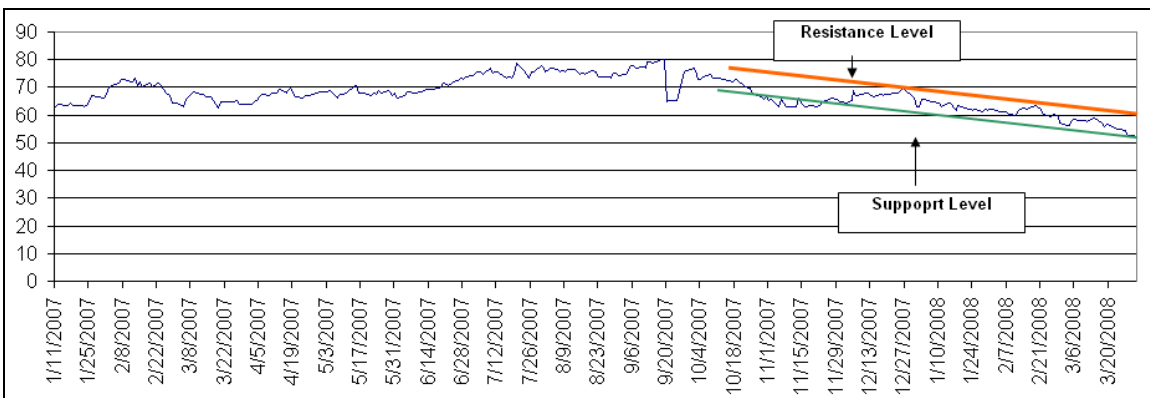

Figure 41 – BANK AL FAYSAL MFI

5.3.7.6 SUPPORT AND RESISTANCE LEVEL

Figure 42 – BANK AL FAYSAL SUPPORT AND RESISTANCE

DESCRIPTION

As you can see above graphs of technical analysis applied on Faysal Bank stock, after observing all theses graphs it found that none of the applied tool is generating any signal. The researcher has tried a lot to generate some suitable models from different combinations of day's data but all efforts are useless. Therefore, our research proved that the Support and resistance level is not suitable tool for trading the Bank Al-Faysal Stock.

5.3.8 Soneri Bank

5.3.8.1 MOVING AVERAGE (50/10 DAYS)
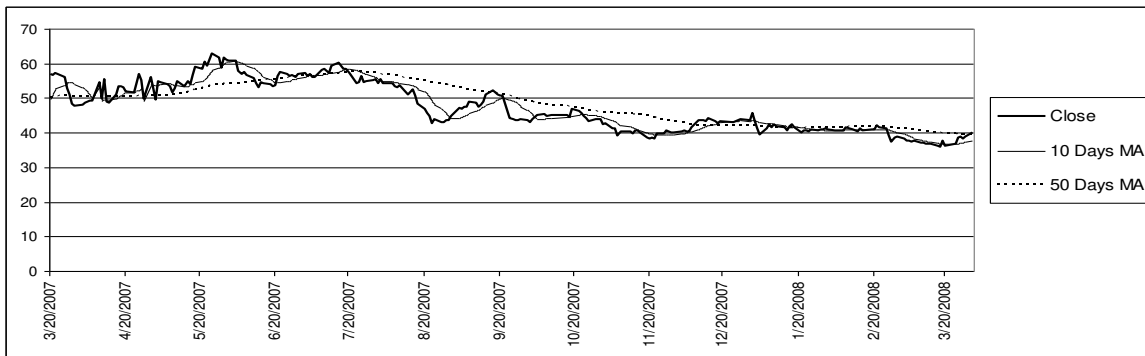
Figure 43 – SONERI MOVING AVERAGE (50/10 DAYS)

5.3.8.2 BOLLINGER BAND
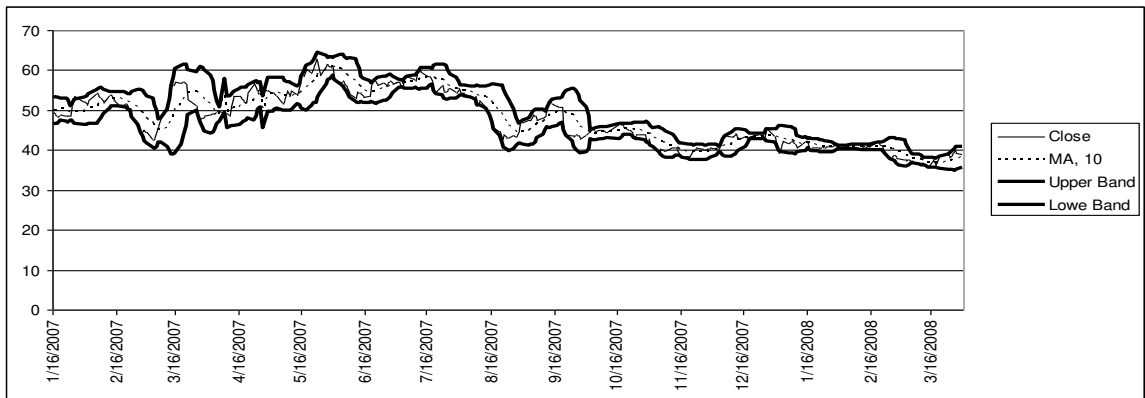
Figure 44 – SONERI BOLLINGER BAND

5.3.8.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)
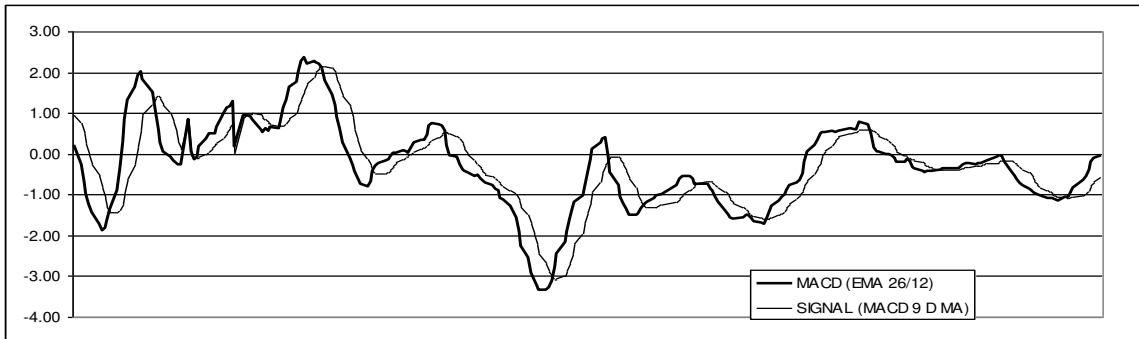
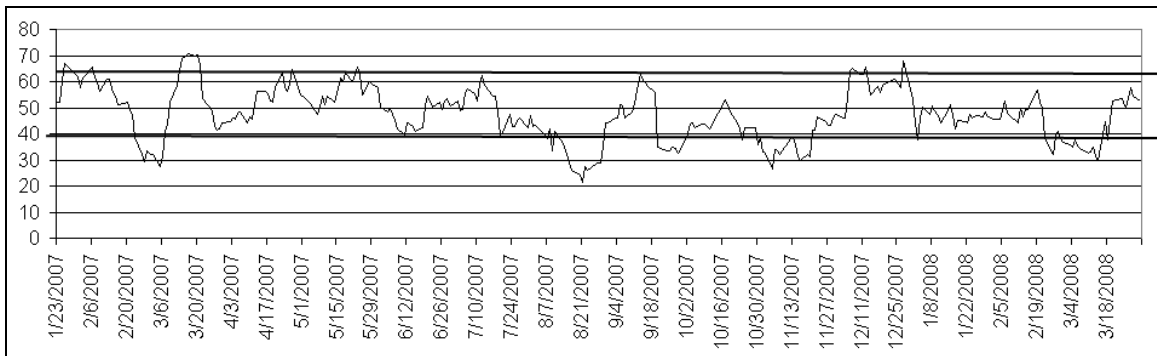**Figure 45 - SONERI MACD**

5.3.8.4 RELATIVE STRENGTH INDEX

Figure 46 – SONERI RSI

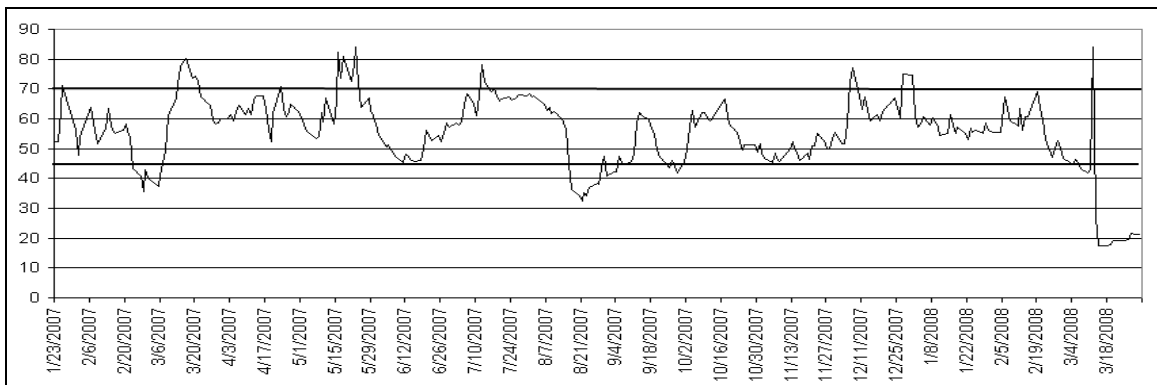## 5.3.8.5 MONEY FLOW INDEX

Figure 47 – SONERI MFI

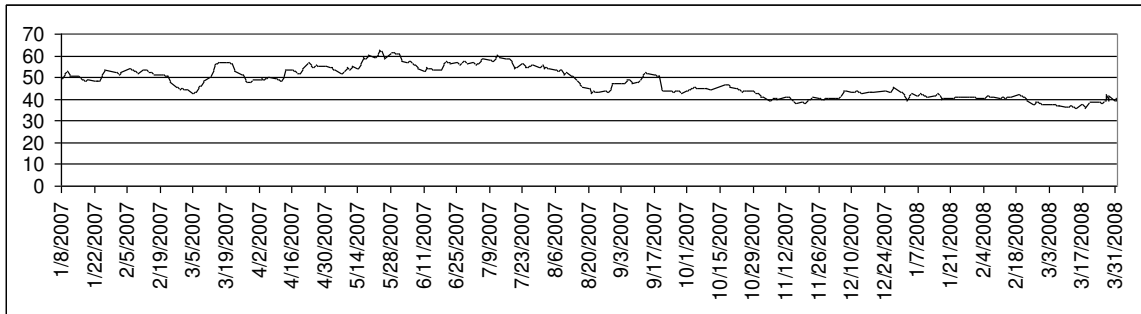## 5.3.8.6 SUPPORT AND RESISTANCE LEVEL

Figure 48 – SONERI SUPPORT AND RESISTANCE

DESCRIPTION

As you can see above graphs of technical analysis applied on Soneri Bank stock, after observing all theses graphs it found that none of the applied tool is generating any signal. The researcher has tried a lot to generate some suitable models from different combinations of day's data but all efforts are useless. Therefore, our research proved that the Support and resistance level is not suitable tool for trading the Soneri Stock.

5.3.9 Meezan Bank Limited
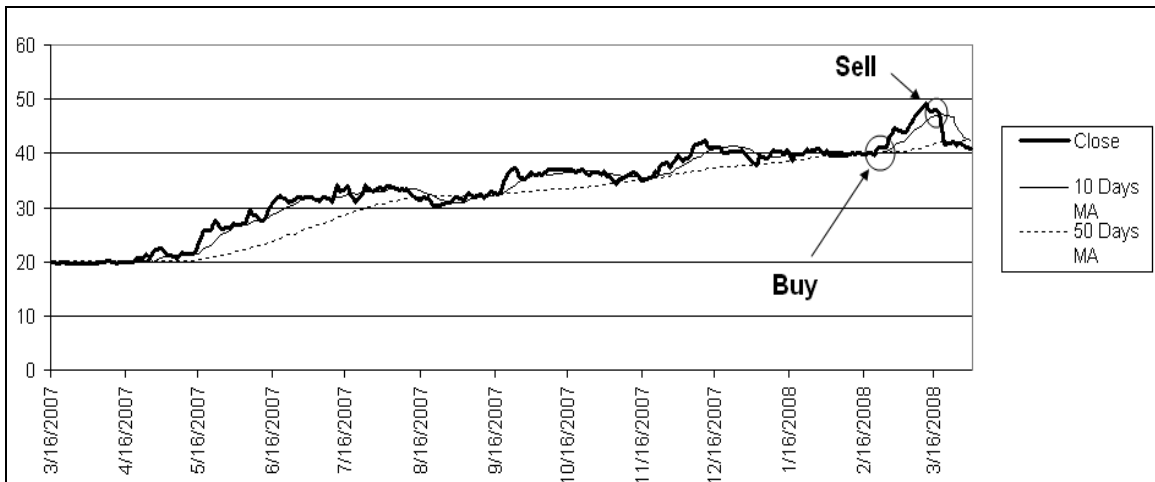
5.3.9.1 MOVING AVERAGE (50/10 DAYS)

Figure 49 – MEEZAN MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 49) on the one-year data of Mezan Bank stock prices for analysis and one-quarter year for empirical test. It found that on 21st of February when actual price intersect the 50 Days MA and 10 Days MA from down, it generated the Buy Signal at price of Rs 40. On 17th of March when actual price intersects the 50 Days MA and 10 Days MA from up, it generated the Sell Signal at a price of Rs 47. Therefore, at the end of analysis time i.e. 31st March if the return provide by the stock with the help of Moving average tool is around annually 70% which is well above of required CAPM. The tabular detail of the above-discussed fact is available in Table 7.
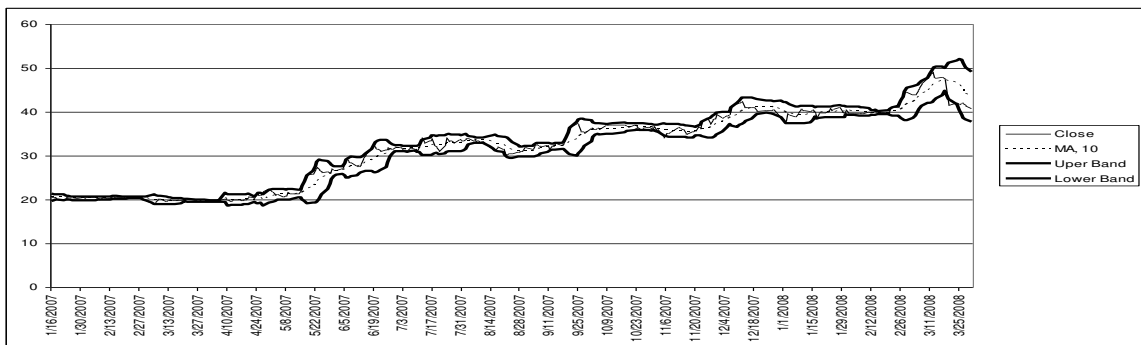
5.3.9.2 BOLLINGER BAND

Figure 50 - MEEZAN BOLLINGER BAND
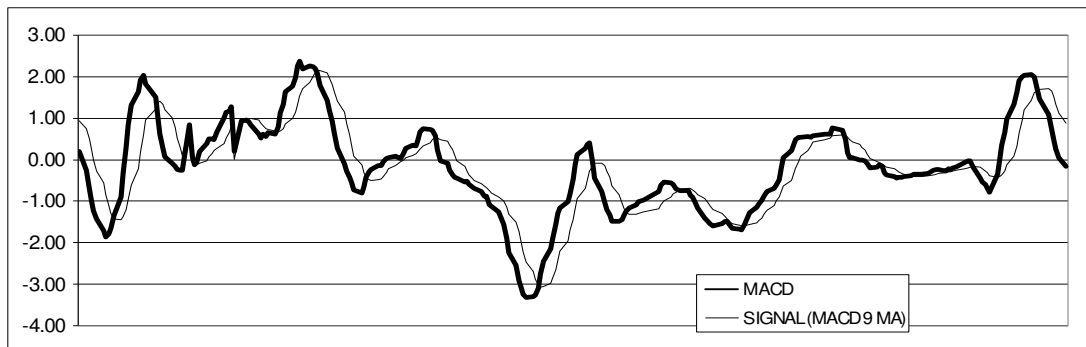
5.3.9.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)

Figure 51 - MEEZAN MACD
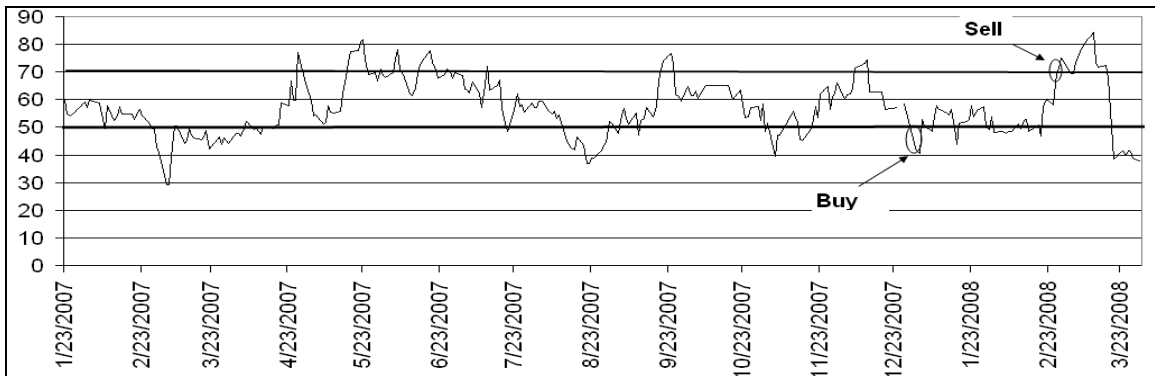
80

5.3.9.4 RELATIVE STRENGTH INDEX

Figure 52 – MEEZAN RSI
DESCRIPTION

After the application of RSI trading rule (represented in figure 52) on the Mezan Bank stock it found that the oversold line in will not workable at the 30/35 point level. Oversold line should be increase to 50-point levels where maximum low points are intersecting. After adjustments of oversold line on 2nd January when the RSI line touched the oversold line, it generated the buy signal at the price of Rs 37. On 27th February when RSI touched the overbought line, it generated the sell signal at the price of Rs 43. Therefore, at the end of analysis time RSI tool is produced around 59.71% annualized profit which well above than the required CAPM. The tabular detail of the above-discussed fact is available in Table 7.
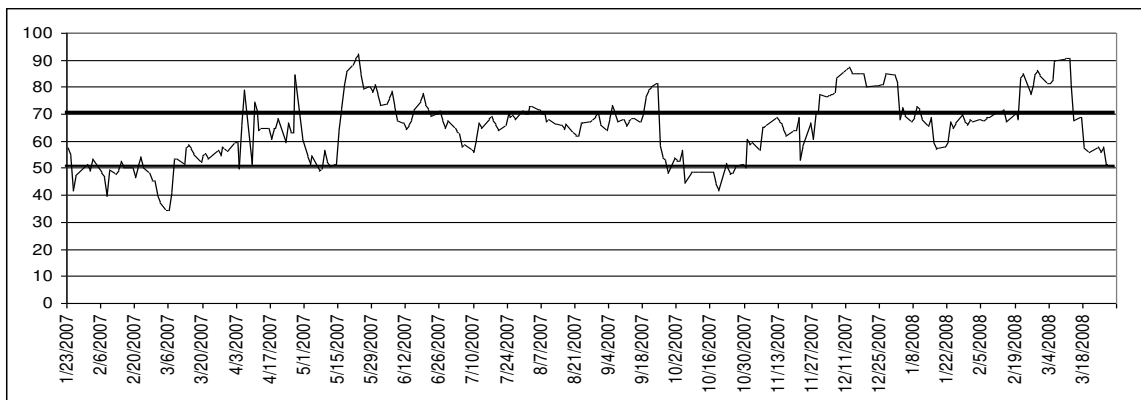
5.3.9.5 MONEY FLOW INDEX

Figure 53 – MEEZAN MFI
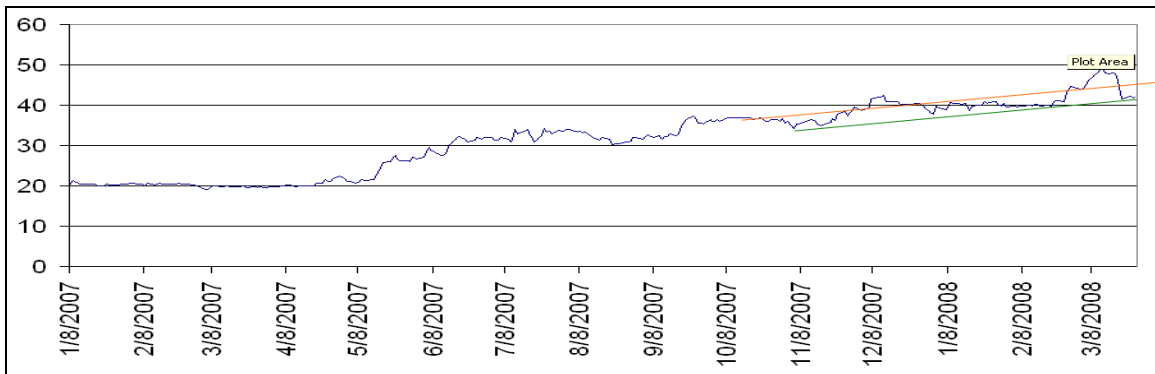
5.3.9.6 SUPPORT AND RESISTANCE LEVEL

Figure 54 – MEEZAN SUPPORT AND RESISTANCE

DESCRIPTION

As you can see above graphs of technical analysis applied on Meezan Bank stock, other than moving average and RSI none of the applied technical rule is useful. The researcher has tried a lot to generate some suitable models from different combinations of day's data but all efforts are useless. Therefore, our research proved that the technical trading rules are not fully suitable for trading the Meezan Stock.

5.3.9.7 TOOLS RETURN ANALYSIS

No	Moving Average 10,50 Days Date	Price	Profit	Return	Annual Return	Rank
1	21-Feb (Buy)	-40.8				
2	17-Mar (Sell)	47.95	7.15			
3						
			0.00	17.52%	70.10%	1
No	RSI Date					
1	2-Jan (Buy)	-37.85				
2	27-Feb (Sell)	43.5	5.65			
3						
			0.00	14.93%	59.71%	2

Table 9 Tool Ranking for Meezan Bank

5.3.10 BANK OF PUNJAB
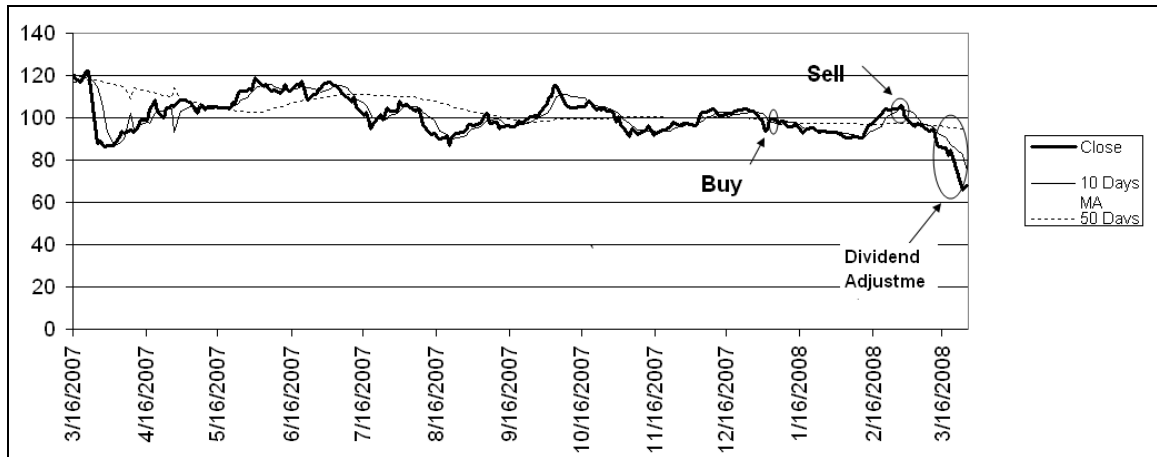
5.3.10.1 MOVING AVERAGE (50/10 DAYS)

Figure 55 – BOP MOVING AVERAGE (50/10 DAYS)

DESCRIPTION

After the application of Moving Average (50/10 Days) trading rule (represented in figure 55) on the one-year data of BOP stock prices for analysis and one-quarter year for empirical test. It found that on 4th of January when actual price intersect the 50 Days MA and 10 Days MA from down, it generated Buy Signal at price Rs 99. On 28th of February when actual price intersect the 50 Days MA and 10 Days MA from up generates the Sell Signal at a price of 105 Rs. Similarly, on 24th of March when actual price intersect the 50 Days MA and 10 Days MA from down generates the Buy Signal at a price of Rs. 65.50. This buy point is also satisfying our assumption of buying after dividend adjustment. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of 66 Rs then the return provide by the stock is around 28% which is just below of CAPM. The tabular detail of the above-discussed fact is available in Table 10.

5.3.10.2 BOLLINGER BAND
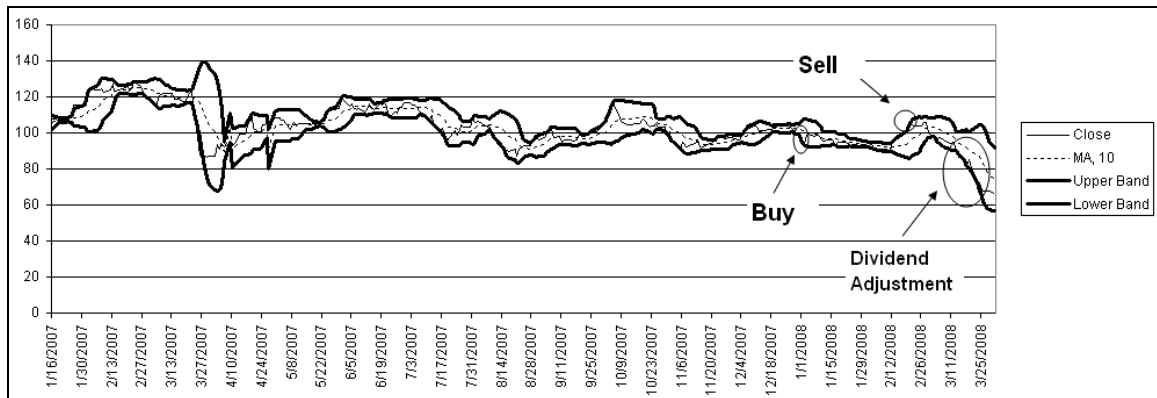
Figure 56 – BOP BOLLINGER BAND

DESCRIPTION

After the application of Bollinger Band trading rule (represented in figure 56) on the one-year data of BOP stock prices for analysis and one-quarter year for empirical test. It found that, on January 1 when actual price was below the 10 Days MA and touched the lower band generated the buy signal at the price of 93.5 Rs. On 20th of February when the closing price leaves the upper band or start declining from the point of upper band, it generated sell signal at the price of Rs. 103.7. Similarly, on 24th March 2008 when actual price was below the 10 Days MA and touched the lower band, it generated the buy signal at the price of Rs. 65.65 which is because of dividend ex out. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of 66 Rs and calculate the annual return provide by Bollinger band investment techniques for our three months empirical test is around 46% which is very well and quit above than our CAPM requirement.. The tabular detail of the above-discussed fact is available in Table 10.
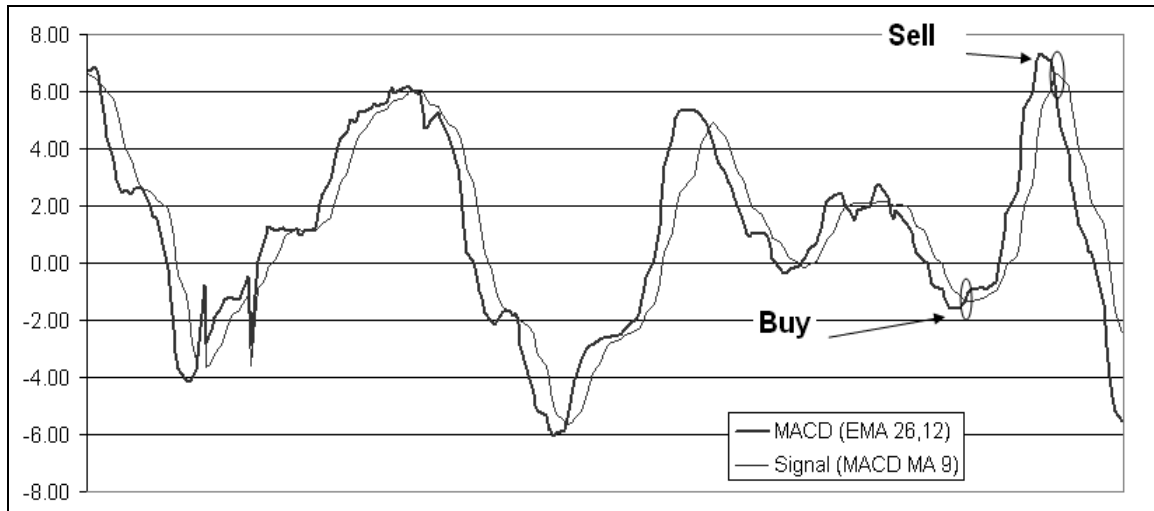
5.3.10.3 MOVING AVERAGE CONVERGENCE DIVERGENCE (MACD)

Figure 57 – BOP MACD

DESCRIPTION

After the application of MACD trading rule (represented in figure 57) on the one-year data of BOP stock prices for analysis and one-quarter year for empirical test. It found that, on 28th January when the MACD line intersects signal line from downward or when MACD>Signal line it generated buy signal at the price of 93 Rs. On 3 March when MACD line intersects signal line from upward or when MACD<Signal line it generated sell signal at the price of Rs 96. Similarly on 24th March when the MACD line intersects signal line from downward or when MACD>Signal line it generated buy signal at the price of Rs. 65. MACD response is well to our assumption of buying after dividend ex out. The annual profit of around 20.2% that is less than CAPM means MACD is not a useful tool for BOP. The tabular detail of the above-discussed fact is available in Table 10.
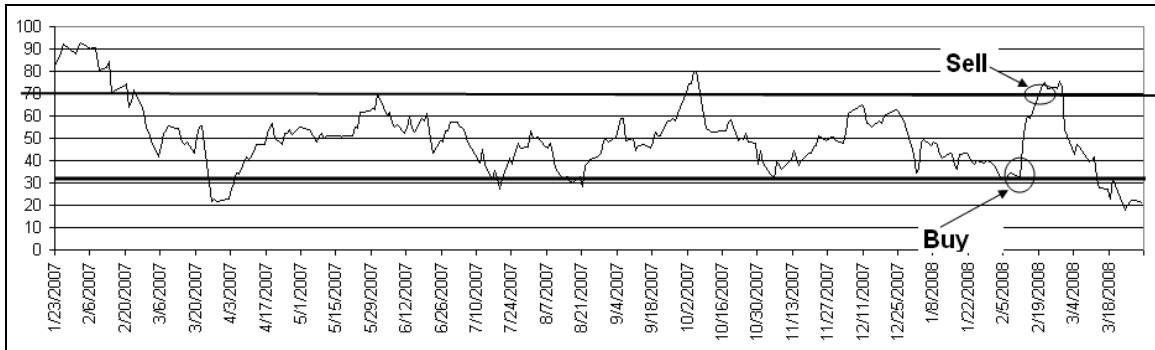
5.3.10.4 RELATIVE STRENGTH INDEX

Figure 58 – BOP RSI

DESCRIPTION

After the application of RSI trading rule (represented in figure 58) on the one-year data of BOP stock prices for analysis and one-quarter year for empirical test. It found that, the over sold line for the case of on 12 February when the RSI line touched the oversold line it generated the buy signal at the price of Rs 93. On 19 February when RSI touched the overbought line, it generated the sell signal at the price of Rs 101. On 13 March when the RSI line touched the oversold line again it generates the buy signal at the price of Rs 89. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of 66 Rs we have loss but as discussed above it is not actual loss. All loss will be cover in dividends received. Hence according to RSI rules it is not provided good profit and the annual return is around -64% which is not good. The tabular detail of the above-discussed fact is available in Table 10.
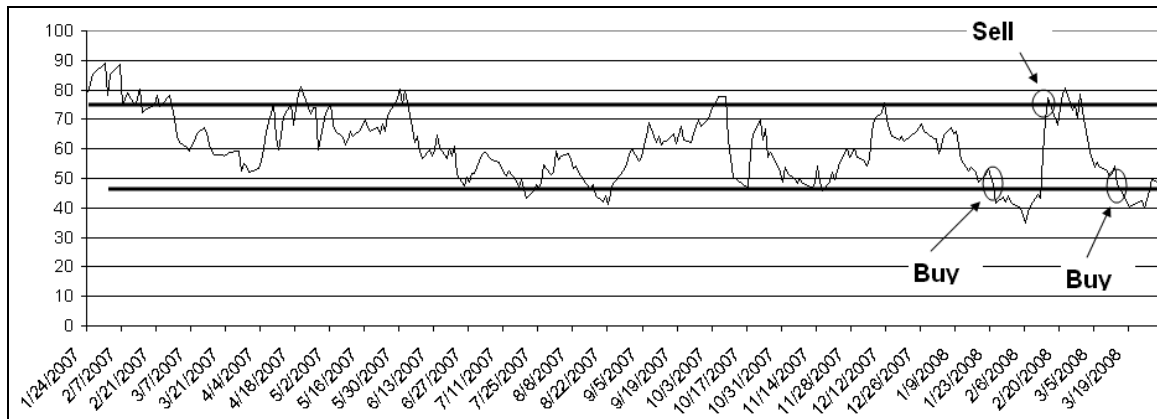
5.3.10.5 MONEY FLOW INDEX

Figure 59 – BOP MFI

DESCRIPTION

After the application of MFI trading rule (represented in figure 59) on the one-year data of BOP stock prices for analysis and one-quarter year for empirical test. It found that, the over sold line for the case of BOP will not workable at the 30 or 35 point level. It should be increase to 50/48-point levels, where maximum low points are intersecting. The 70-point level for finding out the over bought situation is appropriate for the BOP. On 23 January when the MFI line touched the oversold line, it generates the buy signal at the price of Rs 93. On 15 February when MFI touched the overbought line, it generated the sell signal at the price of Rs 96. On 14 March when the MFI line touched the oversold line again, it generated the buy signal at the price of Rs 96. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of Rs. 66 Rs then the return provided by the stock with the help of MFI tool is around -117% which is not good and proved that MFI is not good tool for trading in BOP Stock. The tabular detail of the above-discussed fact is available in Table 10.

5.3.10.6 SUPPORT AND RESISTANCE LEVEL
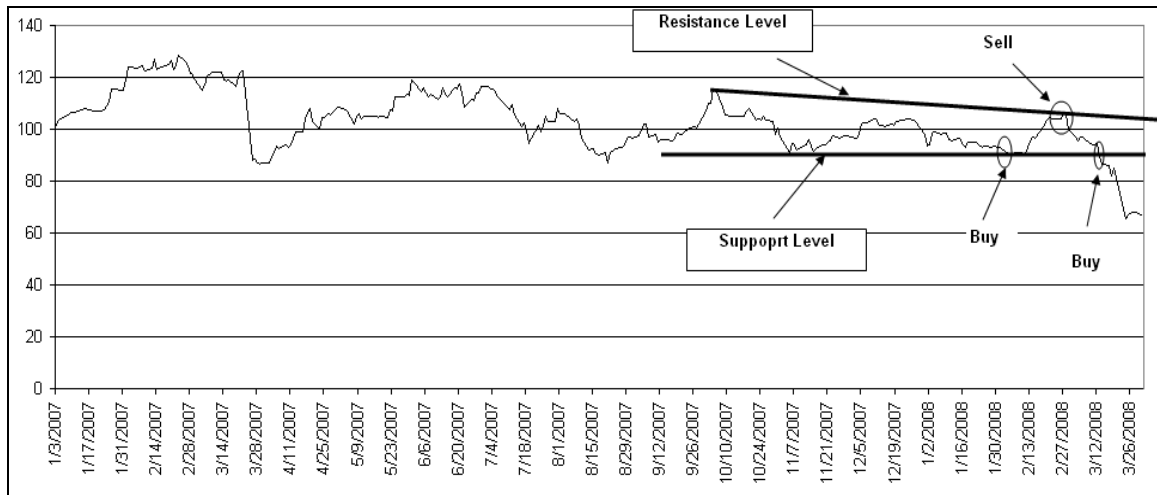
Figure 60 – BOP SUPPORT AND RESISTANCE

DESCRIPTION

As discussed above the Support and resistance level for technical analysis is a very subjective approach and different point of views could be exist but their actual return will provide the result for best gut feeling applied by the analyst. Therefore, in the case of BOP analysis the researcher has marked out the Support and resistance level for the first quarter of 2008 on his gut feeling represented in figure 60. According to marked Support and resistance level on 1 February when the closing price line touched the Support level, it generated buy signal at the price of Rs 92. On 26 February when the closing price line touched the resistance level, it generated the sell signal at the price of Rs 104. Similarly, on 12 March when the closing price line touched the Support level, it generated the buy signal at the price of Rs 94. Therefore, at the end of our analysis time i.e. 31st March our tool did not generate the sell signal. If we sell the previously buy stock on 31st March at the price of 66 Rs which means loss, This is because as discussed above discussed fact of dividend adjustments. Support and resistance level had not provided good profit and the annual return is around -73%. Hence, our analysis proved that the Support and Resistance level tool is not appropriate for the trading of BOP Stocks. The tabular detail of the above-discussed fact is available in Table 10.

5.3.10.7 TOOLS RETURN ANALYSIS

No	Moving Average 10,50 Days Date	Price	Profit	Return	Annual Return	Rank
1	4-Jan (Buy)	-99.25				
2	28-Feb (Sell)	105.5	6.25			
3	24-Mar (Buy)	-65.5				
	31-Mar (Sell)	66.36	0.86	7.16%	28.65%	2
No	**Bollinger Band** Date	Prices	Profit			
1	1-Jan (Buy)	-93.5				
2	20-Feb (Sell)	103.7	10.20			
3	24-Mar (Buy)	-65.65				
	31-Mar (Sell)	66.36	0.71	11.67%	46.67%	1
No	**MACD** Date					
1	28-Jan (Buy)	-93.1				
2	3-Mar (Sell)	96.9	3.80			
3	24-Mar (Buy)	-65.5				
	31-Mar (Sell)	66.36	0.86	5.01%	20.02%	3
No	**RSI** Date					
1	12-Feb (Buy)	-93.15				
2	19-Feb (Sell)	101.5	8.35			
3	13-Mar (Buy)	-89.7				
	31-Mar (Sell)	66.36	-23.34	-16.09%	-64.37%	
No	**MFI** Date					
1	23-Jan (Buy)	-93.55				
2	15-Feb (Sell)	96.7	3.15			
3	14-Mar (Buy)	-96.9				
	31-Mar (Sell)	66.36	-30.54	-29.28%	-117.11%	
No	**Suport and Resistance** Date					
1	1-Feb (Buy)	-92.7				
2	26-Feb (Sell)	104	11.30			
3	12-Mar (Buy)	-94.6				
	31-Mar (Sell)	66.36	-28.24	-18.27%	-73.10%	

Table 10 Tool Ranking for BOP

Chapter 06
Recommendations and Conclusion

6.1 RECAPITULATION

This study documents the result of research on profitability of technical analysis in stock markets of Pakistan. At the outset, it stated that this study aimed at shedding light on some issues. At the outset, it is perhaps useful here to restate that brief of the questions discussed in Chapter 1:

➢ Is it Possible to make profits in stock markets of Pakistan by applying technical trading rules? If so, which trading rule is the most profitable, and does profitability depend on the frequency of the data and hence the horizon of trading?

➢ Do Technical factors play any role in price determination or does the price drift randomly according to market sentiment, psychology and practical consideration?

➢ Is it wise for small investor to go in the stock market for earning high profits or not?

To answer these questions, one complete analysis and empirical work has conducted on the date of one-year daily stock prices covering ten stocks of commercial banks listed in Karachi Stock Exchange. The banks stock includes MCB, UBL, NBP, ABL, BAFL, Faysal, Soneri, BOP, Bank Al Habib and Mezan. The reason behind choosing the only banking sector is to demonstrate the robustness of the results on complete sector. In the analysis, important assumption was that we would not go for high profit and high return and we will try to form passive investor strategy with the help of technical analysis.

6.2 THE PROFITABILITY OF TECHNICAL ANALYSIS

Based on the empirical results obtained in chapter 5, the main finding of the profitability of technical analysis can be stated as follows:

1) In analysis, it is found that stocks whose trading activity is high or active issues, can be useful for technical analysis. As in the case of Soneri and Faysal Banks, these stocks are least trading stocks hence in this research the researcher has fail to find any trading rules for these banks. The author has tried from different combination of models but he was not successful in predicting the Soneri and Faysal Bank. Therefore, with the help of this research it can be conclude that trading in Faysal and Soneri Bank, we cannot use technical analysis.

2) Stock that respond well to selected six technical tools are MCB, BOP, NBP, UBL and BAFL. It means that only 50% of the analyze sample stock can be useful for technical analysis in commercial banks sector of Karachi Stock Exchange. One strange thing has observed while analyzing the stocks who respond well to the technical analysis is that, the stocks who replied well to the technical strategies did not necessarily generate profits (discussed in chapter 5). Therefore, with this research the researcher could conclude that even the stock that response well to technical analysis is not necessarily useful for generating profits.

3) The stocks that do not replied perfectly to our selected tools are ABL, Bank-Al Habib and Mezan Bank. They have replied out of six to only two or three tools that have used in the analysis. In the Case of Bank Al Habib it responds to only two tools but the profits are less than required return hence, it can be say that Bank Al Habib is not a reliable tool for technical analysis too.

Therefore, now with the help of analysis, researcher are somewhat in better position to guide small investor to invest in which stock by applying which tool for investment in Karachi Stock Exchange Commercial Bank Sector.

6.3 RANKING OF RULES ACCORDING TO PROFITABILITY

In this section, the author asses the comparative profitability of the six trading rules discussed in this study. This section will not give complete detail of each trading rule

because it has discussed in detail above. In this section (Table 9), it will just give top two ranks technical trading rule for each stock.

Symbol	Tool 1	Tool 2
MCB	Bollinger Band	Relative Strength Index
UBL	Support and Resistance Level	Moving Averages (10/50 days)
NBP	Support and Resistance Level	Relative Strength Index
BOP	Bollinger Band	Moving Averages (10/50 days)
BAFL	Relative Strength Index	Support and Resistance Level
ABL	Moving Averages (10/50 days)	MACD
Meezan Bank	Moving Averages (10/50 days)	Relative Strength Index

Table 11 Summary of Profitable Tools

After providing the above tools list with techniques discussed in chapter five, the author advises and recommends to the small investor that there are opportunities to earn profits in KSE. They just need to take help with the above point out tools with stocks for generating trading rules. One think to keep remember that never go for high profits as discussed above, these tools do not provide high return but these tools are provide gentle profits with low risk involvement.

6.4 CONCLUDING REMARKS

This study has indeed takes us on long journey through the mystery of the Commercial Banks sector of Karachi Stock Exchange. This research has found that trading rules can indeed be profitable and superior if company information is properly observed, like dividend announcement and book closure dates as discussed above buying after divided ex out and selling before the book closure is the wise decision which gives same profit with more liquid position. The researcher hope up this finding will wrap up the debate on whether or not the Karachi Stock Exchange is efficient. This issue has been argued a lot by many experts, now it is about time that it is put to rest. This research also find that traders in the all stock markets of the world use technical analysis, which provides gentle trading signals.

It seems that this study has dealt adequately with the questions posed at the beginning of the research. The author hopes that fellow students and Financial Analyst who come across this work will agree with this view. It is also hoped that this work will motivate further research into the interesting and simulating issues addressed in this study.

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