THE ROLE OF ON-LINE FOREX TRADERS IN GHANA

BY

OFORI RICHARD KISSI

A long essay submitted to the Department of Accounting and Finance.

Kwame Nkrumah University of Science and Technology in partial fulfillment of the requirement for the degree of

MASTER OF BUSINESS ADMINISTRATION

SCHOOL OF BUSINESS

COLLEGE OF ARTS AND SOCIAL SCIENCE

JULY 2009.

DECLARATION

I declare that this long essay is my original work and has not been presented, either whole or in part, for any purpose anywhere. To the best of my knowledge, I have duly acknowledged information from other sources.

Ofori Richard Kissi 20/8/09

Signature Date

Certified by:

Gordon Newlove Asamoah ....

(SUPERVISOR) Signature Date

Certified by:

J.M. Frimpong 19-10-09

(ACTING DEAN) Signature Date

DEDICATION

This is dedicated to the Lord Almighty God who has been so faithful in my life. No amount of thanks can equate to what the On-Time God has done. My lovely mum, Ms Elizabeth Ohene is also held responsible for this glorious success.

ACKNOWLEDGEMENT

Glory be to the Lord, God Almighty for His manifold blessings and mercies that have seen me through this program. I express my profound gratitude to my supervisor Mr. Gordon Newlove Asamoah for his assistance, direction and scrutiny given to make this study a success. My appreciation goes to management of Forex Capital Market for their immense assistance with collection of data. My sincere gratitude also goes to my mum Ms. Elizabeth Ohene and siblings. Finally I wish to thank all who contributed in diverse ways to make this study a reality.

ABSTRACT

In the past, most, if not all, traditional currency exchange trading in Ghana was restricted to banks, huge financial institutions, forex bureau and the "black market". With the recent rise in the accessibility of the Internet, web-based Forex trading has turn out to be a reality on the other side of the world. Very few financial institutions and individual investors in Ghana have capitalized on On-line Forex Trading. This research examines the role of On-line Forex Traders in Ghana. It focused on the technical analysts or traders who are inclined to charting indicators utilization. The researcher used questionnaires and interviews and combined both qualitative and quantitative techniques to collect data from 114 respondents. The data was analyzed with the aid of Statistical Package for Social Science. The research findings unfolded irregularities associated in candlesticks, that traders were familiar with and demonstrated how Heikin-Ashi technique was use to eliminate them with the help of Microsoft Excel. The trend and signals of the performance of the EUR/USD on a four hour period were determined using the 5/13/62 Exponential Moving Average (EMA) indicator on the Meta Trader 4 (MT4). Original crossing occurred between the 5, 13 and 62 EMA. Finally, the challenges and contributions of On-line Forex Trading were also identified with traders and how the nation benefited from trading including creating employment, source of payment, etc. The research work closed with conclusion and recommendations based on the findings.

TABLE OF CONTENTS

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMEDATION

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE
GENERAL INTRODUCTION

1.0 Introduction to the Chapter

The stock market has traditionally received the lion's share of attention in the trading industry. While the equity markets have been the focus of much research, Gallaugher and Melville (2004) revealed that scanty attention has been paid to the structural transformation occurring within Foreign Exchange Market, enabled by web trading platforms. The Foreign Exchange (currency or forex or FX) trading has surged in recent years and according to the Bank for International Settlement (BIS) 2007 annual report, forex is the leading segment of the world financial markets making roughly $1.2 trillion in daily turnover which is approximately equivalent to a month of combined New York Stock Exchange NYSE and Nasdaq trades.

The purpose of this project work has been focused closely on the roles and techniques used by forex traders in Ghana. The forex market has two groups of traders; these are technical analysts (chartists) and fundamentalists. The research work particularly determines challenges surrounding On-line Forex Traders, and examines the irregularities associated with the candlestick indicator used by technical analysts, and how best traders ratify them. It recognizes how technical indicator tool such as Exponential Moving Average (EMA) techniques, behaves in identifying trends and signals on the spot currency market. The research work also reviews contributions that On-line Currency Trading offers to individual investors and the nation as a whole. The

study concludes on the findings and makes relevant recommendations for the development of forex trading in Ghana. A glance through this chapter gives a brief description of the genesis of forex trading and how it has permeated into other trading quarters. This is followed by reasons and objectives of the research work. The research work is also linked to national development of the financial sector especially when currently the forex bureaux business in Ghana is at the verge of collapse due to the springing up of money transfer businesses. Forex trading would not generate income to the individual investors alone but also to the Ghana Government. The latter part of the chapter discusses some of the problems encountered with respondents during the period of the research work.

1.1 Background of the Study

Foreign Exchange (Currency or Forex or FX) is the exchanging of the currency of one country for that of another. The Foreign Exchange market is where the currency trading takes place, a market that has no physical exchange or trading floor. Transactions in the foreign exchange (FX) market typically involve one party purchasing a quantity of one currency in exchange for paying a quantity of another. The forex market that forex traders see today started evolving during the 1970s, when countries all over the world gradually switched to float exchange rate from their erstwhile exchange rate regime, which remained fixed as per the Bretton Woods system till 1971 (www.wikipedia.com). Those trading in the foreign-exchange market (forex) rely on the same two basic forms of analysis that are used in the stock market; Fundamental Analysis and Technical

Analysis (www.investopedia.com). Technical analysis and fundamental analysis differ greatly, but both can be useful forecasting tools for the forex trader. They have the same goal; to predict a price or movement. The technical analyst (chartist) studies the effects, while the fundamental analyst (fundamentalist) studies the causes of market movements. Many successful traders combine a mixture of both approaches for superior results (www.Easy-Forex.com). According to Neely et al (1997) technical analysis uses information about historical price movements, summarized in the form of price charts, to forecast future price trends. This approach to forecasting originated with the work of Charles Dow in the late 1800s.

The emergence and introduction of internet banking coupled with the development of technology, operations in the forex market have been greatly facilitated. Trading currency exchange on-line introduced electronic brokers, which Rime (2003) made significant contribution explaining the functions of the electronic brokers and internet trading, and discussed the economic consequences. He further examined the transparency, liquidity and the transaction cost involved in On-line Spot Currency Trading. Murphy (2000) also looked at the six forces of forex. He was of the view that to create and operate a comprehensive trading plan, it would depend on the understanding of these forces. One of them focused on the four major factors creating a unique forex environment. These factors were liquidity, leverage, convenience and cost. But to take advantage of these factors, one must constantly be aware of their downside. Concerns with some of the properties and pitfalls of on-line retail trading platforms

versus the institutional foreign exchange execution system were also raised by Melendez (2003). He dealt into important areas when it came to forex trading platforms such as leverage, commission, slippage, interest rate and choosing a platform.

1.2 Research Problem

With the recent rise in the accessibility of the Internet, web-based Forex trading has turn out to be a reality on the other side of the world. Very few financial institutions and individual investors in Ghana have embraced On-line Forex Trading which has turned out to be very lucrative and beneficial. In Ghana, financial institutions and individual investors trading in spot currency market can also be categorized as chartist, fundamentalist or those practising both. The chartists work with charting tools such as Candlesticks, Moving Average, Bollinger Bands, Money Flow Index, Fractals, Relative Strength Index etc, to determine future prices of currencies. These indicators enable traders to have a clearer picture of the trading market using historical data. The fundamentalists also depend on forecasted economic data from forex brokers, and other market analysts to determine the market direction in order to predict the trend of currencies market.

More often than not, predictions made by chartists and fundamentalists contradict the market movement because of the wrong forecast data published by forex brokers or forecasters and the lack of appropriate charting tools or indicators. The forex market is flooded with so many charting tools or indicators, with complex and unreliable rules

available to technical analysts, to use in predicting price trends and buying and selling signals. Technical traders in the spot currency market are therefore exposed to some degree of error on the reliance of technical indicators or charting tools. The measure of the challenges and prospects of these tools will be very relevant to forex traders in Ghana and to others outside the country. They depend on such relevant charting tools for profit. It is therefore advisable to also investigate the strength of charting tools to be able to ascertain the benefits that forex traders can derive from them. For this reasons, Forex traders, especially technical analysts must pay particular attention to the appropriate technical indicators or tools from forex brokers in order to take correct positions in the market.

1.3 Objectives of the Study

The research work seeks to achieve the following set of specific objectives:

a. To assess the challenges facing On-line Forex Traders
b. To identify the irregularities On-line Forex Traders particularly technical analysts encounter with the traditional candlestick indicator, and how to eliminate them by analyzing with Heikin-Ashi technique
c. To determine the contributions of On-line Forex Trading in the economy of Ghana
d. To identify trading signals and movement of the following currency pair; EUR/USD

e. To suggest and make recommendation towards the development of On-line Forex Trading in the country

1.4 Justification for the Study

The forex market has exploded onto the scene and is the hottest new financial market in the developed countries. Very few individual investors and financial institutions in Ghana and most developing countries trade on a scale unimaginable, just some few years ago. Trading in the world's largest financial market, require a lot of experience and careful understanding of the different types of forex trading systems, tools and their occurrences over time. The trader must be acquainted with the trading tools and the techniques governing them, and how each one influences the market. The significance of this research work will

a. alert individual investors (speculators) and most importantly non-banking financial institutions and forex bureaux in the country to take opportunity of the market that trades around the clock with superior market liquidity
b. allow forex traders in Ghana to be careful in their choice of forex brokers in terms of the availability of trading tools, and how accurate economic data have been
c. allow the technical traders to have a deeper understanding of how powerful and sensitive some charting tools may be
d. enable corporate treasurers and money managers to hedge against unwanted exposure to future price movements in the spot currency market

e. contribute to knowledge and available literature on Forex Trading

1.5 Methodology

On-line Foreign Exchange Trading is new and at its early stages in Ghana, therefore in order to identify individual investors and financial institutions, who trade in such a market; all the financial institutions were explored by initially sending a notification. From a careful and stern investigations conducted, it was noticed that out of the 25 universal banks in Ghana, only 5 of these banks were actively trading spot currency via the internet. These banks have data for a total of 205 individual investors, who have personally opened domiciliary accounts to trade forex with foreign brokerage firms. Through a cautious survey, some individual investors (both experienced and inexperienced) were spotted at internet cafés trading forex, while others were located in their offices and homes within the Accra and Tema Metropolis. Questionnaires were administered to a total of 123 respondents of which 114 responded. Forex Traders at the banks were interviewed. Also the weekly economic data release calendars used by fundamental analysts were retrieved from the Forex Capital Market website (www.fxcm.com). The opening, high, low and closing prices for the currency pair, EUR/USD on a four hour time interval were also recovered using the Meta Trader 4 (MT4) software, downloaded for the Forex Capital Market website. Statistical Package for Social Science (SPSS) software and Microsoft Excel helped in analyzing the data gathered.

1.6 Scope of the Study

This research work basically encompasses what individual investors and financial institutions in the forex trading market have experienced, in terms of their trading techniques and challenges since they commenced trading in Ghana. The work critically analyzes the usefulness of the normal charting indicator (candlestick) to the technical analyst and the irregularities associated with it. It then applies the Heikin-Ashi technique in eliminating such disorders. The work also identifies some important features of Exponential Moving Average indicator and their contributions to the traders' profitability. Forex or spot currency trading is unpopular in most of the financial institutions and among individual investors, therefore the very ones who have integrated it, are mostly within the Greater Accra Region of Ghana. Some were located at the Tema metropolis. Though no work was done in the other regions to search for spot currency traders in the forex market, it may happen that traders may also be located in these environments. The FX activities within the financial firms are held at their head offices and not the unit branches scattered around. Some individual FX investors visit the café or trade at their various homes. They prefer to be in a place where the internet service is very fast and reliable.

1.7 Limitations of the Study

A number of obstacles were encountered during the various phases of the research work. At the early phase of the research, the banks that practised On-line FX (spot currency) Trading were reluctant to be administered with questionnaires, especially at their

treasury departments. They stated frantically not to mention or reveal their banks' name in the research work, because of the sensitive nature of their trading techniques and data analysis they adopt. This formed part of the laid-down rules and regulations in the banks not to disclose inside trading secrets. But they were kind enough to issue out the total number of individuals who have opened foreign accounts or domiciliary accounts for FX trading, and later allowed questionnaires to be administered to the employees at their treasury departments after careful scrutiny. Because of the responsive and busy nature of the spot currency trading, employees at the treasury department were always busy and for that reason some interviews were conducted very late in the night on week days while some were held during week-ends. Another problem encountered was how to identify those individual FX traders or investors to answer the questionnaires, because their addresses and contact numbers were not issued by the banks. Lastly the time frame for the research work was another limiting factor. This had to be done simultaneously with the other academic courses for the semester.

1.8 Organization of the Study

The researcher commenced the research work by first giving a brief introduction, background of the study, objectives, justification, methodology, scope as well as limitations of the research work in chapter one. Chapter two is all about literature review. It covers some of the vital works done on the behavior of chartists and fundamentalists and some of the charting tools they adopt. It also covers the challenges and prospects of trading forex on-line. Chapter three basically captured the

methodology, that is, how the actual ground works were planned and executed to acquire primary data through the issuance of questionnaires, answered by the individual investors and firms. Secondary data was sourced from the Forex Capital Market Limited. Then chapter four presented the data analysis, findings and discussion of the study using Meta Trader 4, SPSS software and Microsoft Excel to generate charts and graphs for illustrations as well as analysis. The final chapter dealt with the summary of the findings which enabled the drafting of the recommendations and conclusion. The study closed with a list of main reference materials reviewed and consulted throughout the investigation, as well as a range of relevant, illustrative and supportive appendices.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

2.0 Introduction

The review of literature on the subject of foreign exchange trading has being covered extensively by a number of books, journals, articles, websites, unpublished papers etc. These diverse studies ranged from topics such as forex forecasting and trading, forex interventions, foreign exchange hedging and profit making strategy, an empirical methodology for developing stock market trading systems and effect of exchange rate. There are also numerous research works on methodologies and models for technical indicators and forecasting with artificial neural networks. For example, according to Yu et al (2007), Refenes et al (1993) applied multilayer forward neural network models to forecast foreign exchange prices, Kuan and Liu (1995) provided a comparative evaluation on multilayer forward neural network models to performance and a recurrent network for the prediction of commonly traded exchange rates, Gencay (1999) worked on the linear, non-linear and essential foreign exchange rate prediction with simple technical trading rules, etc.

However, this chapter begins with the history of foreign exchange, followed by the fundamentals of forex trading including forex market size and the types of forex transactions. It provides a comprehensive literature of the two broad divisions used by

forex traders; fundamental and technical analysis. Some of the technical indicator rules associated with technical analysts are also captured. This is followed by the overall developmental stages of the structure of On-line Forex Trading. It contains sections concerning the old system of trading forex, telecommunication era in forex, Reuter D2001 and electronic forex trading. Also previous research works on the prospects and challenges associated with On-line Forex Trading for traders have being outlined. The chapter finally concludes with the overview of exchange rate development in Ghana, some foreign exchange interventions and the effectiveness and implications of forex interventions.

2.1 History of Foreign Exchange

In order to gain a complete understanding of how On-line Forex Trading evolved, it is useful to examine the reasons that lead to its existence in the first place. Originally our ancestors conducted trading of goods against other goods this system of bartering was of course quite inefficient and required lengthy negotiation and searching to be able to strike a deal. Eventually forms of metal like bronze, silver and gold came to be used in standardized sizes and later grades (purity) to facilitate the exchange of merchandise. The basis for these mediums of exchange was accepted by the general public and practical variables like durability and storage. Eventually during the late middle ages, a variety of paper IOU started gaining popularity as an exchange medium. The obvious advantage of carrying around 'precious' paper versus carrying around bags of precious metal was slowly recognized through the ages. Eventually stable governments adopted

paper currency and backed the value of the paper with gold reserves. This came to be known as the Gold Standard. (www.ac-markets.com)

2.1.1 The Bretton Woods Agreement

The Bretton Woods Accord in July 1944 fixed the dollar to 35 USD per ounce and other currencies to the dollar. In 1971, President Nixon suspended the convertibility to gold and let the US dollar 'float' against other currencies. Since then the foreign exchange market has developed into the largest market in the world with a total daily turnover of about 3.2 trillion USD. Traditionally an institutional (inter-bank) market, the popularity of On-line Currency Trading offered to the private individual is democratizing forex and widening the retail market. (www.ac-markets.com)

2.2 Fundamentals of Forex Trading

A major catalyst to the acceleration of Forex trading was the rapid development of the Eurodollar market; where US dollars are deposited in banks outside the US. The largest foreign exchange activity retains the spot exchange (i.e.., immediate) between five major currencies: US Dollar, British Pound, Japanese Yen, Eurodollar and the Swiss Franc. It is also the largest financial market in the world. The FX market is considered an Over-The-Counter (OTC). (www.1st-forex-trading-academy.com) Trading takes place directly between the two counterparts necessary to make a trade, whether over the

telephone or on electronic networks all over the world. The main centers for trading are Sydney, Tokyo, London, Frankfurt and New York. This worldwide distribution of trading centers means that the Forex market is a 24-hour market. A currency trade is the simultaneous buying of one currency and selling of another one. Forex market is the spot market as it has the largest volume. The market is called the spot market because trades are settled immediately, or "on the spot". In practice this means two banking days. (www.forextrading.com) Those trading in the foreign-exchange market (forex) rely on the same two basic forms of analysis that are used in the stock market: fundamental analysis and technical analysis (www.investopedia.com)

2.2.1 Forex Market Size

The survey conducted by the Bank for International Settlement (2007) reviewed an average daily turnover in global foreign exchange market is estimated at $3.98 trillion. Trading in the world's main financial markets accounted for $3.21 trillion of this. The approximately $3.21 trillion in main foreign exchange turnover was broken down as follows:

- $1.005 trillion spot transactions
- $362 billion in outright forwards
- $1.714 trillion in forex swaps

- $129 billion estimated gaps in reporting

2.2.2 *Types of Forex Transactions*

Transactions in forex trading can be grouped in five categories. These are spot currency transactions, futures, forwards, options and swaps. From the review of existing literature, the difference between theory and practice is crystal clear. There exists a vast literature that looks at the types of forex trading for example; the Black-Scholes model is used for options pricings in the share and foreign exchange market. However, there is a paucity of research focusing on the leveraged spot market, both from an empirical and theoretical point of view. Demos and Goodhart (1996) stated that in the foreign exchange spot market there is an empirical relationship between volatility, average spread, and number of quotations. The estimation procedure involves two steps. In the first one the optimal functional form between these variables is determined through a maximization procedure involving the Box-Cox transformation. The second step uses the two-stage least squares method to estimate the transformed variables in a simultaneous equation system framework. The results indicate that the number of quotations successfully approximates activity in the spot market. Furthermore, the number of quotations and temporal dummies reduce significantly the conditional heteroscedasticity effect. Payne (1991) also worked on the extant evidence on asymmetric information in inter-dealer spot FX trades using a new sample of USD/DEM data derived from the electronic FX brokerage and covering one trading

week. His results confirmed the existence of private information on the FX markets, indicating that asymmetric information costs account for around 60% of the half-spread.

Wang (2004) examined the relation between futures trading activity by trader type and returns over short horizons in five foreign currency futures markets – British pound, Canadian dollar, Deutsche mark, Japanese yen, and Swiss franc. Transforming trading activity into a sentiment measure, he found that speculator sentiment is positively related to future returns. Based on equilibrium pricing models that futures risk premiums are determined by both market risk and hedging pressure, he showed that the profits to speculators are in general compensation for bearing risk. The futures market was also considered in terms of energy by Charupat and Deaves (2002). They showed that, since the inception of energy futures markets, prices have on average exhibited backwardation. Normal backwardation has also been the norm, but, because of the low power of the standard tests, most researchers have concluded that the unbiased expectations model cannot be rejected. The fact that backwardation has been and (though somewhat more weakly) continues to be prevalent making hedging long-term supply commitments with short-dated futures contracts look somewhat better than previous observers have argued. That said it should be re-stressed that their strategy was a highly speculative one and its unraveling should have come as no great surprise.

2.3 Introduction to Fundamental and Technical Analysis

Both the fields of fundamental analysis and technical analysis have long histories of using their variables as predictors of future returns. These terms refer to two different stock-picking methodologies used for researching and forecasting the future growth trends of stocks. Like any investment strategy or philosophy, both have their advocates and adversaries. Here are the defining principles of each of these methods of stock analysis according to Vanstone and Finnie (2007): Fundamental analysis is a method of evaluating securities by attempting to measure the intrinsic value of a stock. Fundamental analysts study everything from the overall economy and industry conditions to the financial condition and management of companies. Technical analysis is the evaluation of securities by means of studying statistics generated by market activity, such as past prices and volume. Technical analysts do not attempt to measure a security's intrinsic value but instead use stock charts to identify patterns and trends that may suggest what a stock will do in the future. However Bask (2005) research encompassed the relative importance of fundamental analysis and technical analysis in the foreign exchange market with time horizon in currency trade. For shorter time horizons, more weight is placed on technical analysis, while more weight is placed on fundamental analysis for longer horizon.

2.3.1 Fundamental Analysis

The process of using fundamental variables to make trading decisions or predictions begins with Benjamin Graham, as early as 1928 (Vanstone and Finnie, 2007). Lien

(2004) figured out what moves the currency market. He based his research findings on economic factors that help shape the short-term and long-term forex landscape especially economic, social and political forces that drove supply and demand. Frenkel's (1981) idea was that news is innovations in macroeconomic variables which cause a great bulk of movements in exchange rates.

However, according to Cheng and Chinn (1999), the empirical attempts to link exchange rate movements to specific announcements of macroeconomic variables have been hampered with difficulty in extracting the unexpected component in these announcements. In particular, it may be that announcement effects have been dissipated by the time exchange rate data were sampled, even when the data frequency was daily or even hourly. In their survey conducted, it was found out that in fact the response of the exchange rate to news is extremely rapid on the order of minutes for most variables. For the first five variables: unemployment, the trade deficit, inflation, GDP, interest and money supply; bulk of the adjustment took place within one minute. In fact, there was a striking uniformity in the response. Interestingly, in the survey responses money supply announcements appeared to be an outlier in several respects. For instance, Tanner (1997) also reported a complete adjustment of DM-$ rate to trade deficit figured in half an hour but no significant responses to news about money supply, industrial production or unemployment.

2.3.2 Technical Analysis

According to Vanstone and Finnie (2007) Modern Technical Analysis dates from the work of Charles Dow, who in 1884 drew up an average of the daily closing prices of 11 important stocks. Brown and Jennings (1989) showed that technical analysis has value in a model in which prices are not fully revealing and traders have rational conjectures about the relation between prices and signals. Frankel and Froot (1990) showed evidence for the rising importance of chartists. Neftci (1991) showed that a few of the rules used in technical analysis generate well-defined techniques of forecasting, but even well-defined rules were shown to be useless in prediction if the economic time series is Gaussian. However, if the processes under consideration are non-linear, then the rules might capture some information. Tests showed that this may indeed be the case for the moving average rule. Taylor and Allen (1992) report the results of a survey among chief foreign exchange dealers based in London in November 1988 and found that at least 90 per cent of respondents placed some weight on technical analysis, and that there was a skew towards using technical, rather than fundamental, analysis at shorter time horizons. In a comprehensive and influential study Brock et al (1992) analyzed 26 technical trading rules using 90 years of daily stock prices from the Dow Jones Industrial Average up to 1987 and found that they all outperformed the market.

Neely (1997) explains and reviews technical analysis in the foreign exchange market. Neely et al (1997) used genetic programming to find technical trading rules in foreign exchange markets. The rules generated economically significant out-of-sample excess

returns for each of six exchange rates, over the period 1981–1995. Lui and Mole (1998) report the results of a questionnaire survey conducted in February 1995 on the use by foreign exchange dealers in Hong Kong of fundamental and technical analysis. They found that over 85% of respondents rely on both methods and, again, technical analysis was more popular at shorter time horizons. Neely (1998) reconciles the fact that using technical trading rules to trade against US intervention in foreign exchange markets can be profitable, yet, long-term, the intervention tends to be profitable. LeBaron (1999) shows that, when using technical analysis in the foreign exchange market, after removing periods in which the Federal Reserve is active, exchange rate predictability is dramatically reduced.

2.4 Rules on Technical Indicators

Technical indicators are basically mathematical formulas based on price activity. Technical indicators should be used together with chart patterns to get the best idea of what's happening with a stock, currency or anything else and what sort of change could be expected. The primary input for technical indicators is close price, less often also open, low or high. Technical indicators can be mainly used to

- Measure strength of a trend
- Find support and resistance areas in trends
- Get trend reversal confirmations

- Understand the direction of a trend at all

When talking about technical indicators, the indicators are usually divided into two different types. Moving averages mainly meant for long-term investments and Oscillators in mainly short-term trading. (www.learn-to-invest.com) Some of the literature reviewed on some indicators are discussed below.

2.4.1 Candlestick Indicator

Fock et al (2005) put one very popular charting technique, the "candlestick" method, to the test. They start by developing specific criteria for a set of basic candlestick patterns, and then measure predictive performance with intraday data from two major futures, the DAX stock index contract, and the Bund interest rate future. The authors find no evidence of predictive ability from candlestick patterns alone, or in combination with other common technical indicators, like momentum.

2.4.2 Moving Average Indicator

The Moving Average Technical Indicator shows the mean instrument price value for a certain period of time. When one calculates the moving average, one averages out the instrument price for this time period. As the price changes, its moving average either increases, or decreases. There are four different types of moving averages: Simple (also

referred to as Arithmetic), Exponential, Smoothed and Linear Weighted. Moving averages may be calculated for any sequential data set, including opening and closing prices, highest and lowest prices, trading volume or any other indicators. It is often the case when double moving averages are used (www.metaquotes.net). According to Lento and Gradojevic (2007) moving average rule compares a short-run moving average to a long-run moving average. There are two variants of the moving average cross-over (MAC-O): variable length moving average (VMA), and the fixed length moving average (FMA). The VMA generates a buy (sell) signal whenever the short moving average is above (below) the long moving average. The FMA stresses that the returns for a few days following the crossing of the moving averages should be abnormal. The MAC-O rules try to identify a change in a trend. This simple rule has a large variety of forms based on the time frame selected for each moving average.

2.4.3 Heikin-Ashi Indicator

According Valcu (2004) the Heikin-Ashi method *{heikin* means "average" or "balance" in Japanese, while *ashi* means "foot" or "bar") is a visual technique that eliminates irregularities from a normal chart, offering a better picture of trends and consolidations. Just by looking at a candlestick chart created with this method, you get a good idea of the market's status and its strength. The Heikin-Ashi candlestick technique uses modified open-high-low-close (OHLC) values and displays them as candlesticks. Kuepper (2007) explained that Heikin-Ashi technique is extremely useful for making

candlestick charts more readable--trends can be located more easily, and buying opportunities can be spotted at a glance. The charts are constructed in the same manner as a normal candlestick chart, with the exception of the modified bar formulas. When properly used, this technique can help traders to spot trends and trend changes for profit.

2.4.4 Moving Average Convergence and Divergence Indicator (MACD)

In simplest terms, a moving average convergence divergence indicator (MACD) according to Brumley (2009) is a group of dynamic lines used by technical analysts, or traders who specialize in using a stock chart's history to predict its future. The MACD indicator usually consists of at least two lines (a lead line and a lagging line), and sometimes a third line (usually a histogram) is added as well. The 'lead' line, generally speaking, moves up and down a centered (at a zero line) graphical plot, and is largely reflective of the movement of stock or index. The stronger or faster the stock or index moves, the steeper the lead MACD line. The 'lagging' line is essentially a moving average of the lead line, which inherently means it trails- or lags- the lead line. The most common use of these MACD lines is to use their 'crossover' as a buy or sell signal.

2.4.5 Tick Index Indicator

Ord (1991) established four trading rules under the tick index indicator and applied them to two market moves in order to alert investors of overbought and oversold

situations. The first was for the continuation move and the next three rules were to identify upcoming turning points in the market and confirm trend reversals. Further price movement can be inferred from these conditions.

2.4.6 Fractal Indicator

Fractal is one of five indicators of Bill Williams' trading system, which allows detecting the bottom or the top. Fractal Technical Indicator is a series of at least five successive bars, with the highest HIGH in the middle, and two lower HIGHs on both sides. The reversing set is a series of at least five successive bars, with the lowest LOW in the middle, and two higher LOWs on both sides, which correlates to the sell fractal. The fractals are having High and Low values and are indicated with the up and down arrows. The fractal needs to be filtrated with the use of Alligator. After the fractal signal has been created and is in force, which is determined by its position beyond the Alligator's Mouth, it remains a signal until it gets attacked, or until a more recent fractal signal emerges. (www.metaquotes.net)

2.4.7 Bollinger Bands Indicator

Bollinger Bands, created by John Bollinger in the 1980s, are trading bands that are plotted two standard deviations above and below a 20-day moving average. When the market touches (or exceeds) one of the trading bands, the market is considered to be

over-extended. Prices then will often pull back to the moving average line (Murphy, 2000).

2.5 The Structure of On-Line Foreign Exchange Market

To understand the contribution and essentials of On-line Forex Trading to the individual trader who wants to trade in the financial market in Ghana, it is important, according to Rime (2003) to have an overview of the general structure of the foreign exchange market so as to be able to understand the impact of these new trading institutions. For the general description of the foreign exchange market is valid for both before and after the introduction of electronic brokers. The reason is that brokers were present in the market before electronic brokers were introduced.

2.5.1 Old System of Forex

Prior to the electronic trading, Rime (2003) stated that trades can be divided into interbank trades and customer trades, representing the two segments of the market. In the interbank market, trading is either direct (bilateral or taking place between dealers) or brokered (interdealer trades). Important characteristics of the foreign exchange market are that customers do not have access to the interbank market and that they do not trade with each other. The Bank of International Settlement (BIS, 2001) described this foreign exchange market as a centralized call market. Trading in foreign exchange

can be traced back to ancient times, when foreign exchange trading was a way to circumvent the ban on usury. Trading occurred every third month at fairs, each lasted for eight days.

2.5.2 Telecommunication Era in Forex

However, the Bank of International Settlement (BIS, 1990) alleged that telecommunications changed the general structure of the foreign exchange and it has been more or less unaltered from the early 1930s up to the present. According to Gallaugher and Melville (2004), Traditional currency trading consists of brokers exchanging quotes for currency pairs and making trades by phone. At the end of the day, the trade is sent to the bank's back office where settlement arrangements are made for a specific date that varies with the type of instrument (spot, forward, and so on). Still widely used, telephone trading promotes personal relationships and rich information exchange. For telephone brokers, Rime (2003) alleged that, the brokers announce the best (limit order) bid and ask prices over intercoms at the dealers' desk. If the dealer wants to trade at a limit order, i.e., submit a market order, he picks up the phone with the direct line and just says "mine" if he is buying (at the ask price) and "yours" if he is selling (at the bid price).The voice broker then knows which of the two announced prices at which he is trading. After a trade the broker announces the price and whether it was traded on the bid or the ask price. The size of the trade is not announced, but standard sizes are 1 and 5 million. This announcement was the only signal on market wide order flow that the dealer received.

2.5.3 Characteristics of Forex System

According to Rime (2003) the system of trading foreign exchange can be described as decentralized across several locations, as opposed to centralized on an exchange as is the case in many equity markets. There is continuous trading around the clock, as opposed to only when called upon as in a call market. Several dealers provide liquidity, as opposed to the specialist on the NYSE floor in earlier days, for example. Liquidity is both quote-driven, i.e., created by quoting bid and ask prices in response to trading initiatives (market making or dealer market), and order-driven, i.e., by entering limit orders with brokers (Auction market). The forex market is relatively opaque, i.e., has low transparency compared with many equity markets.

2.5.4 Reuter D2000-1

According to Rime (2003), direct trading was made by telephone or telex in the 1970s. In February 1981, Reuters introduced the Reuters Market Data Service (RMDS), which was like a bilateral bulletin board for conveying trading interest, for subsequent trading over the telephone. This system was replaced in 1987 by Reuters Dealing 2000-1, a closed network for bilateral electronic communication. Although a system for electronic trading. it did not revolutionize the market. The D2000-1 is more like an advanced telephone and made the direct trading that used to take place over the telephone more efficient. D2000-1 quickly became the dominant tool for trading bilaterally. The dealers "chat" in much the same manner as with "instant messengers" on the Internet.

D2000-1 proved its efficiency since communication between foreign exchange brokers was greatly enhanced. However, it had a drawback, namely it didn't include the possibility of matching of potential counterparts. (www.forex-trading-gurus.com) With this system in place, direct trading started to take market share from voice brokers and in the late 1980s to early 1990s, interbank volume was split 50/50 between direct trading and voice brokers. (Rime, 2003)

2.5.5 Electronic Forex Trading

According to Economides (2000), many, if not most, of the effects of the Internet are enhancements and improvement of existing processes and market structure. A typical example of an improvement of an existing process is the elimination of the middleman (broker) in sending orders to financial markets. Before the Internet, this was possible by using the telephone. But the Internet allows it to be done much more efficiently through a direct connection to an electronic system. And, the Internet brings a wide availability of information both about current prices and past performance as well as various tools to analyze it. According to Kuepper (2007) the economic integration within and across countries, deregulation, advances in telecommunications, and the growth of the Internet and wireless communication technologies are dramatically changing the structure and nature of financial services. Internet and related technologies are more than just new distribution channels; they are a different way of providing financial services. In 1992, Gallaugher and Melville (2004) found out that Reuters innovated again by introducing Dealing 2000-2, the first international computerized matching service for foreign

exchange. With the wide use and application of different types of technologies, the forex spot market became even more beneficial to investors. It provided more transparent and accessible information than before.

As a result the FX spot market has become a preferred destination to active traders. Forex market provides higher price transparency, which was greatly facilitated by the wide use of On-line Foreign Exchange Trading. This price transparency in combination with the provided on-line capabilities further works for the benefit of traders. Added to the possibility of directly trading with the market maker, the On-line Foreign Exchange increases further its advantageousness. (www.forex-trading-gurus.com)

2.6 Prospects of On-Line Forex Trading

On-line Forex Trading has caused a major paradigm shift in investment. As a result, start-up firms now compete directly with financial institutions to serve investors in the new economy, and the clear winner is the customer. On-line trading has and will revolutionize the currency markets by making it accessible to the small and medium sized investors. This benefits both those who wish to speculate on the direction of the currency markets for profit, as well as the money manager or corporate treasurer looking to hedge against unwanted exposure to future price fluctuations in the currency markets. The benefits of trading forex on the internet have being commented by a number of individual investors, financial firms and authors. According to Lento and

Gradojevic (2007), Forex traders make money by getting accurate market data and then analyzing the direction the market takes. To do this, forex traders rely heavily on trends and trending in an attempt to predict the direction of the forex market. Most traders use technical analysis to analyze past and present forex market data and then search for trends. Due to strong trending, forex markets are much easier to analyze and identify possible entry and exit positions during trading. Brumley (2009) also ascertained that there are seven different advantages that On-line Forex Trading has over other investment.

Leedy and Ormrod (2005) work agreed with the first four points of Brumley (2009). He stated that the forex market never closes. It's open around the clock, worldwide. Trading positions open at Monday 7am, New Zealand time and close 5pm New York time on Friday. It's a continuous electronic currency exchange. Secondly investors could accurately predict the outcomes by trading on-line. Currency prices generally repeat themselves in predictable cycles so the trader can see what the trends are. Technical analysis helps to see these trends and profit from them. Thirdly there is unlimited earning potential. Finally, the market is transparency. This is an advantage in any business or trading environment. It means the trader can manage risk and execute orders within seconds. It's highly efficient and allows the trader to avoid unexpected surprises. The remaining three according to Brumley (2009) are involved with the type of trading platform the trader uses; 1) Lower Margin: forex traders have the ability to

control a large amount of the currency basically by putting up a small amount of margin. 2) No commission and no exchange fees: forex traders will not have to pay exchange and brokerage fees. Trading forex has the advantage of being commission free especially with the spot currency market. Currency trading is a worldwide inter-bank market that lets buyers to be matched with sellers in an instant. 3) Profit potential in both rising and falling markets: In every open FX position, investors are long in one currency and short the other. This means that potential exists in a rising as well as a falling FX market. The ability to sell currencies without any limitations is one distinct advantage over equity trading. In addition, Giner and Mendoza (2004) also testified that in foreign exchange two other factors create a unique investment environment. These two factors are; 1) Deal directly from live price quotes 2) Instantaneous trade execution and confirmation

2.7 Challenges of On-Line Forex Trading

According to Brown and Jennings (1989), although there is lot of benefits involved in the On-line Forex Trading, there is also a flip side to it. Not everyone who had invested their money in On-line Forex Trading has become rich. The reason for that is, On-line Forex Trading is very risky. The trader has to take a decision within a transaction of the second which can end up with a profit or with a loss. A team of candlestick research experts in 2006 outlined a number of disadvantages of On-line Forex Trading. They

realized and argued out that some advantages of forex trading can be disadvantage to the individual investor. They were of the view that; Currency trading is very high risk with a very high reward when it comes to volatility terms. Forex prices are extremely volatile and make big moves continuously every day. Volatility combined with leverage can make for great profits, but with the chance for great profits comes the chance for great loss. Then also, while leverage can be an advantage, it can also be a disadvantage to the individual investor. Margin calls can take place when the position carries too much risk for the account size.

Fock et al (2005) confirmed that while the forex market may offer more excitement to the investor, the risks are also higher in comparison to trading equities. According to Frenkel (1981) Currency trading is most certainly not risk free. Like any other work that involves financial transactions, it has its own negative points. Just one example is the unpredictability of currencies. In addition to the above disadvantages, Brown and Jennings (1989) cited that some Forex professionals said that the lack of a central exchange (or a number of central exchanges) is also a disadvantage. Also, the lack of a centralized exchange can lead to a discrepancy among information from one bank to the next, leading to the possibility of uninformed trading activities. They also realized that due to the complexity nature of the market, unforeseen political crises and economic downturns can significantly affect a trader's account or a bank's foreign exchange practices.

2.7.1 Forex Scam

Unfortunately, according to The Refenes et al (1993), Forex scams are common in the Forex market. A Forex scam is the model used by brokers/investors with an intention to embezzle traders' investment by offering them fast and significant profits earned by risky trading. Usually the scam involves an investment with an unusually high, and quick, return. The fact that the investment is usually relatively small, it draws investors to this shady aspect of the Forex market. According to the National Futures Association (NFA), between 2001 and 2007 there were more than 26,000 victims of Forex scams, resulting in losses nearing 460 million dollars.

2.8 Overview of Exchange Rate Development in Ghana

According to Bhattarai and Armah (2005) Ghana's policies on the exchange rate have been influenced by the contrasting political regimes that have been in place since independence in 1957. Exchange rate system in Ghana according to Salifu et al (2007) has had a chequered history of fixed and floating rate regimes. The 1970s witnessed a largely fixed exchange rate regime. However, by the late 1970s, problems of compatibility between the fixed exchange rate and the macroeconomic policy stance emerged as the domestic inflation rate accelerated above those of her major trading partners. This subsequently triggered an appreciation in the real exchange rate. Access to foreign exchange was restricted as the demand for it far exceeded the supply. This

therefore called for the introduction of tight import controls by the economic managers. The trade and exchange controls subsequently encouraged the development of a parallel market for foreign exchange and a large black market premium began to emerge in 1975. As part of a broader donor supported Economic Recovery Programme (ERP) introduced in 1983, Ghana moved from a fixed exchange rate regime towards a floating exchange rate mechanism. However in the period between 1983 and 1990, Armas (2004) alleged that the government implemented a wide range of trade and payments policies with the objective of switching away from direct government intervention and controls towards increased reliance on market determined outcomes. The official exchange rate was adjusted in several discrete steps during the period April 1983-January 1986.

In 1992 two-window auction systems according to Armas (2004) were unified and replaced by an Inter-bank wholesale system in which a weekly wholesale auction is used to determine the interbank rate. Only banks were permitted to participate in the wholesale system. The Forex Bureaux are explicitly prohibited from participating in the interbank market; conversely, banks cannot retail to the Forex Bureaux. In theory, there is therefore no arbitrage between the interbank market and the Forex bureau market. Even though the Bank of Ghana intervenes in the Forex bureaus market by selling foreign exchange to them, the two markets are effectively segmented. Thus, the Forex bureaus operate an essentially self-financing system.

2.9 Some Foreign Exchange Interventions

According to Rhee and Lee (2004), Foreign exchange market intervention has been used as a main instrument in achieving foreign exchange market stabilization in Korea. As is also the case in other countries with floating exchange rate systems, the objective of foreign exchange intervention in Korea was to (i) mitigate short-term exchange rate volatility, (ii) stabilize the foreign exchange market, (iii) pre-empt speculative attacks, and iv) acquire foreign reserves, rather than to maintain a certain exchange rate target. The motive for forex interventions in Peru under inflation targeting was reviewed by Armas (2004) to be able to implement an independent monetary policy that aims at attaining its inflation target and also to take into consideration the high degree of financial dollarization, both to control its inherent risks and to promote the role of the domestic currency as store of value.

In Ghana, Adjasi et al (2008) looked at the relationship between Stock Markets and Foreign Exchange market, and determined whether movements in exchange rates have an effect on stock market. It was found that there is negative relationship between exchange rate volatility and stock market returns – a depreciation in the local currency leads to an increase in stock market returns in the long run. According Jebuni (2006) the rate of depreciation of the exchange rate causes inflation. This concern has led to calls on the Bank of Ghana to stabilize the exchange rate. He pointed out that in the short-term; the Bank of Ghana has four, but not mutually exclusive options: (i) Intervene in the foreign exchange markets by selling more foreign exchange currency

to Domestic Money Banks (DMBs) and the Forex Bureaux. (ii) Raise interest rates to levels that may induce a shift from foreign currency holdings in cedi-denominated assets as a way of savings. (iii) Reduce the money supply drastically in order to stabilize: the money supply may not be under the complete control of the Central Bank (iv) Regulatory Intervention which is an option advocated by some employers.

2.9.1 Effectiveness Of Forex Intervention

Armas (2004) confirmed to the Central Bank of Peru that although financial dollarization increases the vulnerability of the economy to depreciation-induced balance sheet problems, it seems to have made forex interventions less difficult. Given this high financial dollarization, the amount of domestic currency in the economy is smaller than it would otherwise be. Therefore, it is less difficult to influence the exchange rate with a relatively small intervention. Giner and Mendoza (2004) also stated that the interventions aimed at controlling excess volatility initially had some success. The effectiveness of the interventions, however, decreased as interventions became more frequent. By December 2003, interventions were practically ineffective; that is, exchange rate volatility increased in spite of the frequent interventions in the forex market.

In the study of interventions in the foreign exchange market in Venezuela during the floating period, the Central Bank of Venezuela (BCV) was presumed to have intervened in the market to control for excess volatility. Most of these moments

coincided or led by, one or two days, the date when the BCV intervened. However, his study identified fewer than the 50% of the days where the bank sold foreign currencies through the trading desk to moderate exchange rate volatility. On the other hand, some international comparisons suggest that during the float exchange rate volatility in Venezuela was higher than that of its main trading partners, with the exception of Brazil. This could provide evidence that the central bank probably was not very effective in moderating excess volatility in Venezuela. However, further studies needed to be done in order to reach a final conclusion about the effectiveness of the foreign exchange interventions.

2.9.2 Implications Of Forex Interventions

The consistency of foreign exchange interventions with Inflation Targeting (IT), according to Uribe and Toro (2004) depends on whether or not the intervention is supportive of policies for achieving the goals of IT. Accordingly, IT-consistent interventions should loosen/tighten monetary conditions when the inflation forecast is below/above the inflation target, and/or the output gap is negative/positive. Moreover, the interest rate has to be the principal instrument of monetary policy and possible interventions in the foreign exchange market ought to be only a complementary tool, and just in exceptional circumstances (high volatility, serious misalignments and/or disorderly market conditions). According to Addison (2001) an inflation-targeting framework also requires an ability to systematically assess expected (future) inflation – taking account of factors including aggregate demand and supply shocks, private sector

expectations about future inflation, etc. – which seems to be limited in Ghana at the moment. On this basis, Ramírez (2004) showed that interventions in Colombia have been "target and regime consistent". Most of the time policy interest rates moved in the same direction, and changes in the monetary policy stance came first through changes in interest rates and then through interventions in the foreign exchange market.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section of the research, describes detail procedures the researcher followed in conducting the study. It constitutes the methodology which contains research design, sampling procedure for data collection, research approach, sample size determination, methods of data processing and analysis adopted. The last section of this chapter discusses the profile of the organization "Forex Capital Markets (FXCM) Australia Limited."

3.1 Methodology

The research method employed within this study of the role of On-line Forex Traders in Ghana is that of the case study and exploratory approaches. The case study is essentially qualitative in nature, although some studies have tried to combine a multiple case study approach with quantitative analysis. According to Herndon and Kreps (1993), case studies, "are a type of qualitative research that offer a specific technique for collecting, organizing and analyzing data. A case study comprehensively describes and explains the variety of contemporary phenomenon with its real-life context." Another common feature of the case study is the holistic approach associated with it. Since the case study

seeks to capture individuals as they experience everyday circumstances, it can offer a researcher empirical and theoretical gains in understanding the relationship between the spot currency traders and the type of technical indicators offered on trading platforms. The case study approach offers several advantages. These include (but not limited to) the discovery of hidden forms of behavior, the exploration of causal mechanisms linking phenomena, the revelation of a critical case and the explanation of variations (Leedy & Omrod, 2005). The case study approach also provides a way of studying human events and actions in their natural surroundings (Babbie, 2003).

The exploratory approach was applied to extract facts and information to explain certain practices and contemporary issues. As Babbie (1992) stated, exploratory research designs are suitable when the researcher is examining a new area of interest or when the subject of study is relatively new. Exploratory research approach is appropriate for studying new methods and practices among On-line Foreign Exchange traders, to gain insight as to how such practices and methods suit such traders and help them manage numerous constraints that confront them.

3.1.1 Research Design

Research design describes the logical processes of carrying out the research from problem definition and objectives formulation stages to data collection, analysis and interpretation of observed phenomena stage. The purpose is to enable other researchers

to replicate the process to confirm results or otherwise. As regards this research, the conceptual design is that research problem informs the formulation of research objectives which guided literature review. Trends identified from literature review inform research methodology and field data collection methods, which identifies units of analysis. Data collected from units of analysis were analyzed and inferences drawn based on phenomena observed.

3.1.2 Sampling Procedure for Data Collection

The primary data was sourced from the field of study through questionnaire administration and interviews. Formal and informal interviews were held for the employees at the treasury departments of the five universal banks and some individual forex traders. The questionnaires for individual traders located at the café, offices and their homes were self administered, whereas that of the employees at the banks' treasury departments, interview guide was employed. Though both groups of forex traders are literate due to the busy nature and importance of time with trading activities at the banks, their employees found it convenient to be interviewed in order to safe time. Informal interview method was adapted to make sure that additional information that could not have been gathered through the use of questionnaires was captured. The formal interviews using questionnaires was adopted to ensure that the researcher stayed focused on the background objectives, that formed the basis of the study. Secondary

data for this study was collected by using the Meta Trader (MT4) software from Forex Capital Markets (FXCM) Australia Limited.

3.2 Data Analysis and Presentation

Quantitative data was analyzed by means of the Statistical Package for Social Science (SPSS) software. This was necessitated by the fact that the analyzed quantitative data ought to be presented by graphs to give a quick visual impression of what it entails. In addition, the Microsoft Excel and Meta Trader 4 (MT4) were also used for pictorial representations. Qualitative data on the other hand was analyzed critically, by means of empirical judgment with the aid of indicators.

3.3 Profile of the Organization

Forex Capital Markets (FXCM) Australia Limited ("FXCM") is the holder of an Australian Financial Services License (number 309763) which was issued by the Australian Securities and Investments Commission and is regulated as a Forex Dealer Member by the National Futures Association. Since inception, FXCM had over 500 employees in all areas of operations, including customer support, research, technology and trading. FXCM has been named to the incorporation 500 list of American's fastest growing private companies in 2004, 2005 and 2006. In 2006, FXCM launched its "No

Dealing Desk" service, which provides lower spreads. FXCM launched many new initiatives in 2007, including the ability to hedge trades, proprietary trading signals for clients, new currency pairs for trading and one-click execution. Forex Capital Markets Limited Liability Company ("FXCM LLC") an affiliate of FXCM Australia has received numerous awards from the investment community, including Best Currency Broker from Shares, Best Retail Foreign Exchange Platform from FX Week and Best Foreign Exchange Specialist from Technical Analysis of Stocks & Commodities. In addition to currency trading, FXCM Holdings LLC offers educational courses on forex trading, and provides research through DailyFX.com.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.0 Introduction

Data from primary and secondary sources have been analyzed and discussed in line with the objectives set for this particular research. These findings have further been presented in diagrams and tables with implication drawn and made.

4.1 Characteristics of On-line Forex Traders in Ghana

Forex Capital Markets (FXCM) Australia Limited (FXCM) has over the years been one of the largest and well capitalized forex brokers in the world. Due to easy accessibility of the internet to trade and expansion of its operations around the globe, a lot of clients have access to their trading platform. In Ghana, according to the survey conducted by FXCM, the number of On-line FX Traders has increased consistently over the past few years. Table 1 below shows the number of On-line Forex Traders who opened accounts with the universal banks in Ghana for every quarter from 2006 to 2009. Out of the twenty five (25) universal banks in Ghana, only five (5) are aiding and trading forex on-line. The five universal banks initially had a total of 36 individuals in 2006 that opened domiciliary accounts to trade forex with different brokers outside the country. This

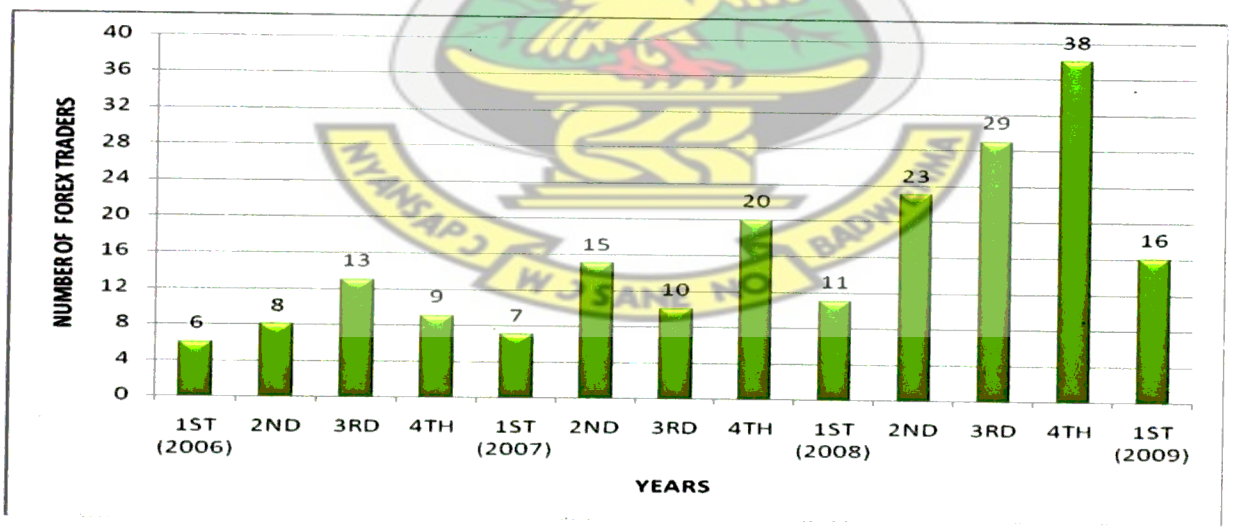
number of traders in 2006 increased by 8% in 2007 and further appreciated to 49% in 2008. As of the first quarter in 2009, only 16 traders have registered to trade. A careful study of the trend revealed that there was an increment for every first, second and fourth quarters for each year except the third quarter of 2007, where the value went down from 13 in 2006 to 10 traders but rose to 29 in 2008. Figure 1 shows the trend of how traders have joined the FX market quarterly via the universal banks.

Table 1: Number of On-line Forex Traders Quarterly

Year	**2006**	**2007**	**2008**	**2009**
First Quarter	6	9	11	16
Second Quarter	8	15	23	-
Third Quarter	13	10	29	-
Fourth Quarter	9	18	38	-
Total	**36**	**52**	**101**	

Source: FXCM, April 2009

Figure 1: Trend of On-line FX Traders

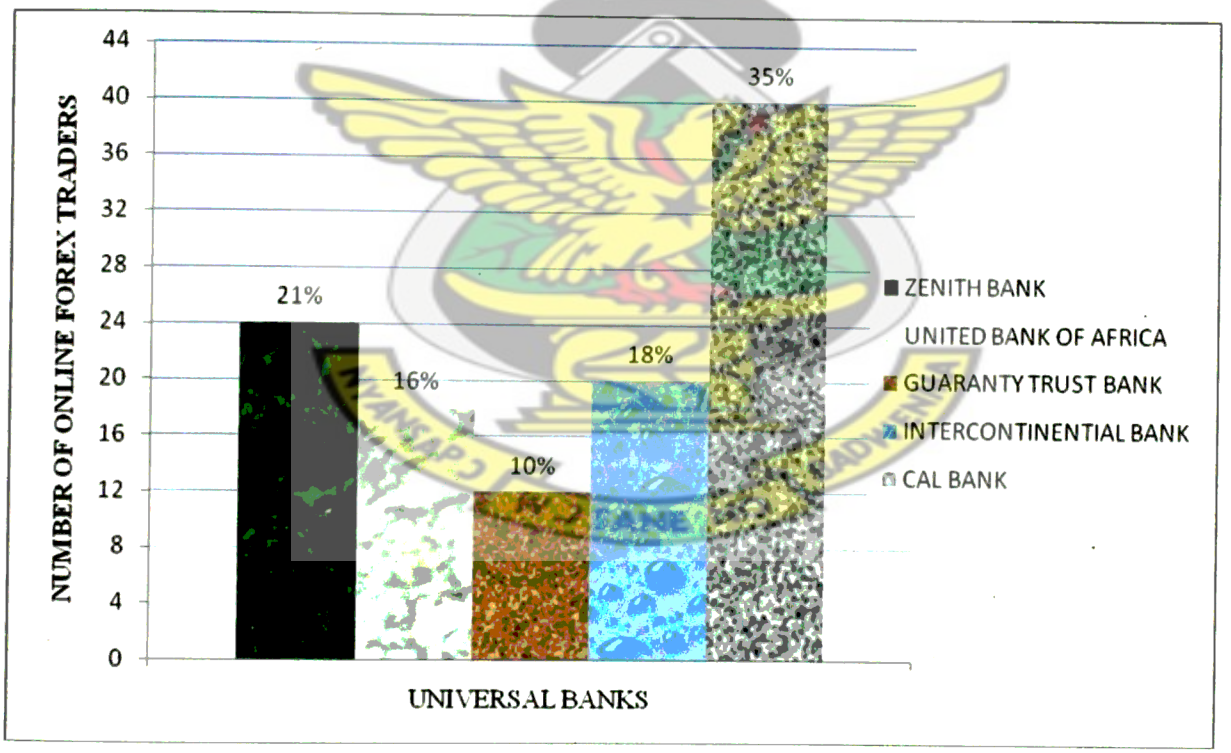


Source: Field Survey, June 2009

In all, the fourth quarter of 2008 has received the largest of On-line Forex Traders representing 19% of the total traders the universal banks have registered. The least number of traders was recorded in the first quarter of 2006 which also represent 3%.

Out of the 205 traders recorded by the banks, questionnaires were administered to 123 traders who were located mostly at the internet cafés and banks. The rest of the traders were identified in their various offices and homes with the help of their own trading mates. Figure 2 below reveals how traders are distributed among the banks.

Figure 2: Distribution of On-line Forex Traders in Banks

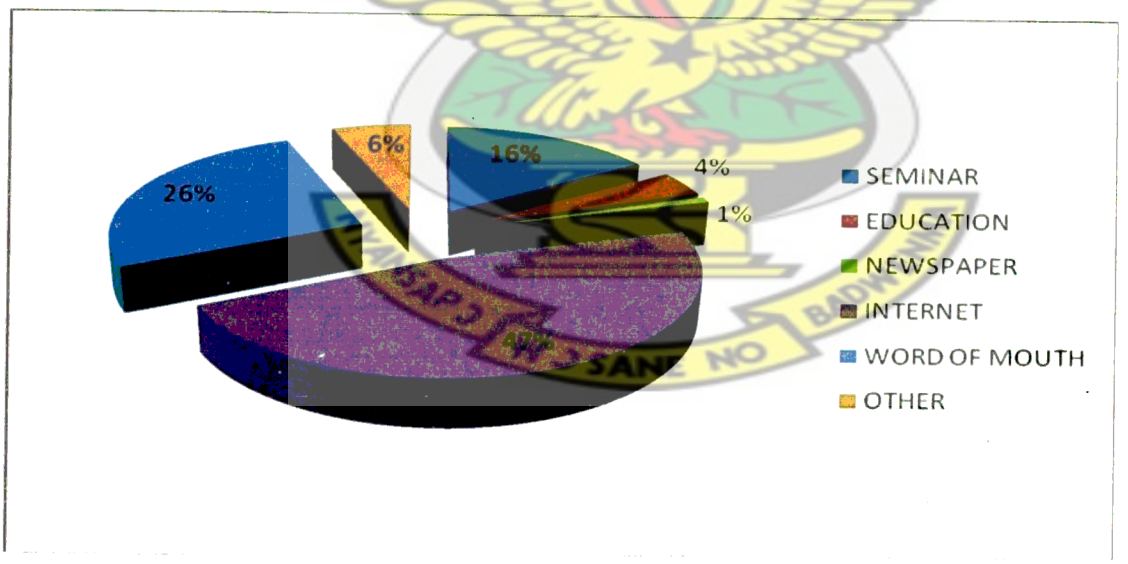


Source: Field Survery, June 2009

Only 9 out of the 123 traders were unable to respond to the questionnaires. Cal Bank recorded the highest of On-line Forex Traders of about 35% representing 40 traders of the 114 respondents. UBA and Inter-Continental Bank were battling with 16% and 18% respectively with Zenith Bank, 21% slightly on top of them. The bank with the least number of traders of 12 representing about 10% of the respondents is Guaranty Trust Bank.

The upsurge of FX traders in the country might be attributed to the publicity given by both FX brokers and traders. Figure 3 shows a chart representing the various means forex traders acquired knowledge of On-line Currency Exchange Trading.

Figure 3: How Traders Discovered On-line Forex Trading



Source: Field Survey, June 2009

The survey also confirmed that about 47% of traders became familiar with On-line Forex Trading from the Internet, followed by those who heard of it by word of mouth being 26%. Out of the 114 respondents, about 16% gained knowledge of it through seminars organized by experienced forex brokers. 6% of the respondents used other means of acquiring forex training such as personal observations and 4% became aware of Forex through education with about 1% locating an advertisement in the newspapers on On-line Forex Trading. The Forex Market is flooded with different kinds of Forex brokers who are convincing clients with their unique and distinct trading features or tools. The survey conducted in June 2009 searched out for the different kinds of Forex brokers who had clients/traders in Ghana. Table 2 below illustrates the names of Forex brokers, their details and number of clients according to the research.

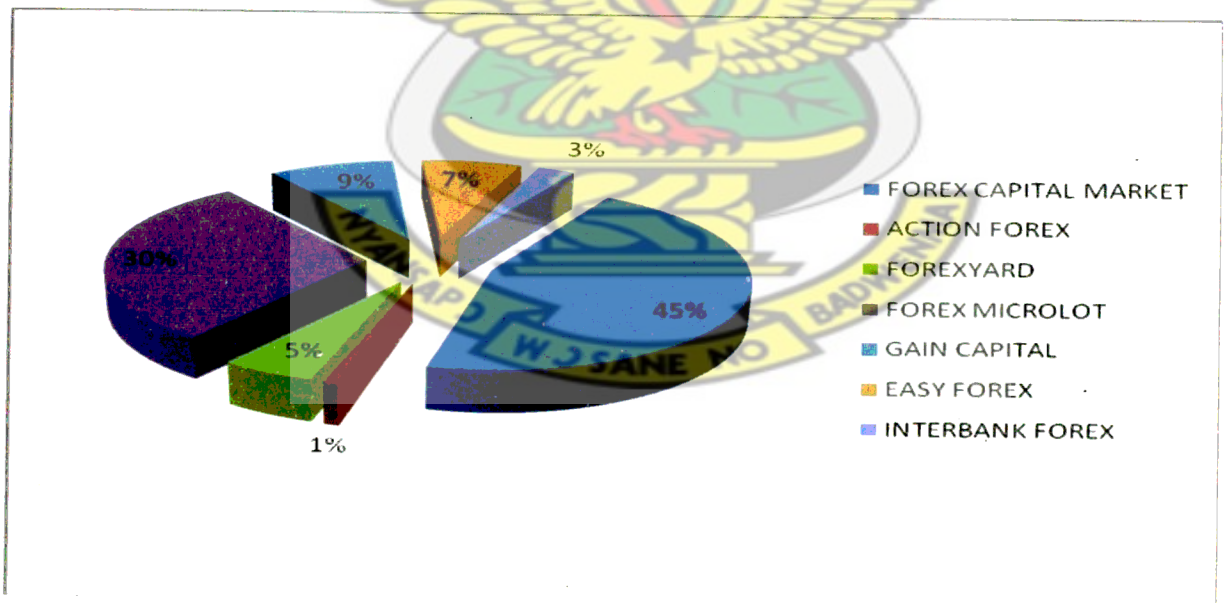
Table 2: Details of Forex Brokers and Their Number of Clients

Forex Brokers Name	No. of Clients	Min. Account Size	Registered with Regulatory Body	Min. Spread
Forex Capital Market	52	$ 100	NFA, CFTC, SFC, BCSC	2 pips
Action Forex	1	$ 300	SFDF	3 pips
ForexYard	6	$ 50	Unregulated	1 pips
Forex Microlot	34	$ 25	NFA	0.5 pips
Gain Capital	10	$ 75	NFA, CFTC	2 pips
Easy Forex	8	$ 200	NFA	3 pips
Interbank Forex	3	$ 250	FCM, CFTC	2 pips

Source: Field Survey, June 2009

There were a total number of seven Forex brokers that traders in this research had accounts with. These traders selected their respective Forex brokers based on a number of characteristics associated with them. These were affirmative signals that the traders paid attention to, and believed would be very beneficial in their trading strategies. According to the survey, most forex traders in Ghana have opted for brokers of Forex Capital Market Limited (FXCM), having the greatest share of 52 clients/traders corresponding to 45% of the total respondents. Traders with this firm were more sensitive to the registration of forex brokers with appropriate regulatory bodies. The traders with FXCM are protected by four regulatory bodies; these are National Futures Association (NFA), Commodity Futures Trading Commission (CFTC), Securities Futures Commission (SFC) and British Columbia Securities Commission (BCSC).

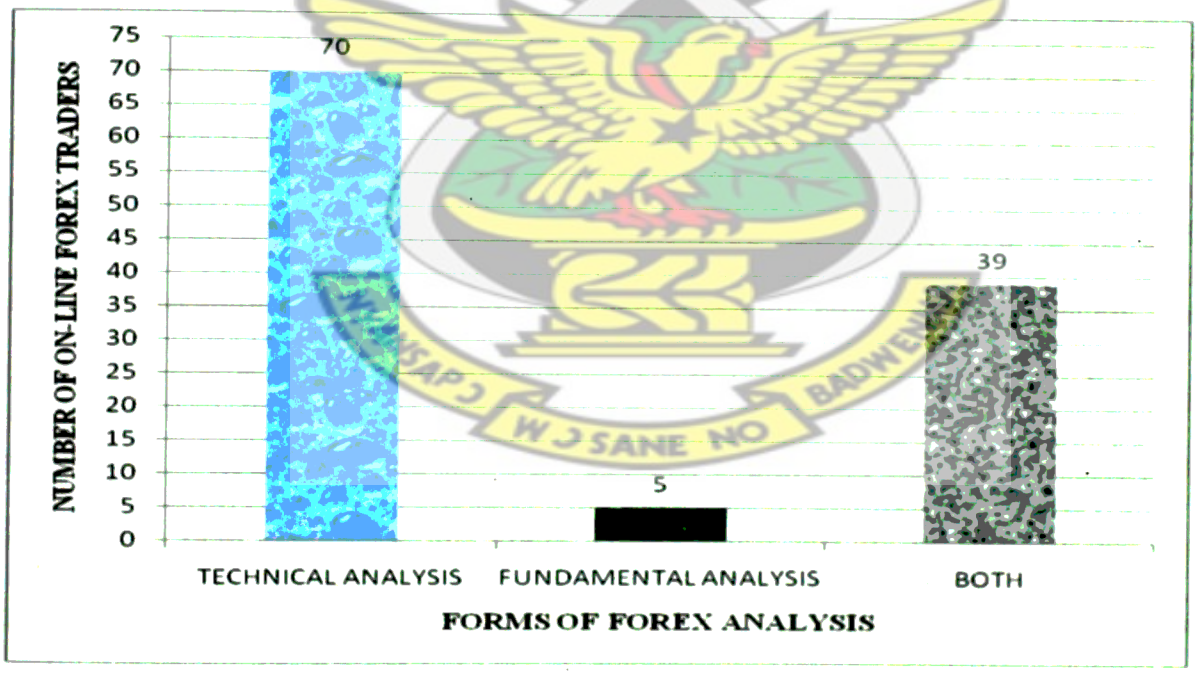
Figure 4: Distribution of Clients to their Forex Brokers



Source: Field Survey, June 2009

The traders also enjoy spread as low as 2 pips with a minimum account size of $100. Clients/Traders with Forex Microlot Limited have the next largest number of On-line Forex Traders in Ghana. As many as 34 respondents representing about 30% are trading with them. Though regulated by only one body that is NFA, they receive the lowest account size and spread of $25 and 0.5 pips respectively. Among the forex brokers in table 2 above, only ForexYard Limited with about 5% of respondents has no regulatory body. The rest of them have a few representations of clients in Ghana regulated by NFA, CFTC and/or Futures Commission Merchant (FCM) and Swiss Federal Department of Finance (SFDF). Figure 4 above shows the percent distribution of clients/traders to their forex brokers respectively.

Figure 5: On-line Forex Traders against Forms of FX Analysis



Source: Field Survey, June 2009

In currency trading exchange via the internet on the forex market, requires the trader to use either one or both forms of forex analysis in making trading decisions. These forms of forex analysis assist the trader to predict the direction of the market in order to make future returns. In all, a total of 70 traders were found to be technical analysts representing about 63% of the respondents according to the survey as shown in figure 5 above. They were mostly interested in using charting indicators such as the Moving Average, Fractals, Bollinger Bands etc to forecast the direction and price of currencies. Only about 4% of the respondents were affiliated to fundamental analysis. The rest of the traders under this survey were comfortable with both forms of analysis. They combined fundamental and technical analysis in trading the currency exchange. They have a representation of about 33% of the respondents.

Therefore 44 On-line Forex Traders rely on fundamental analysis. These fundamental analysts identify and measure factors in order to determine the value of a currency pair. All these group of traders search for trade news on the internet such as Reuter.com, forexfactory.com as well as international television channels namely CNN, BBC, CNBC. Twenty-one (21) of the fundamentalists acquire their trade information from FXCM limited. A sample of trading information in an economic calendar is showed in Appendix 1. Though there are five types of forex transactions that forex brokers make available to their clients, On-line Forex Traders under this survey have limited their trading to only the spot currency transactions. Their reason for the choice of spot currency transaction was because of its quickest and fastest way of exchanging their currencies. Another good reason for investing in spot currency transaction was because

prices of currencies were settled in cash on the spot at current market prices, as opposed to the other transactions.

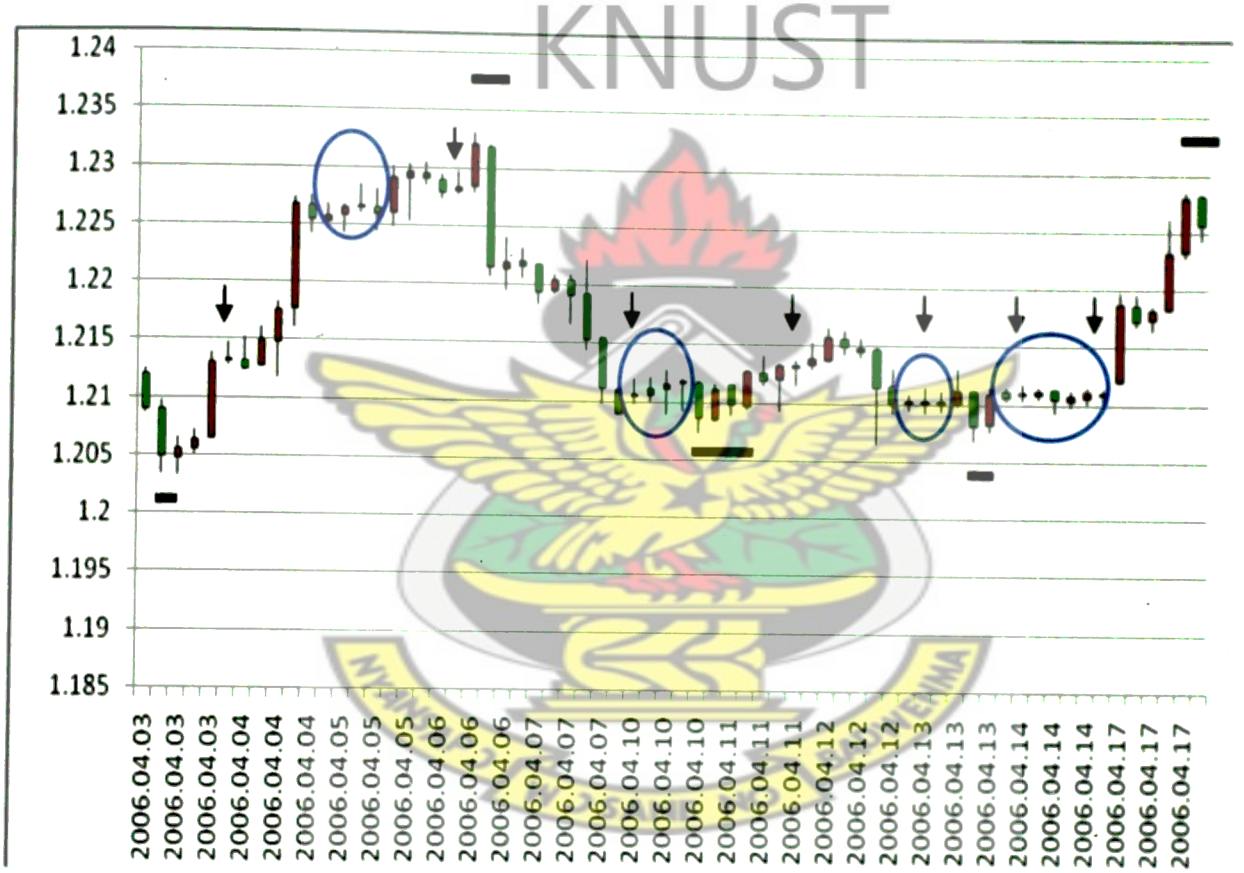
4.2 Irregularities with the Traditional Candlestick

Since the introduction of candlestick method for traders, it has changed in perceiving how the bullish and bearish forces perform in the currency market. Though respondents under this survey, who were technical analysts, confirmed the usage of other traditional indicators such as bar and line charts representation to the traditional candlesticks. About 79% of the respondents accepted the fact that traditional candlestick has being a very popular trading tool, that enables very easy chart formations on a platform. However, close to 90% of the traders were of the view that it was very difficult interpreting the formations of candlesticks. According to 102 (about 90%) respondents, four main irregularities were identified with the traditional candlesticks in their trading strategies. These are;

1. Unable to trade during time of consolidation in the currency market
2. Gaps which occur on the traditional candlesticks
3. The traditional candlestick changes direction quite often, even though the price is still moving in the same overall direction
4. Difficulty in locating trends or opportunities in the currency market

Using a real life-time trading data for the Month of April 2006 for the Euro against the United States Dollar (EUR/USD) quote on every four hour period, the above irregularities can be illustrated in figure 6 below. The chart shown displays two kinds of candlesticks. The red candles signify an upward or rising trend, where the closing price is higher than the opening price. The green candles depicts downward or falling trend, where the closing price is lower than the opening price.

Figure 6: Traditional Candlestick Chart for EUR/USD Quote (3rd – 17th April 2006)



Soucre: Field Survey, June 2009

The quote for EUR/USD for the month of April began with a falling trend of two long green candlesticks which suddenly changed to a rising trend of red candlesticks. This

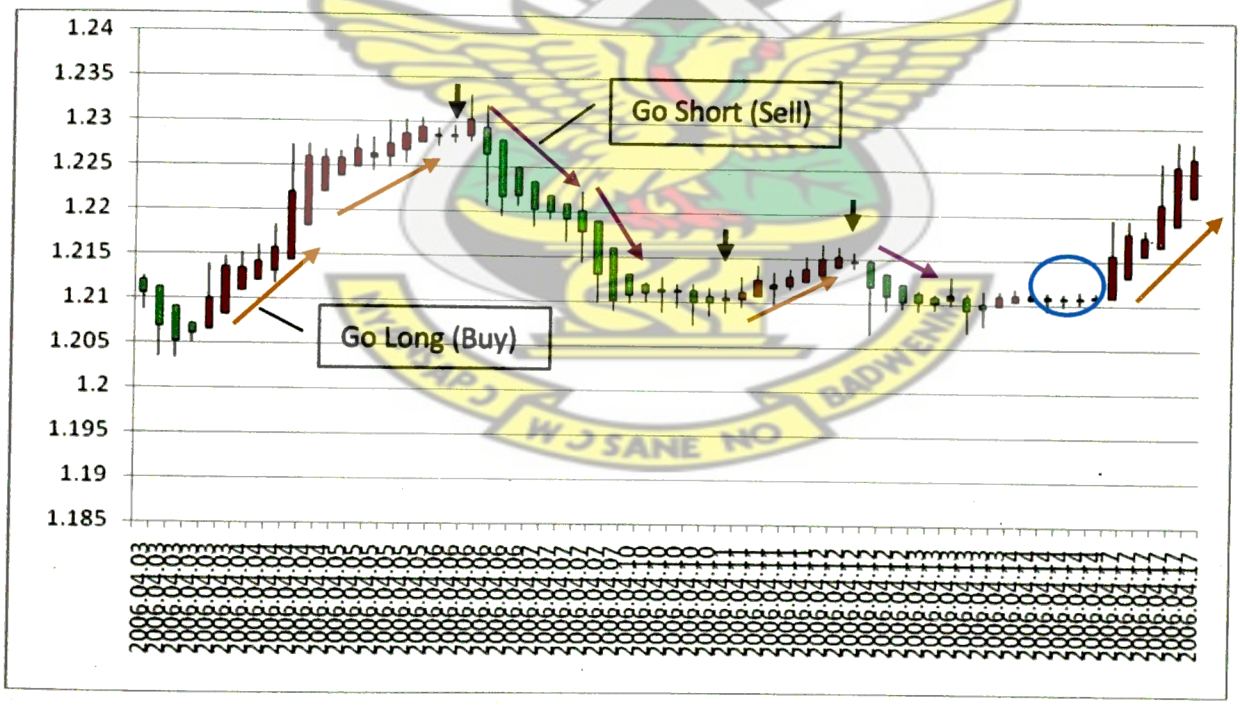
irregularity of sudden change is represented with a thick black bar at the top or bottom of the candles. This could give a worry signal for traders to make incorrect decisions to buy or sell a currency. A reversal candlestick or Doji candlestick which is the second irregularity is shown at the beginning of the 4th day. It signifies that the market is immediately having a total change of trend, but that does not happen for long for that duration. This activity is illustrated with a black arrow which occurs every day within that period. This causes difficulty in locating trends or opportunities in the market. The third irregularity is demonstrated with a blue ring around a number of small candlesticks with either no or long/short upper and lower shadows. Traders anticipate difficulty or impossibility in trading during periods of such events. The final irregularity has to do with the gaps that exist between the candlesticks. This event happens frequently with the traditional candlestick charts. The traditional candlestick charts displays rising and falling candles which are not compact and smooth. They are distant from each other and traders find it complicated and tricky to make any predictions.

4.2.1 Eliminating Irregularities Using Heikin – Ashi Technique

The Heikin – Ashi technique works as a filter, eliminating irregularities and making the chart smoother with well defined trends. Figure 7 below displays a modified candlestick chart using the Heikin-Ashi technique. The chart exhibits a compact and even candles, which eliminates the gaps associated with the traditional candlestick chart. The chart has very long red candles denoting a rising trend with long upper shadows and very long

green candles denoting a falling trend with long lower shadows. For the same period, comparing the two charts it would be revealed that the two green candles appear on the 3rd of April which have not change yet. Two extra green candles showed up before the red long candles. This implies that the technique delays with the two extra green candles, which allows the trader to locate trends and better opportunities easily, in the currency market. Meanwhile, the presence of a reversal candle might cause traders to keep to the wrong side of the market. The Heikin-Ashi technique incorporate candles that are consolidated in the traditional candlestick chart. The first three consolidation in figure 6, are very well modified into long red or green bodies, except the last ring which though has a rising trend but have very small bodies.

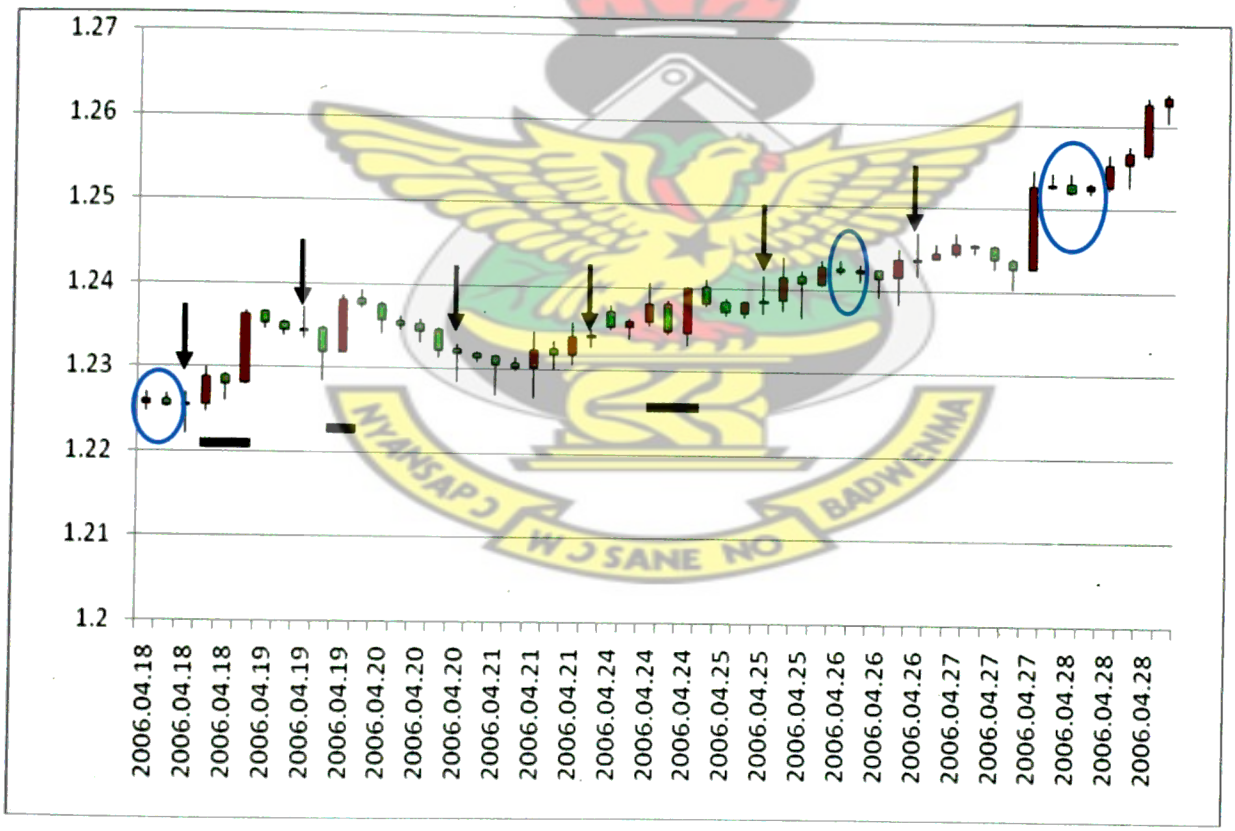
Figure 7: Modified Candlestick Chart for EUR/USD Quote (3rd – 17th April 2006)



Soucre: Field Survey, June 2009

The reversal or Doji candles are also present in the modified chart (figure 7). These are either incorporated uniformly in the respective trend or signifies its true function of change in trend. The black arrows are shown as an example in the chart on Doji candles change of trend. Though a reversal candle appeared on the 6th on both charts, the modified chart had an extra Doji followed by a red candle, which should not have being the case. Therefore traders can have a clear picture to either go long or go short in their trading. Traders would go long (buy) in cases where the trend is designated on the chart with a brown arrows and would go short (sell) at places where the violet arrow is shown. Figures 8 and 9 are charts for the rest of the month of April (18th -28th).

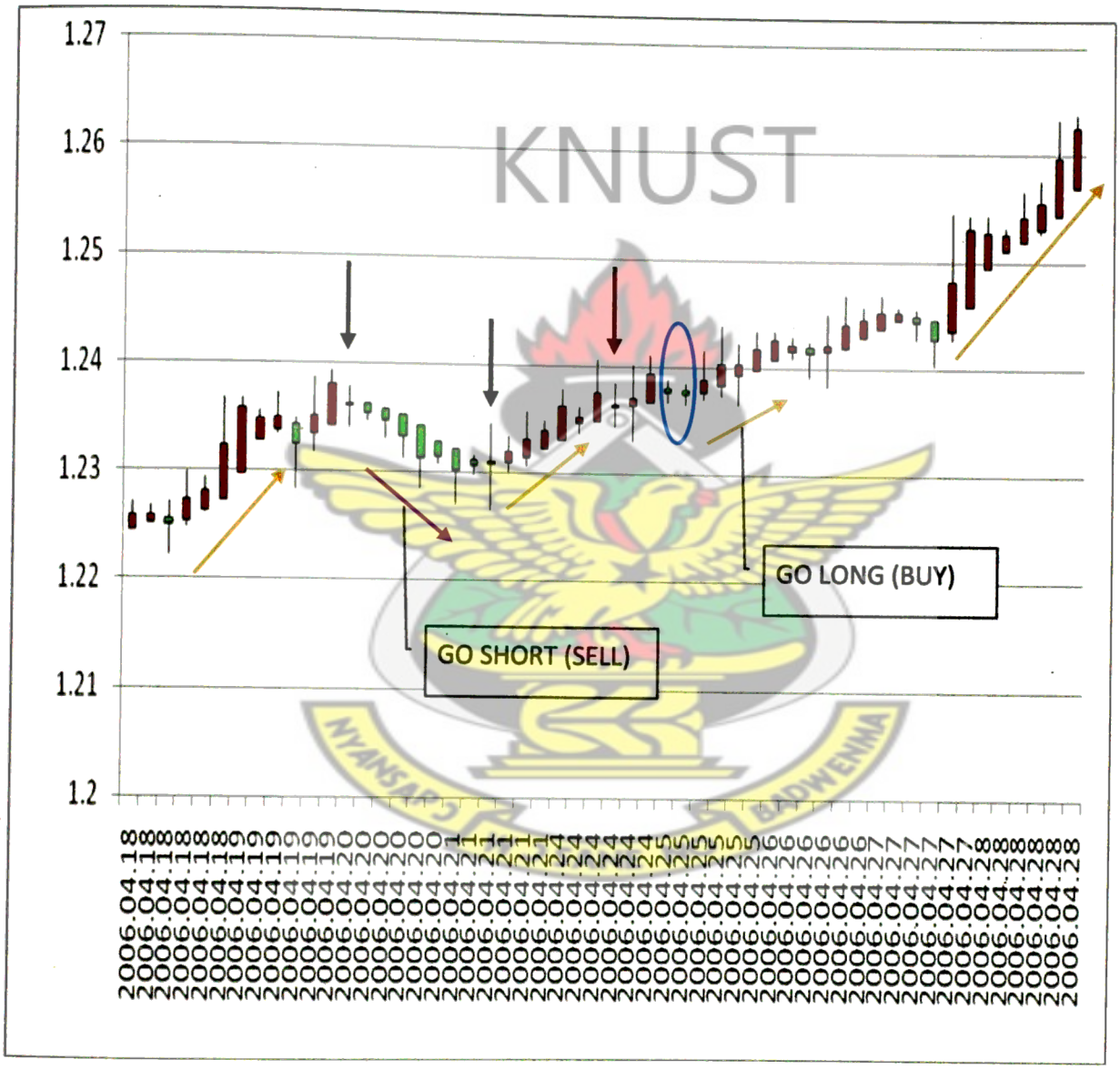
Figure 8: Traditional Candlestick Chart for EUR/USD Quote (18th – 28th April 2006)



Soucre: Field Survey, June 2009

The same irregularities are identified on the traditional candlesticks in figure 8 while figure 9 shows the modified chart using the Heikin-Ashi technique. Appendix 2 shows the computation of the Heikin – Ashi technique while appendix 3 displays the real life-time data of EUR/USD quote.

Figure 9: Modified Chart for EUR/USD Quote (18th – 28th April 2006)



Soucre: Field Survey, June 2009

4.3 Analysis of the Performance of EUR/USD

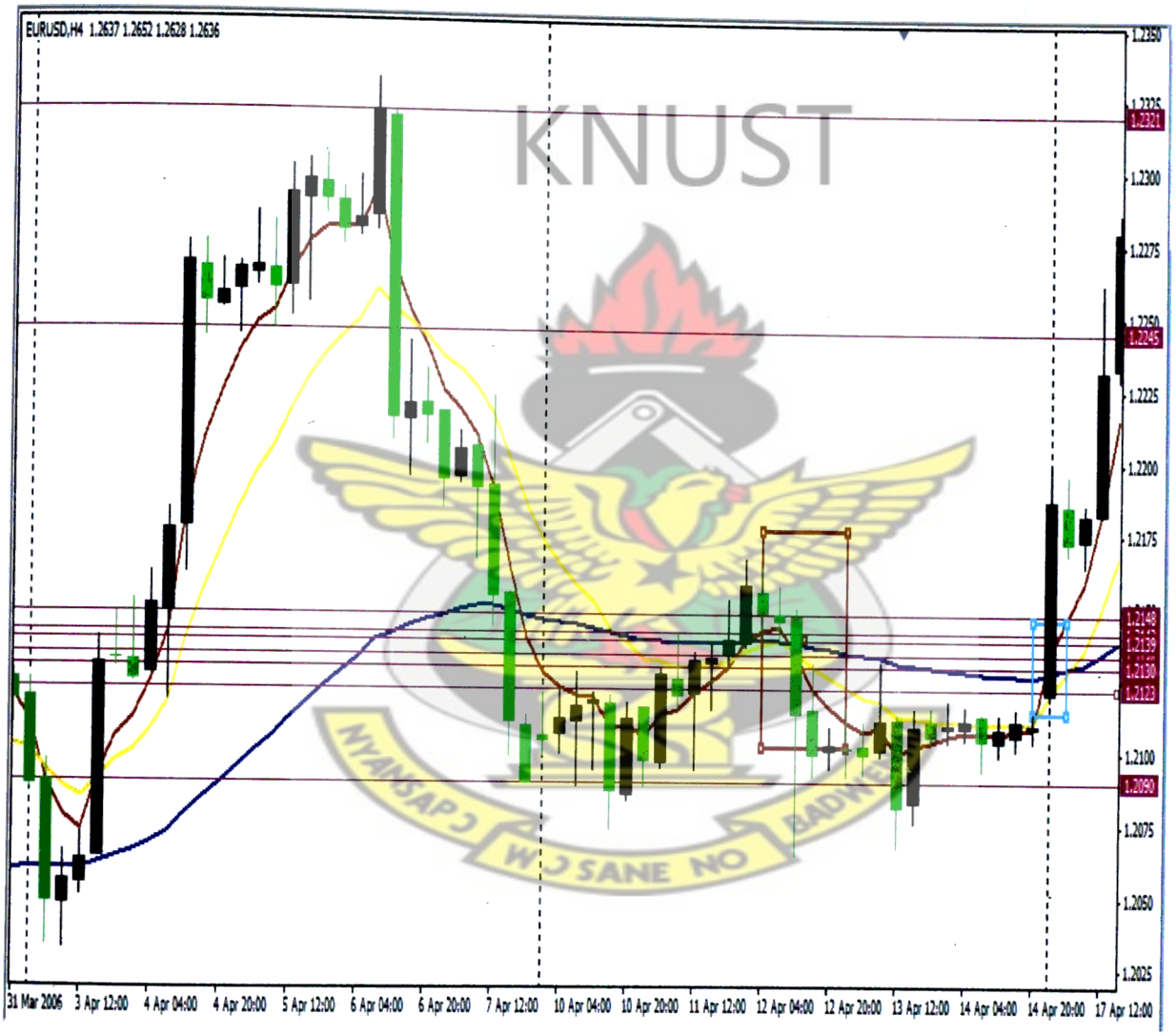
The performance of EUR/USD quote on a four hour period for the fourth month of the year 2006 was analyzed using the Exponential Moving Average (EMA) indicator on the Meta Trader 4, as shown in figure 10 below. The trading strategy adopted to access the performance is the 5/13/62 EMA technique which most technical analysts use in determining signals. The black and green candlesticks represent a rising and falling trend respectively. The blue line is the 62 period EMA. The yellow line is the 13 period EMA while the red line is the 5 period EMA. Also EMA lines are crossing to the right.

4.3.1 Identification of Trend and Signals

The month of April 2006 began with a falling trend of the EUR/USD with the 5-EMA crossing below the 13-EMA at a price of 1.2096, as shown in figure 10. This trends fall signifies a selling signal to technical traders. They could take opportunity to make about 48 pips to close at 1.2048. At the price of 1.2090, the 5-EMA sits on top of the 13-EMA, expecting traders to take a long position. Traders could mount only 28 pips to close at 1.2064, because the presence of the reversal candle confuses or deceives traders on the market. For traders who could remain on the market side for duration of about twelve hours might realize 178 pips. The third crossing prompts traders at the price 1.2245 to go short at 1.2193, when the 5-EMA enters under the 13-EMA. The pips available to traders are 28. For the first time in the month, a crossing occurs between 5-EMA and 62-

EMA at price 1.2148, alerting traders to still remain short in the market with 5 pips. The level of the next crossing dropped to 1.2142 which was between the 13 and 62-EMA with black and green candles intertwined. Such trading period could be difficult to interpret.

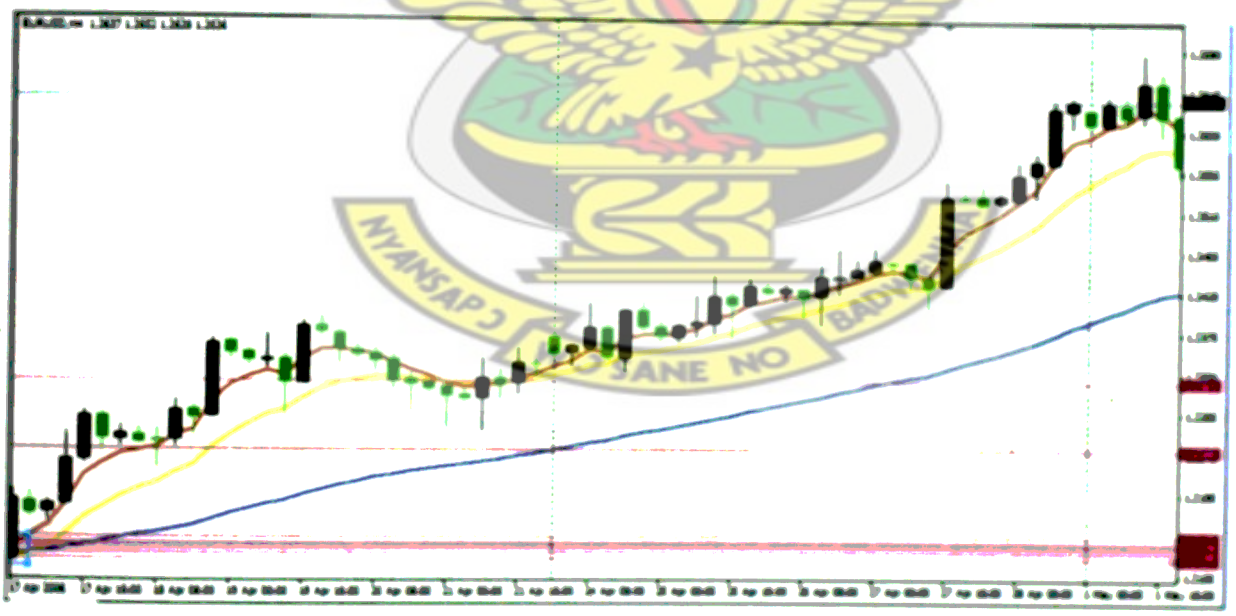
Figure 10: Meta Trader 4 Platform for EUR/USD (3rd – 17th of April 2006)



Source: Meta Trader, June 2009

The crossing of EMA fell to 1.2134 with 5-EMA meeting the 13-EMA for traders to take long position. An original crossing follows up on the 12th day designated with a brown box in figure 10. This event shows that the 5-EMA crosses below the 13-EMA at the same time 13-EMA crossing below 62-EMA at a price of 1.2139. The original crossing, therefore, enables traders to easily make profits by taking a short position. The strength of the next crossing is too weak to take advantage due to the presence of a Doji candle which gives a reverse signal of the trend to traders. The original crossing reverses its order with 5-EMA above 13-EMA which shortly rises above 62-EMA to give traders warning to buy the EUR/USD at 1.2130. The final crossing of 5 and 13-EMA took place sluggishly on 21st as shown on figure 11, with an initial sign to buy but swiftly changes the signal at the same price of 1.2321.

Figure 11: Meta Trader 4 Platform for EUR/USD (17th – 28th of April 2006)



Source: Meta Trader 4, June 2009

4.4 Challenges of On-line Forex Traders

Irrespective of the role On-line Forex Traders' play, they face a number of challenges. These challenges have been outlined below according to the findings of the study:

- Presence of Forex Related Fraud and Scam

One of the major challenges that this research gathered from On-line Forex Traders in Ghana is the numerous fake forex brokers that have flooded the internet. These fake brokers are illegitimate and unlicensed brokers, who advertise very attractive packages to traders/investors in order to swindle them. The data collected revealed that about 58% of the respondents have been swindled from forex scam operations on the internet, having about 33% scammed only once and approximately 25% scammed twice. Profits made by traders were not credited into their domiciliary accounts upon request. According to the respondents, they were victims of the scam due to the enormous opportunities offered by the brokers. Some of the statements these brokers made about them were;

"Whether the market moves up or down, in the currency market you will make a profit";

"Make $1000 per week, every week";

"We are out-performing 90% of domestic investments";

"With a $10,000 deposit, the maximum you can lose is $200 to $250 per day";

Traders also realized that those forex frauds had no operating licenses, and were not regulated by appropriate institutions, that would oversee and monitor such fraudulent acts.

- Requirements For Registration

According to the respondents, the current requirements needed to open a domiciliary account with a universal bank in Ghana are very complicated and tedious to assemble. The universal banks would request the following before wiring or transferring the money into the broker's account.

1. A valid Ghanaian passport with the home address stated clearly
2. A current utility bill with the name of the trader
3. A valid national/state identification card

Forex brokers also would look out for the above documents and in addition, a valid bank statement with substantial amount and other information that is not in their domain.

- Unavailability of Demo Account and Trading Software

While some forex brokers make available to its clients, important tools such as free software and ability to use a demo account, some are rather on the strict side. According to the respondents, only about 12% faced this problem. They had to purchase the trading software without free trial or demo account for the trader to practice with it. Also due to this reason, traders do not have the right charting indicators to use.

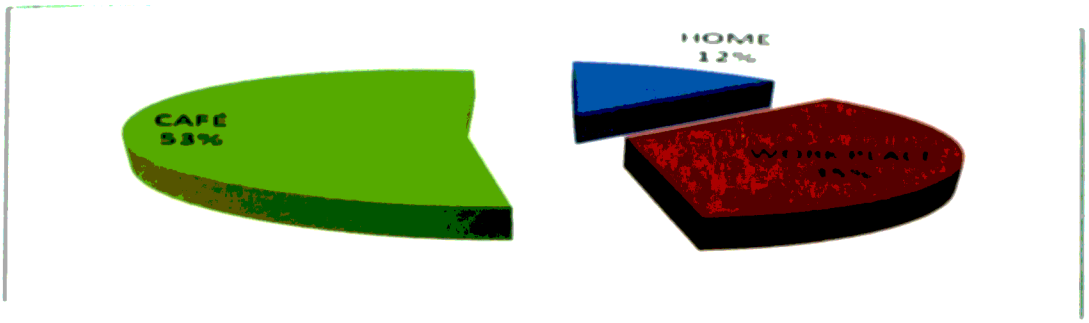
- Commission Fees

The respondents in this research agreed that in most of the advertisements from forex brokers, they do state that due to the decentralization of the forex market, transaction cost are minimized or even eliminated, and that traders enjoy extremely low or no clearing fee since it is purely an electronic market. This statement, traders find it hard to experience because about 78% of respondents were complaining that when transferring or wiring monies to their brokers, very huge amount of commission are charged by the universal banks and secondly, withdrawals also attract high cost from the brokers. They also stressed on commissions that forex brokers deducted indirectly in the form of spread or pips unknowingly to the clients.

- Unreliable Internet Connection

Though the country is now connected with the internet everywhere, the type of internet bandwidth would decide how fast the connection would be. Respondents of this research consented that in trading On-line Foreign Exchange, the trader must have a very good internet connection. But only about 53% agreed to have a reliable connection with 12% trading from their various homes while 35% trading at their work place. The rest of them 47%, do face a lot of challenges with their internet connection which disrupt their trading and might lead to losses when prices swipe against their predictions. Figure 12 shows the distribution of where traders do business.

Figure 12: Distribution of Places Where On-line FX Traders Work



Source: Field Survey, June 2009

- Lack of Forex Trading Training

All the respondents testified that the forex market is a complex place to do business. The dynamics of trading through the internet, and the understanding and use of chart indicators to forecast or predict currency quotes makes it very challenging. Therefore the lack of adequate education or training makes it difficult to trade actively and regularly. That is why about 62% of respondent trade only once a week. See figure 13.

Figure 13: Frequency of Trading Per Week

Source: Field Survey, June 2009

4.4 Contribution of On-line Forex Trading in Ghana

It will be clear to anybody who has even the most rudimentary understanding of the currency markets, that a nation's economic status will have an effect on the value of that nation's currency. This means a healthy economy enable a strong currency, just as a company's stocks will rise in value when that company is doing well. Respondents in this research ascertained that the release of financial or economic reports by one of the main players in the world will have effect on the foreign exchange markets. These reports include the country's Gross Domestic Product, Statements of the National Debt, Inflation, Employment Levels and Trade Deficits. But in Ghana, the financial or economic indicators are not well developed to have an effect on the Ghanaian cedi, when changes are very minute. Rather, the foreign currencies, especially the US dollar and Euro have significant impact on the Ghanaian cedi. Therefore the Ghanaian cedi against any major currency is not strong enough to compete globally. Some of the contributions of On-line Forex Trading that were raised by the respondents are enumerated below;

- Source of Employment

The data collected showed that the number of traders keeps increasing every year, which suggests that people are getting to know the nature of this new financial environment. About 22% of the respondents do the forex business as the only major source of income. From the interview conducted with the employees of the banks, it was revealed that 28 out of 43 of them also trade forex as an additional source of income because forex

market never closes. The trading position opens at Monday 7am, New Zealand Time and close 5pm New York Time on Friday. The rest of them, 78% do not trade again after the day's work in order to attend to other matters.

- Source of Currency Exchange

The respondents believed that forex trading is another way of exchanging currency which is not physical but indirectly via the internet apart from the services of local forex bureaux. Though in return, the currency that they receive is in Ghanaian cedi, the profit made is the most important thing. About 87% testified that the forex market is the most liquid market. They clarified that the degree of transparency is very high when transactions change hands and that trade execution and confirmation are instantaneous.

- Increase Shareholders Wealth

The major task of the employees in the banks is to trade forex for the shareholders of the bank. They trade to make profit which becomes a major source of finance which supports most of their activities such as payment of attractive salaries for workers, better dividends for shareholders and expansion works in the institutions.

- Completing Import and Export Transactions

On-line Foreign Exchange Trading has become another means of payment of goods and service to counterparts overseas. About 7% of the respondents who deal in export and import of merchandize, do instruct their forex brokers directly to wire monies into their

counterparts' account instead of depending on the laborious system of searching for foreign currency to transfer. They explain that forex transaction is fast and reliable.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter brings out key findings obtained from the analysis of data in the light of the research objectives of the study and make policy recommendations to address findings and draw conclusion.

5.1 Summary of Findings

This section summarises findings on some characteristics of On-line Forex Traders in Ghana, the problems and irregularities technical analysts encounter with candlestick indicator, the trading signals and movement of EUR/USD over a specific period, challenges and contributions of On-line Forex Trading.

5.1.1 Summary of Findings on On-line Forex Traders in Ghana

Findings from this research have shown that the number of On-Line Forex Traders in Ghana has increased consistently since the 2006 fiscal year, but only few universal banks in the country were into the registration of Forex Traders by opening domiciliary accounts through which monies were wired or transferred, to their respective forex brokers. Out of the 25 universal banks, only 5 had employees who trade currency exchange on-line. It was established that most of the Forex Traders in Ghana came to

terms with currency exchange through the internet which meant that forex brokers' advertisements had paid off. Though some had faced challenges with forex scam, the traders who were affiliated to their current forex brokers were regulated by authorities such as National Futures Association (NFA), Commodity Futures Trading Commission (CFTC) and Securities Futures Commission (SFC) etc except for ForexYard Brokers.

5.1.2 Summary of Findings on Irregularities with Candlestick Indicator

The research established that close to 90% of respondents were familiar with the traditional candlestick indicator but had some difficulty and irregularities associated with it. In all, there were four major irregularities that disrupted traders' strategies. These were; unable to trade during times of consolidation in the currency market, gaps which occurred on the traditional candlesticks, difficulty in locating trends or opportunities in the currency market and lastly traditional candlestick changed direction swiftly adverse to the direction of the price of the currency.

5.1.2.1 Summary of Findings on Using Heikin - Ashi Technique

The Heikin – Ashi technique used in the study worked as a filter, eliminating irregularities and making the chart smoother with well defined trends. This technique exhibited a compact and even candles which eliminated the gaps associated with the

traditional candlestick chart. The technique modified the traditional chart to have very long red candles, denoting a rising trend with long upper shadows and very long green candles denoting a falling trend with long lower shadows. The Heikin-Ashi technique also incorporated candles that were consolidated in the traditional candlestick chart into a uniform trend that were meaningful to interpret. The findings revealed that none of the respondents adopted this technique. Therefore, traders would have a clearer picture to either take a long or short position in their trade, irrespective of the market situation when the technique is applied.

5.1.3 Summary of Findings on the Trends and Signals of EUR/USD

The performance of EUR/USD quotes on a four hour period for the month of April 2006 fiscal year was analyzed using the Exponential Moving Average (EMA) indicator on the Meta Trader 4. The highest crossing between 5-EMA and 13-EMA closed at 1.2321 and the lowest crossing at the price 1.2090, also saw the 5-EMA above the 13-EMA. The trading strategy adopted to assess the performance was the 5/13/62 EMA technique. The major or original crossing occurred on the 12th of April having the 5-EMA crossing below the 13-EMA at the same time 13-EMA crossing below 62-EMA at a price of 1.2139. Such a unique crossing therefore would enable traders to easily make profits by taking positions as signaled by the indicator.

5.1.4 Summary of Findings on the Challenges Facing On-line Forex Traders

The research also unearthed some of the challenges faced by On-Line Forex Traders in Ghana. An initial challenge that popped up was the numerous forex scams that offered attractive packages which were just illusions. Traders' earnings were not credited to their accounts by such brokers. Secondly, traders were having complication with the number of requirements demanded by the universal banks and forex brokers. Also some forex brokers did not make available to its clients, trading software and ability to use a demo account. About 78% of respondents were complaining that when transferring or wiring monies to their brokers, very huge amount of commission were charged. They also stressed on brokers attitude of deducting commission fees indirectly from their accounts during trading process. Lastly, Forex Traders in the country lacked adequate reliable internet connection, having only about 53% benefiting from excellent connection. They were also concerned with on-line currency exchange training since that part of the financial sector was very complex.

5.1.5 Summary of Findings on Contributions of On-Line Forex Trading in Ghana

The research work found that On-line Forex Trading was another job avenue for some of the traders. This was a major source of employment for about 22% of the respondents. Even employees from other jobs trade in the exchange as a source of income, since forex was a 24-hour business. Some found the business as an indirect way of currency

exchange through the internet making it very liquid. Forex trading had also assisted some of the universal banks by providing income in two ways; commission fees from traders and their own earnings realized from trading in the currency market. The last of the contribution arose from the 7% of the respondents who dealt in export and import of merchandize. Settling their business transaction with counterparts or parent companies by looking for foreign currency became very tedious initially. By instructing their forex brokers to undertake payments from their accounts, the transaction became very fast and reliable. Therefore the emergence of currency exchange via the internet is an opportunity for most institutions and companies in the country to grasp and develop.

5.2 Conclusion

In conclusion, advances in electronic trading have seen the evolution of the forex market globally. Trading the exchange of currencies through the internet had two folds of traders; those who depended on the release of economic data and those inclined to forecasting of currency quote using charting indicators. This research focused on traders in Ghana who were more associated with the use of charting indicators. Though On-line Forex Trading have not been popular among the financial institutions and individuals in Ghana, very few had embraced it as their major occupation and were satisfied with the returns made, according to the survey. Faced with a number of challenges ranging from identification of appropriate and qualified forex brokers, to not having adequate forex

training, there were also some contributions such as job creation that traders and the country as a whole derived from currency exchange through the internet.

5.2.1 Conclusion on Irregularities with Candlesticks and its Elimination

In the currency market, in order for technical analysts to make predictions that agreed with market direction, they have to be able to identify all the abnormalities involved in the market. These disorders could be traced using appropriate indicators such as the candlesticks and could also be eliminated using the correct and suitable indicators. Gaps and consolidation within market trends posed difficulties for forecasting of currency quotes. A very good system for eliminating these irregularities was the Heikin – Ashi technique. It's a lagging indicator which modified the traditional candlestick charts.

5.2.2 Conclusion on the Trends and Signals of EUR/USD

Trends and signals of currency pairs have different patterns, that traders study with the aid of indicators in order to locate the behavior of the currency market. The trend of EUR/USD for the month of April 2006, gathered a lot of pips but this depended on the type of indicators the trader employed. In this research, the 5/13/62 Exponential Moving Average indicator was applied on the Meta Trader 4, to generate the buying and selling signals which occurred at different price levels. The period witnessed an original

crossing having the 5/13/62 EMA meeting at the price 1.2139. Traders at this point were expected to take a short position for profit.

5.2.3 Conclusion on the Challenges Facing On-line Forex Traders

On-line Forex Traders did face challenges that arose from two perspectives; those that were caused by forex brokers and those that were caused by forex traders themselves. High commission fees, the numerous forex scams, tedious requirement for registration in our settings and unavailability of demo account and trading software, were the challenges that confronted traders from the brokers' part. Not able to acquire reliable internet connection and lack of forex education were the problems associated with the traders. These distorted the trading strategies and organization of their transactions and could totally turn the traders' business upside down. Challenges that came from on-line brokers were dynamic and kept piling up for the traders, which could affect the mental plight of reasoning, as well as having difficulty financially to restore their marginal account.

5.2.4 Conclusion on the Contributions of On-line Forex Trading in Ghana

In Ghana, the medium of physical currency exchange is limited to the duties of the Forex Bureaux, the Central Bank, Banks and the "Black Market" which have a close end

to only major trading currencies such as the U.S Dollar, Euro, Swiss Franc, etc. According to the findings, the recent upsurge of exchanging currency through the internet had broadened the currency trading activities, giving employment to a few individual investors as well as creating jobs in the universal banks for traders. The transactions in banks that had also incorporated this system of currency exchange boosted expansions in their activities, because of decent profits made through On-line Forex Trading. Import and export transactions were completed successfully through On-line Forex Trading, which traders had found it more reliable and convenient to do business with.

5.3 Recommendations

The following are recommendations for the improvement of the introduction of On-line Forex Trading in Ghana. This section would make suggestions that would advance the role of On-line Forex Traders in the country, and would propose structures that could suit the financial sector and all other areas of interest to the nation. They were extracted from the findings of this study.

5.3.1 Recommendations on the Challenges of On-Line Forex Trading in Ghana

- Trading in this new financial market in our local environment requires a lot of patience, experience and understanding of the global financial market. Since the

forex market is characterized by its decentralization, the number of on-line brokers has increased giving clients a high probability of getting a broker in the shortest time. A proportionate number of these brokers are registered with fragmented instituted regulatory bodies while other brokers are not registered and therefore deal in fraudulent activities. It would be suggested that a unified body of brokers certified by a centralized body of all the minute regulatory organization to monitor, supervise and regulate all currency trading disciplines. Such a huge regulatory institution should draft policies that all on-line brokers would practise and cultivate and have the legal backing of governments. Also some form of regulatory or hi-tech security measures must be adapted to curb the acts of forex scams. Again, standard measures of requirements are to be set for all investors who want to trade in the currency market. Finally, centralized regulatory body should ensure that investors are given the appropriate and standardize trading software with demo accounts. The trading software given to investors by brokers must have the same features and charting indicators.

- The forex market is very dynamic, swift and complex which requires experience in order to make correct prediction. As a result, traders would need an uninterrupted internet service and most importantly, forex or currency trading experts to provide adequate training. Suggestions are made concerning the providers of the internet service so that on-line traders can be served with special internet band-width products that are fast and reliable, and can aid traders in this sector. Since this trading is on a wide spread, the Government as well as other multi-national

organizations can put resources together to improve the telecommunication industry, in the provision of its internet services, making it cheaper, fast and readily available to its clients. Also the organization of seminars and training for investors would be a laudable idea for the government to incorporate, into the tertiary education syllabi. Also students and individuals interested in this discipline should have affordable exchange programs through the sponsorship of the government, with countries having well developed currency market for practical training.

5.3.2 Recommendation on Contributions of On-line Forex Trading in Ghana

It would be recommended that the activity of on-line currency exchange should be expanded to include all relevant businesses, who deal in currency exchange as part of their transactions. A lot more resources from the Government must be use to develop this industry, in order to create jobs for the individual Ghanaian. As a way of exchange, the Government should make prudent economic decisions through the Central Bank, in order for the Ghanaian Cedi to compete with the major currencies and find its way on the global exchange, by instituting policies that will improve the macroeconomic indicators. As a matter of fact, not only financial companies, but also other industries should cultivate this system of exchange as another means of creating wealth.

5.3.3 Recommendations on Irregularities in Candlesticks and its Elimination

On-line Forex Traders, who have become accustomed to charting indicators, are recommended to study the currency market before executing a transaction. Traders must be abreast with the indicators for comfort and trade enhancement. Some indicators work well for some traders and some may turn down the market for other traders. Therefore where the market indicates any unusual trends or takes an unfamiliar direction, care should be taken by applying the exact and suitable indicator. Heikin - Ashi technique must be understood and used at the right time, in determining trading signals and to eliminate the market in-decisions such as gaps and consolidation within the market.

5.3.4 Recommendations on the Trends and Signals of EUR/USD

In identifying trends and signals of a currency pair, requires the study of useful chart indicators. In this research, the Exponential Moving Average (EMA) was used to determine the buying and selling signals and to identify the behavior of the EUR/USD. Though the rule of the 5/13/62 EMA strategy showed up some points of entries and the number of pips that can be realized in a particular period, there must be another confirmation of these signals, in order to be certain of the true direction of the market. Some important confirmation indicators On-line Forex Traders should understudy are the Fractal, Zig-Zag, Relative Strength Index, the MACD, Parabolic SAR, etc. in order to have full control of the market at any point in time.

5.4 Concluding Remarks

In Ghana, On-line Forex Trading has been identified with few financial institutions and individual investors, and the number is steadily increasing for the past years. The role of the On-line Forex Traders in Ghana, according to this research has been centered closely on technical analysts or traders who use charting indicators, to predict the direction of the market. The work addresses irregularities associated with candlestick indicator and how to correct them using Heikin – Ashi technique. The research findings observed the trends and signals of the performance of EUR/USD using the 5/13/62 Exponential Moving Average indicator. Entry points for traders to take either a long or short positions were figured out. The study assembled from investors challenges that hinder On-line Currency Trading. It disclosed that challenges were from two sources; one is from investors themselves and the other from the forex brokers. Finally, the work investigated from investors, contributions that On-line Forex Trading had played in the country's economy.

References

1. Addison, E.K.Y., (2001). "Monetary Management in Ghana", A Paper Presented at the Conference on Monetary Policy Framework in Africa, [online] (cited 17-19 September 2005) Available from <URL:http://www.reservebank.co.za/internet/Publication.nsf/LADV/ghana.pdf>
2. Adjasi, C., Harvey, S.K., and Agyapong, D., (2008). "Effect of Exchange Rate Volatility on the Ghana Stock Exchange", *Africa Journal of Accounting, Economics, Finance and Banking Research*, 3:3
3. Armas, A., (2004). "Forex Interventions in Peru", Bank for International Settlement, Working Papers, 24, 242-254
4. Babbie, E., (1992). "Practice of Social Research", 4th Edition, New York, Wadsworth Publishing Company.
5. Babbie, E., (2003). "Practice of Social Research", 8th Edition, New York, Wadsworth Publishing Company.
6. Bank for International Settlement, (1990). "Central Bank Survey of Foreign Exchange and Derivative Market Activity", Basel, Switzerland
7. Bank for International Settlement, (2001). "A New Perspective and Challenges", No. 7 in BIS Paper, Basel, Switzerland
8. Bank for International Settlement, (2007). "Triennial Central Bank, Survey for Foreign Exchange and Derivatives Market Activity", Basel, Switzerland
9. Bask, M., (2005). "Chartism and Exchange Rate Volatility", Discussion Paper, No.71

10. Bhattarai, K.R., and Armah, M.K., (2005). "The Effects of Exchange Rate on the Trade Balance in Ghana", Evidence from Co-integration Analysis, Research Memorandum 52, Centre for Economic Policy, Business School, Hull

11. Brock, W., Lakonishok, J., and LeBaron, B., (1992). 'Simple Technical Trading Rules and the Stochastic Properties of Stock Returns', *The Journal of Finance*, 47:5, 1731–1764

12. Brown, D.P., and Jennings, R.H., (1989). 'On Technical Analysis. *The Review of Financial Studies*', 2:4, 527–551

13. Brumley, J., (2009). 'Understanding Technical Analysis', MACD Indicator [online] (cited 20 June 2009) Available from <URL: http://share-stocks.suite101/article.cfm/understanding-technical_analysis_macd_indicator>

14. Charupat, N., and Deaves, R., (2002). "Backwardation and Normal Backwardation in Energy Futures Market", Discussion Paper, No. 02-59

15. Cheng, Y., and Chinn M.D., (1999). "Macroeconomic Implications of the Beliefs and Behaviour of Foreign Exchange Traders", [online] (cited 12 January 2009) Available from <URL:http://www.org/papers/W7417.htm>

16. Demos, A.A., and Goodhart, C.A.E., (1996). "The Interaction between the Frequency of Market Quotations, Spread and Volatility in the Foreign Exchange Market", *Journal of Applied Economics*, 28, 377-389

17. Economides, N., (2000). 'The Impact of the Internet on Financial Markets', *Journal of Financial Transformation*, 1:8

18. Fock, J.H., Klevin C., and Zwergel, B., (2005). "Performance of Candlestick Analysis on Intraday Futures Data", *The Journal of Derivatives*, 13:1

19. Frankel, J.A., and Froot, K.A., (1990). "Chartists, Fundamentalists, and Trading in the Foreign Exchange Market", *The American Economic Review*, 80:2, 181–185

20. Frenkel, J.A., (1981). "Flexible Exchange Rates, Prices and Role of News: Lessons from the 1970's", *Journal of Political Economy*, 89:4, 665-705

21. Gallaugher, J.M., and Melville, N., (2004). "Electronic Frontiers in Foreign Exchange Trading", Communication of ACM, 47:8, 81-87

22. Gencay, R., (1999). "Linear, Non-Linear and Essential Foreign Exchange rate Prediction with Simple Technical Trading Rules", *Journal of International Economics*, 47, 91-107

23. Giner, I., and Mendoza, O., (2004). "Foreign Exchange Intervention in Venezuela", Bank for International Settlement, Working Papers, 24, 292-300

24. Herndon, S.L., and Kreps, G.L., (1993). "Using Focus Group Interviews for Preliminary Investigation", *Qualitative Research: Application in Organizational Communication*, Hampton Press, Cresskill, NJ, pp.39-45.

25. Kuan, C.M., and Lui, T., (1995). "Forecasting Exchange Rates Using Feed Forward and Recurrent Neural Networks", *Journal of Applied Econometrics*, 10, 347-364

26. Kuepper, J., (2007). "The Fundamentals of Forex", [online] (cited 15 January 2009) Available from <URL:http://www.investopedia/terms/f/forex.asp>

27. LeBaron, B., (1999). "Technical Trading Rule Profitability and Foreign Exchange Intervention", *Journal of International Economics*, 49:1, 125–143.

28. Leedy, P.D., and Ormrod, J.E., (2005). "Practical Research Planning and Design", 8th edition, Pearson Education. Upper Saddle River, NJ

29. Lento, C., and Gradojevic, N., (2007). 'The Profitability of Technical Trading Rules', A Combined Signal Approach, *Journal of Applied Business Research*, 23:1

30. Lien, K., (2004). "What Moves the Currency Market"? [online] (cited 19 December 2008) Available from <URL:http://www.tradercurrencies.what_moves_the_currency_market.pdf>

31. Lui, Y., and Mole, D., (1998). "The Use of Fundamental and Technical Analyses by Foreign Exchange Dealers: Hong Kong Evidence", *Journal of International Money and Finance*, 17:3, 535–545

32. Melendez, C., (2003). "Forex Trading Platforms and the Real World", *Stocks and Commodities*, 22:6, 52-58

33. Murphy, J.J., (2000). "Charting Made Easy", Market Place Book (Wiley)

34. Neely, C.J., (1997). "Technical Analysis in the Foreign Exchange Market: A Layman's Guide", *Federal Reserve Bank of St. Louis Review*, 79:5, 23–38

35. Neely, C.J., (1998). "Technical Analysis and the Profitability of U.S. Foreign Exchange Intervention", *Federal Reserve Bank of St. Louis Review*, 80:4, 3–18

36. Neely, C., Weller, P., and Dittmar, R., (1997). "Is Technical Analysis in the Foreign Exchange Market Profitable? A Genetic Programming Approach", *Journal of Financial and Quantitative Analysis*, 32:4, 405-426

37. Neftci, S.N., (1991). "Naive Trading Rules in Financial Markets and Wiener-Kolmogorov Prediction Theory", A Study of "Technical Analysis", *The Journal of Business*, 64:4, 549–571

38. Ord, T., (1991). "Market Turns and Continuation Moves with the Tick Index", *Journal of Stocks and Commodities*, 10:12, 521-524

39. Payne, R., (1991). "Informed Trade in Spot Foreign Exchange Markets", An Empirical Investigation, *Journal of International Economics*, 61:2, 307-329

40. Ramírez, J.M., (2004). "Foreign exchange market intervention through options: The Case of Colombia", Forthcoming in the proceedings of a Conference Held at the Czech National Bank in May 2004 on *Practical aspects of inflation targeting*

41. Refenes, A.N., Azema-Barac, M., Chen, L., and Karoassos, S.A., (1993). "Currency Exchange Rate Prediction and Neural Network Design Strategies", *Neural Computer Application*, 1, 46-58

42. Rime, D., (2003). "New Electronic Trading systems in Foreign Exchange Market", *Journal of Norges Bank and Stockholm Institute of Financial Research*, 469-504

43. Rhee, G., and Lee, E.M., (2004). "Foreign Exchange Intervention and Foreign Exchange Market Development in Korea", Bank for International Settlement, Working Papers, 24, 196-208

44. Salifu, Z., Osei, K.A., and Adjasi C.K.D., (2007). "Foreign Exchange Risk Exposure of Listed Companies in Ghana", *The Journal of Risk Finance*, 8:4, 380-393

45. Tanner, G., (1997). "A Note on Economic News and Intraday Exchange Rate", *Journal of Banking and Finance*, 21:4, 573-585

46. Taylor, M.P., and Allen, H., (1992). "The Use of Technical Analysis in the Foreign Exchange Market", *Journal of International Money and Finance*, 11:3, 304–314

47. Uribe, J.D., and Toro, J., (2004). " Foreign Exchange Market Intervention in Columbia", Bank for International Settlement, Working Papers, 24, 139-149

48. Valcu, D., (2004). "Using the Heikin-Ashi Technique", Technical Analysis of Stocks and Commodities, [online] (cited 3 May 2009) Available from <URL: http://www.earnforex.com/forex_e-books/trading_strength/Using_The_Heikin_Ashi_Technical_D_Valcu.pdf>

49. Vanstone, B.J., and Finnie, G., (2007). "An Empirical Methodology for Developing Stock Market Trading Systems using Artificial Neural Network", [online] Available from <URL: http://epublications.bond.edu-au/infotech_pubs/21>

50. Wang, C., (2004). "Futures Trading Activity and Predictable Foreign Exchange Market Movements", *Journal of Bank and Finance*, 28:5, 1023-1041

51. Yu, L., Wang, S., Lai, K.K., and Huang, W.W., (2007). "Developing and Assessing an Intelligent Forex Rolling Forecasting and Trading Decision Support

System for Online E-Services", *International Journal of Intelligent Systems*, 22, 475-499

52. <URL: http://www.wikipedia.com>
53. <URL: http://www.forextrading.com>
54. <URL: http://www.forex-trading-gurus.com>
55. <URL: http://www.1st-forex-trading-academy.com>
56. <URL: http://www.investopedia.com/terms/t/technicalanalysis.asp>
57. <URL:http://www.forextrading.com/articles/Howtotrade.aspx#G13>
58. <URL: http://www.ac-markets.com/forex-education/forex-history.aspx>
59. <URL: http://www.metaquotes.net/techanalysis/indicators/moving-average>
60. <URL: http://www.learning-to-invest.com/introduction-to-Technical-indicators-I--22.html>
61. <URL: http://www.Easy-Forex.com>

Appendix 1: Sample of Economic Data Release Calendar

Economic Data Release Calendar

September 17 - September 22, 200

Central Bank Rates

USD 5.25%
EUR 3.00%
JPY 0.25%
GBP 4.75%
CHF 1.50%
CAD 4.25%
AUD 6.00%
NZD 7.25%

Date	Country/Currency	Event Release	GMT	EST	CONSENSUS	PREVIOUS
18-Sep	EUR	German ZEW Survey - Current Situation (SEP)	9:00	5:00	35.0	33.6
Mon	EUR	German ZEW Survey - Econ Sentiment (SEP)	9:00	5:00	-8.0	-5.6
	EUR	Euro-Zone ZEW Econ Sentiment (SEP)	9:00	5:00	-4.0	1.3
	CAD	Consumer Price Index (MoM) (AUG)	11:00	7:00	0.1%	0.1%
	CAD	CPI (YoY) (AUG)	11:00	7:00	2.1%	2.4%

Appendix 2: Computation of the Heikin – Ashi Technique

The modified values are computed using these definitions below.

Where O = Opening price, H = High price, L = Low price, C = Closing price

The prefix *ha-* indicates the corresponding Heikin-Ashi modified values

- haClose = (O+H+L+C)/4
- haOpen = (haOpen (previous bar) + haClose (previous bar))/2
- haHigh = Maximum(H, haOpen, haClose)
- haLow = Minimum(L, haOpen, haClose)

Example

DATE	OPEN	HIGH	LOW	CLOSE	HAOPEN	HAHIGH	HALOW	HACLOSE
2006.03.24	1.1968	1.1972	1.1961	1.1968	1.2003	1.2003	1.1961	1.1967
2006.03.24	1.1967	1.1975	1.1962	1.1973	1.1985	1.1985	1.1962	1.1969
2006.03.24	1.1972	1.1978	1.1959	1.1969	1.1977	1.1978	1.1959	1.1970
2006.03.24	1.1971	1.1985	1.1951	1.1969	1.1973	1.1985	1.1951	1.1969
2006.03.24	1.197	1.2046	1.197	1.2034	1.1971	1.2046	1.1970	1.2005
2006.03.24	1.2035	1.2042	1.2024	1.2035	1.1988	1.2042	1.1988	1.2034

Appendix 3: EUR/USD QUOTE FOR APRIL 2006

DATE	TIME	OPEN	HIGH	LOW	CLOSE	VOLUME
2006.04.03	0:00	1.2119	1.2125	1.2087	1.2089	994
2006.04.03	4:00	1.209	1.2097	1.2034	1.2049	1269
2006.04.03	8:00	1.2048	1.2066	1.2033	1.2056	1317
2006.04.03	12:00	1.2055	1.2072	1.2051	1.2063	1376
2006.04.03	16:00	1.2064	1.2139	1.2064	1.213	2012
2006.04.03	20:00	1.2132	1.2148	1.2129	1.2132	1055
2006.04.04	0:00	1.2131	1.2152	1.2124	1.2125	1035
2006.04.04	4:00	1.2127	1.2161	1.2127	1.215	1261
2006.04.04	8:00	1.2148	1.2183	1.2118	1.2176	1798
2006.04.04	12:00	1.2177	1.2274	1.2161	1.2267	2100
2006.04.04	16:00	1.2266	1.2275	1.2242	1.2254	1828
2006.04.04	20:00	1.2253	1.2268	1.2252	1.2257	1011
2006.04.05	0:00	1.2258	1.2267	1.2243	1.2265	977
2006.04.05	4:00	1.2264	1.2285	1.226	1.2266	1196
2006.04.05	8:00	1.2265	1.2282	1.2245	1.2259	1735
2006.04.05	12:00	1.226	1.2301	1.2249	1.2291	1706
2006.04.05	16:00	1.229	1.2303	1.2254	1.2296	1905
2006.04.05	20:00	1.2295	1.2305	1.2285	1.229	997
2006.04.06	0:00	1.2289	1.2294	1.2274	1.2279	833
2006.04.06	4:00	1.228	1.2297	1.2277	1.2283	785
2006.04.06	8:00	1.2284	1.2331	1.2279	1.232	1887
2006.04.06	12:00	1.2318	1.232	1.2207	1.2215	2655
2006.04.06	16:00	1.2214	1.2241	1.2195	1.2219	2248
2006.04.06	20:00	1.222	1.2232	1.2206	1.2216	998
2006.04.07	0:00	1.2217	1.2217	1.2184	1.2194	1193
2006.04.07	4:00	1.2195	1.221	1.2193	1.2204	938
2006.04.07	8:00	1.2205	1.2209	1.2167	1.2191	1713
2006.04.07	12:00	1.2192	1.2223	1.2144	1.2154	2512
2006.04.07	16:00	1.2155	1.2156	1.2099	1.2111	1796
2006.04.07	20:00	1.211	1.2113	1.209	1.209	1055
2006.04.10	0:00	1.2106	1.2121	1.2099	1.2105	882
2006.04.10	4:00	1.2107	1.2122	1.21	1.2112	996
2006.04.10	8:00	1.2111	1.2128	1.2089	1.2116	1416
2006.04.10	12:00	1.2117	1.2121	1.2094	1.2118	1385
2006.04.10	16:00	1.2117	1.212	1.2074	1.2087	1447
2006.04.10	20:00	1.2086	1.2117	1.2084	1.2112	1002
2006.04.11	0:00	1.2116	1.2116	1.2089	1.2098	909

2006.04.11	4:00	1.2097	1.2129	1.2095	1.2127	1054
2006.04.11	8:00	1.2126	1.2142	1.2115	1.212	1552
2006.04.11	12:00	1.2121	1.2135	1.2094	1.2132	1425
2006.04.11	16:00	1.2131	1.2138	1.2115	1.2133	1324
2006.04.11	20:00	1.2134	1.2153	1.213	1.2139	988
2006.04.12	0:00	1.2138	1.2167	1.2137	1.2158	991
2006.04.12	4:00	1.2156	1.2164	1.2143	1.2149	772
2006.04.12	8:00	1.2148	1.2158	1.214	1.2146	1254
2006.04.12	12:00	1.2147	1.215	1.2065	1.2114	1868
2006.04.12	16:00	1.2115	1.2131	1.2092	1.21	1609
2006.04.12	20:00	1.2101	1.2109	1.2095	1.2103	965
2006.04.13	0:00	1.2102	1.2116	1.2092	1.2102	1021
2006.04.13	4:00	1.2103	1.2111	1.2093	1.21	1161
2006.04.13	8:00	1.2101	1.2131	1.2099	1.2111	1409
2006.04.13	12:00	1.2112	1.2113	1.2068	1.2082	1912
2006.04.13	16:00	1.2083	1.2115	1.2076	1.2109	1761
2006.04.13	20:00	1.2111	1.2116	1.2104	1.2106	925
2006.04.14	0:00	1.2109	1.2118	1.2104	1.211	735
2006.04.14	4:00	1.2109	1.2116	1.2105	1.2111	679
2006.04.14	8:00	1.2113	1.2114	1.2094	1.2105	826
2006.04.14	12:00	1.2104	1.2113	1.2099	1.2108	803
2006.04.14	16:00	1.2106	1.2115	1.2101	1.2111	773
2006.04.14	20:00	1.2109	1.2114	1.2104	1.211	245
2006.04.17	0:00	1.2121	1.2198	1.2119	1.2187	1190
2006.04.17	4:00	1.2186	1.2196	1.2169	1.2173	959
2006.04.17	8:00	1.2174	1.2186	1.2165	1.2182	924
2006.04.17	12:00	1.2183	1.2262	1.2182	1.2232	1998
2006.04.17	16:00	1.2233	1.2286	1.2229	1.228	1368
2006.04.17	20:00	1.2281	1.2284	1.2244	1.2256	860
2006.04.18	0:00	1.2255	1.227	1.2248	1.2261	843
2006.04.18	4:00	1.226	1.2268	1.2252	1.2253	781
2006.04.18	8:00	1.2255	1.227	1.2222	1.2254	1537
2006.04.18	12:00	1.2255	1.2299	1.2248	1.2287	1850
2006.04.18	16:00	1.2289	1.2293	1.2261	1.228	1749
2006.04.18	20:00	1.2281	1.2367	1.228	1.2362	1998
2006.04.19	0:00	1.2365	1.2367	1.2346	1.2352	1147
2006.04.19	4:00	1.2353	1.2356	1.2338	1.2344	930
2006.04.19	8:00	1.2343	1.2372	1.2335	1.2345	1692
2006.04.19	12:00	1.2346	1.235	1.2284	1.2319	2170
2006.04.19	16:00	1.2318	1.2387	1.2318	1.2381	2051
2006.04.19	20:00	1.2382	1.2393	1.2372	1.2376	1117
2006.04.20	0:00	1.2375	1.2378	1.2341	1.2357	1098

2006.04.20	4:00	1.2356	1.2363	1.2347	1.2351	975
2006.04.20	8:00	1.2352	1.2359	1.2332	1.2345	1473
2006.04.20	12:00	1.2346	1.235	1.2313	1.2322	2014
2006.04.20	16:00	1.2323	1.233	1.2285	1.2318	1907
2006.04.20	20:00	1.2319	1.2321	1.2309	1.2313	787
2006.04.21	0:00	1.2315	1.2317	1.227	1.2305	1156
2006.04.21	4:00	1.2307	1.2316	1.2299	1.2302	640
2006.04.21	8:00	1.2303	1.2346	1.2266	1.2324	2051
2006.04.21	12:00	1.2325	1.2335	1.2301	1.2318	1124
2006.04.21	16:00	1.2319	1.2358	1.2307	1.234	2089
2006.04.21	20:00	1.2341	1.2349	1.2328	1.234	971
2006.04.24	0:00	1.2371	1.2378	1.2349	1.2352	1091
2006.04.24	4:00	1.2353	1.2362	1.2338	1.236	890
2006.04.24	8:00	1.2359	1.2407	1.2355	1.238	2074
2006.04.24	12:00	1.2381	1.2385	1.2345	1.2348	1839
2006.04.24	16:00	1.2347	1.2401	1.2331	1.24	1804
2006.04.24	20:00	1.2401	1.2412	1.2379	1.2382	1234
2006.04.25	0:00	1.2383	1.2389	1.2367	1.2372	1118
2006.04.25	4:00	1.2371	1.2385	1.2365	1.2383	948
2006.04.25	8:00	1.2384	1.2416	1.2371	1.2386	2069
2006.04.25	12:00	1.2387	1.2439	1.2374	1.2415	2195
2006.04.25	16:00	1.2416	1.2422	1.2366	1.2408	2537
2006.04.25	20:00	1.2407	1.2435	1.2405	1.2427	1210
2006.04.26	0:00	1.2426	1.2435	1.2419	1.2422	1052
2006.04.26	4:00	1.2421	1.243	1.241	1.2425	1047
2006.04.26	8:00	1.2424	1.2425	1.2392	1.2415	1811
2006.04.26	12:00	1.2416	1.245	1.2384	1.2437	2803
2006.04.26	16:00	1.2436	1.2469	1.2418	1.2438	2428
2006.04.26	20:00	1.2439	1.2457	1.2439	1.2446	865
2006.04.27	0:00	1.2445	1.2469	1.2442	1.2456	788
2006.04.27	4:00	1.2455	1.2457	1.2445	1.2453	718
2006.04.27	8:00	1.2454	1.2455	1.2427	1.2439	1336
2006.04.27	12:00	1.2437	1.2441	1.2403	1.2427	1766
2006.04.27	16:00	1.2428	1.2546	1.2428	1.2527	2887
2006.04.27	20:00	1.2528	1.2543	1.2525	1.2527	1516
2006.04.28	0:00	1.2529	1.2543	1.2519	1.252	1325
2006.04.28	4:00	1.2523	1.2532	1.2519	1.2528	596
2006.04.28	8:00	1.2526	1.2566	1.2523	1.2552	1891
2006.04.28	12:00	1.2554	1.2576	1.2527	1.2567	1995
2006.04.28	16:00	1.2566	1.2634	1.2563	1.2626	2267
2006.04.28	20:00	1.2625	1.2639	1.2605	1.2634	768

Appendix 4

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ART AND SOCIAL SCIENCE

SCHOOL OF BUSINESS

Research Questionnaire

This questionnaire is designed to collect data for academic research being conducted into The Role of On-line Forex Traders in Ghana as part of the requirement in the award of Masters in Business Administration (Banking and Finance). I therefore appeal to you to answer the following questions frankly as possible.

The researcher assures confidentiality of any data and information provided by respondents.

GUIDE TO ANSWERING QUESTIONS:

Where possible answers have been provided, please tick [ ] the correct answer(s)

Where possible answers have not been provided, kindly supply the necessary information

1. Where are you located?
   a. Accra [ ]
   b. Tema [ ]
   c. Others .....

2. What is your major occupation?
   .....

3. How did you get to know on-line forex trading?
   a. Seminar [ ]
   b. Internet [ ]
   c. Education [ ]
   d. Newspaper [ ]
   e. Others .....

4. Which of the following types of forex transactions do you participate in?

   a. Spot currency trading [ ]
   b. Forwards transactions [ ]
   c. Futures transactions [ ]
   d. Swaps [ ]
   e. Options [ ]

5. Reason why you prefer the type of forex transaction?

   .....
   .....
   .....
   .....

6. Which bank did you open a domiciliary account to trade forex?

   .....

7. Is commission fees charged by commercial banks

   a. Very High [ ]
   b. High [ ]
   c. Low [ ]
   d. Very low [ ]

8. When did you start trading in the forex market via the internet?

   a. 1 years ago [ ]
   b. $1^1/_2$ years ago [ ]
   c. 2 years ago [ ]
   d. $2^1/_2$ years ago [ ]
   e. Above 3 years ago [ ]

9. How frequent do you trade in a week?

   a. Once [ ]
   b. Twice [ ]
   c. Thrice [ ]
   d. Four times [ ]
   e. Others.....

10. Where do you normally trade?
    a. Home [ ]
    b. Work Place [ ]
    c. Café [ ]
    d. Others .....

11. Is on-line forex trading the major source of income?
    a. Yes [ ]
    b. No [ ]

12. Which forex company or broker are you trading with?
    a. FXCM [ ]
    b. Action Forex [ ]
    c. Forex Yard [ ]
    d. Forex Microlot [ ]
    e. Gain Capital [ ]
    f. Easy Forex [ ]
    g. Interbank FX [ ]
    h. Others.....

13. How easy was it to open an account with your FX broker?
    a. Very easy [ ]
    b. Easy [ ]
    c. Difficult [ ]
    d. Very Difficult [ ]

14. What was the initial amount you can open a Forex account with this broker?
    a. $1 - $50 [ ]
    b. $51 - $100 [ ]
    c. $101 - $ 150 [ ]
    d. $ 151 - $ 200 [ ]
    e. $201 - $300 [ ]
    f. Above $300 [ ]

15. How comfortable is their trading platform?
    a. Excellent [ ]
    b. Very Good [ ]
    c. Good [ ]
    d. Poor [ ]
    e. Very Poor [ ]
16. Why did you choose this forex broker?
    a. Regulated by appropriate bodies
    b. Minimum account size
    c. Offer low spread
    d. Others .....
17. Have you suffered any forex fraud or scam?
    a. Yes [ ]
    b. No [ ]
18. How many times have you being scam?
    a. Once [ ]
    b. Twice [ ]
    c. More than twice [ ]
19. Which form of forex analysis do you use in trading?
    a. Technical Analysis [ ]
    b. Fundamental Analysis [ ]
    c. Both [ ]
20. How do you source for trading information?

    .....

    .....
21. Which charting indicators on their platform are you comfortable with?
    a. Moving average [ ]
    b. Bollinger band [ ]
    c. Fractals [ ]
    d. Relative strength index [ ]
    e. MACD [ ]
    f. Others .....

22. Why did you opt for this forex broker?

.....

.....

.....

.....

23. How do you determine buying/selling signals?

.....

.....

.....

24. Do you use candlestick indicator in trading?

a. Yes [ ]

b. No [ ]

25. If No, state the other traditional indicators you have used?

.....

.....

26. Are candlesticks a popular tool in your trading?

a. Yes [ ]

b. No [ ]

27. Is it difficult to understand candlestick formation?

a. Very easy [ ]

b. Easy [ ]

c. Difficult [ ]

d. Very Difficult [ ]

28. Do you encounter any irregularities with the candlestick indicator?

a. Yes [ ]

b. No [ ]

29. What problems/irregularities do you encounter with the normal traditional indicator/candlestick?

.....

.....

.....

30. How do you resolve them?

.....
.....
.....
.....

31. Forex transactions provide you with enough information necessary to take trading decision in your trading?
    a. Yes [ ]
    b. No [ ]

32. The returns of your investment in trading online forex is
    a. Very High [ ]
    b. High [ ]
    c. Low [ ]
    d. Very Low [ ]

33. You satisfied with the return from Forex trading?
    a. Yes [ ]
    b. No [ ]

34. If No, state your reasons

.....
.....
.....

35. Would you compare online Forex trading to any other investment alternative?
    a. Yes [ ]
    b. No [ ]

36. If Yes, please list them

.....
.....
.....
.....

37. Have suffered from a forex scam before?
    a. Yes [ ]
    b. No [ ]

38. How would you rate the liquidity of currency exchange through the internet?
    a. Very Liquid [ ]
    b. Liquid [ ]
    c. Not liquid [ ]

39. How many times you have being scam?
    a. Once [ ]
    b. Twice [ ]

40. Is your internet connection reliable?
    a. Yes [ ]
    b. No [ ]

41. What challenges do you face in trading online currency exchange?
    .....
    .....
    .....
    .....