ASSESSMENT OF THE PERCEIVED BENEFITS & LIMITATIONS OF THE AUTOMATED TRADING SYSTEM AT THE N.S.E – A SURVEY OF MBA STUDENTS AT THE UNIVERSITY OF NAIROBI

By

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They say that interdependence has a higher value than independence. This is true indeed.

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May your name be glorified forever.

LIST OF ABBREVIATIONS

ATS	Automated Trading System
CDA	Central Depository Agent
CDS	Central Depository System
CDSC	Central Depository & Settlement Corporation .
CIC	Capital Issue Committee
CMA	Capital Markets Authority
LAN	Local Area Network
LSE	London Stock Exchange
NSE	Nairobi Stock Exchange
SRO	Self-Regulatory Organization
VWAP	Volume-Weighted Average Price
WAN	Wide Area Network

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ABSTRACT

The concept of automated trading at the stock market is a fairly recent phenomenon at the Nairobi stock exchange, having been introduced only recently in the year 2006.This was just about 2 years after the piloting and gradual introduction of the electronic share depository known as the Central Depository System which was meant to phase out the manual paper share certificates from the market. However, since the introduction of the automated trading system at the NSE, the market has also witnessed several challenges e.g. stockbrokers trading in clients' shares without their authority, collapse of several stockbrokers, unethical trading practices, etc. This has prompted some investors to question the credibility of the ATS being used at the NSE. It is on the background of these events that this particular research study was conceptualized. The study set out to explore and assess the perceived benefits and limitations brought about by the introduction of the ATS at the NSE. The main objective of the study was to make an assessment of the advantages and possible limitations of the ATS being used at the NSE. The research study was conducted by carrying out a survey on MBA students of the university of Nairobi who represented investors with CDS accounts at the NSE. The target population was 1,700 students but due to time and resource limitations, a sample of 100 students was picked for the study. The study used a questionnaire as the data collection instrument and primary data was gathered using this questionnaire. Out of the targeted 100 respondents, responses were received from all of them, which means that the response rate was 100%. The data collected was then analyzed using the statistical package for the social sciences (SPSS) and Microsoft Excel spreadsheets and presented using descriptive statistics such as frequency distribution tables, charts and graphs.

From the results of the study, most of the investors agreed that the introduction of the ATS at the NSE had brought with it several benefits advantages e.g. increased market liquidity, reduction of the time taken to execute a trade, lower trading costs and also making the NSE to be a world class standards stock market, among others. The research results also indicated that the investors felt that the ATS had also brought with it several limitations e.g. difficult auditing of trading transactions, unethical practices, unauthorized trading in clients' shares, among others. Based on the research findings, this study recommended that apart from proper measures being put in place by the market regulators to prevent the unethical trading practices, the integrity and professionalism of the various market players and intermediaries is of crucial significance. The main limitation of this study was that it mainly collected data from MBA students, most of whom had not been in the stock market for more than five years, hence may not have had the real experience of the old manual trading system to compare. This study suggests that further research be conducted in this area with special focus on the wide spectrum of the general investing public (both institutional and individual investors). This could be done by taking samples of investors from each of the licensed stockbrokers and other market intermediaries and assessing their perceptions and views about the automated trading system currently being used at the NSE. In summary, the study concluded that although a majority of the investors were generally satisfied with the introduction of the ATS at the NSE, the critical perceived limitations associated with the system need to be addressed urgently by the relevant market regulators and trading authorities.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

An automated trading system (ATS) is a computer trading program that automatically submits trades to an exchange, Allen, et al (2000). An example of an early ATS is Instinet which allows traders to input trades invisibly to the market, with a crossing price determined by a Volume-Weighted Average Price (VWAP); the ratio of the value traded to total volume traded over a particular time horizon (usually one day); which is a measure of the average price a stock traded at over the trading horizon. Instinet also enables anonymous conversations and negotiations to take place between bidders, and so reduces informational costs to the participants, (Jiang, et al 2001).

There are many types of ATS operations internationally, Sioud and Hmaied (2003). They include: electronic bulletin boards; other automated trade matching systems; ATS operated by overseas exchanges; broker-to-client automated linkages; and ATS operated on the Internet. New regulatory requirements have been or are being developed internationally to address ATS operations. ATS operations may provide benefits to the marketplace. Depending on the system involved, some of the potential benefits include lower costs, specialized services, ease of access, and expanded product ranges, Venkataraman, (2001). However, ATS operations may also raise concerns, such as the fitness and properness of the system operator, lack of transparency, adequacy of surveillance arrangements, and the maintenance of security and control procedures and back-up arrangements. Automated trading system forms an excellent starting point for everyone who is interested in turning the stock market opportunities into considerable profit. It provides significantly improved chances for both short and long term-profit, as it does not have any market bias, nor does it work on any of the human traits that can hamper trading, such as greed, impulsivity or fear. Whilst the benefits of automated trading system are highly beneficial in the modern stock market, investors turbulence marred by the sudden collapse of stockbroking firms more than ever before have been observed at the Nairobi stock exchange. Automated trading system is a controlled electronic Central Depository System (CDS).

This is a computer system that facilitates holding of securities in electronic accounts and facilitates faster and easier processing of transactions for NSE securities (shares and bonds).CDSC has then authorized central depository agents (CDA) who are either stockbrokers or custodian banks, to open accounts in CDS on behalf of investors. The NSE was established in 1954 as a voluntary association of stockbrokers registered under the Societies' Act. In 1991, the NSE was registered under the Company's Act and phased out the "call over" trading system in favour of the floor-based Open Outcry System. On 1st august 2000, the NSE introduced a new trading cycle (T+5) and the Central Depository System (CDS) Act was passed by parliament and received presidential assent – paving the way for the full implementation of the CDS.

The CDSC was officially launched in November 2004 to manage the CDS electronic system. After this period, the NSE has witnessed a number of massive IPOs and a significant growth in investors numbers. These include the KENGEN IPO of May 2006, Scangroup IPO of August 2006, Eveready IPO of November 2006, Kenya-Re IPO of August 2007 and the largest of them all was the listing of 50 billion shares of Safaricom in June 2008. On Monday 11th September 2006, the NSE witnessed the implementation of live trading on the Automated trading system. Thereafter on 17th December 2007, the NSE officially implemented the Wide Area Network (a remote trading platform based on the ATS). In this system, stockbrokers and investment banks trade through terminals in their offices linked to the NSE trading engine via the WAN. NSE is fully owned by the nineteen licensed stockbrokers. NSE has four core stakeholders; the investors, the listed companies, and the members/brokers. The most important stakeholders in any exchange are the investors. In the case of Kenya, the number of investors remains very small, though in the recent years substantial number of investors has been attracted to the market. The gross number of investors in all listed companies is approximately 1.5 million based on CDS accounts that have been opened as at April 30, 2008 (CDS Preliminary Report, 2008). However, despite the massive growth in investor numbers at the NSE in recent years, coupled with the listing of several large companies through IPOs, the market has also recently witnessed a gradual shift due to the collapse of several stockbrokers, loss of clients' invested funds either through the "rogue" brokers or as a result of an extremely bearish market, etc. This sudden phenomenon came up soon after the introduction of the Automated Trading System and the Central Depository System – both of which were perceived as better and modern replacement of the old manual certificate trading systems. It is with this notion in mind that

there clearly exists a problem – Could the collapse of the stockbrokers be related to the introduction of the electronic automated trading system? Could it be that the various institutions entrusted with the management of these electronic trading systems may not be functioning as expected? Therein lies a challenge – the automated trading system needs an evaluation, hence this study.

1.2 Statement of the Problem

The process of buying and selling shares has undergone a fundamental transformation with the introduction of a central depository system. Previously, the buying and selling of shares was affected through transfer of share certificates. Share certificates were the mode through which an investor owned shares. This system delayed the transfer of shares, as it was necessary to cancel the old certificates and issue new ones whenever a sale was made.
The Central Depository & Settlement Corporation Limited (CDSC) commenced operations of the central depository system (CDS) in late 2004. The central depository system was commissioned as ready for use on 10th November 2004. The commissioning meant that investors who held or intended to hold shares listed on the Nairobi Stock Exchange were supposed to open electronic shares accounts through their stockbrokers or their custodian banks, and could henceforth trade through those accounts rather than in paper certificate form, as was previously done (CDS Preliminary Report, 2008). In the recent past, cries by investors in NSE has often been linked to poor management of fragile automated trading system by players. Confidence has declined as a result of brokers trading on investors' shares without their consent and their collapse with investors wealth. Mukumu (2009) notes that the image of the local stock market has been battered by revelations that brokers have been manipulating client accounts and entering into transactions with their clients' money illegally. This has violated the widely held preposition that, participation in any stock exchange is based on perceived trust, confidence, reliability, accountability, transparency and governance of brokers, NSE, and other players. But the market regulatory bodies have since appeared or perceived to have failed in their duty, therefore appearing to lose their trust and confidence among different classes of investors. It is imperative to note that the CMA has been consistently criticized for ineffectively managing and regulating the activities of stockbrokers and other market players at the NSE. Consequently, this study has been necessitated by the need to examine, evaluate and appraise the challenges, the perceived gains and losses of the automated trading system at the Nairobi stock exchange. A few

studies have been conducted on automated trading systems. In Kenya, Kamau (2007) examined the impact of stock exchange automation on volume, volatility & liquidity on stocks at the NSE. However, Kamau's study did not focus on the overall effects of automation to the market. This will serve as a springboard to undertake this research. This research will attempt to evaluate the overall performance of the automation of trading at the Nairobi stock exchange.

1.3 Research Objectives

The main objective of this study will be to assess and appraise the perception of the MBA students with regard to the automated trading system being used at the Nairobi stock exchange. The study will be guided by the following specific objectives:-

i. To establish the level of investors satisfaction with the Automated Trading System.
ii. To assess and analyze the perceived advantages and limitations associated with the introduction of the ATS at the NSE.

1.4 Significance of the study

The proposed study will be of great importance to various market stakeholders, namely academicians, scholars, investors, NSE board and also the CMA. The researcher will benefit from scholarly materials by other authors for successful completion of the proposed study. Similarly, the study upon successful completion will add to the existing body of knowledge on Automated Trading System being used currently at the NSE. This will be useful for future scholars on the subject. The study findings will also be of importance to both institutional and individual investors in the country. The study will identify the level of investors' satisfaction with Automated Trading System, the level of trust on institutions entrusted with the management of the ATS in Kenya, and the perceived benefits and limitations associated with the introduction of the ATS at the NSE. These will consequently help investors make prudent and informed investment decisions. The board of the NSE would also benefit from the results of this evaluation of the Automated Trading System (ATS) in Kenya, and probably take note of some of the critical points that may arise out of the study. The regulatory board (CMA) would also benefit immensely with the information of whether the institutions entrusted with the management of the ATS in Kenya are trusted by the investing public or not, and for what possible reasons.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction – General & theoretical Literature

The Automated Trading System (ATS)

ATS stands for automated trading system. This system allows trades (sales and purchases), to be automatically matched electronically as opposed to the previous open outcry system where orders were manually recorded on the trading board at the trading floor. In this system, the purchase and sale orders are normally queued in the computer in the order in which they are uploaded into the system (chronologically). It works the same way as an auction, only that in this case the order matching is done electronically.

According to Venkataraman (2001), the set of general principles to be considered in relation to ATS operations are:- The ATS operator needs to be fit and properly trained to handle the automated operations as well as have the ability to fully cooperate with the relevant market regulatory authorities. The system should be capable of maintaining an audit trail of all market transactions and also be transparent in its trading functions. The system should also have the capability of performing market trading surveillance and regulatory functions and also have the capacity to maintain security and control procedures as well as having a comprehensive back-up arrangement. Also, apart from the system incorporating an aspect of risk management policies, the financial standing of the ATS operator should also be consistent with accepted international practice.

Automated trading in a stock market

The stock market is an important source to raise money for both companies and providing profit opportunities for traders, (Bochow, *et al*, 1999). The early participants in the stock market were individual investors, (Green, 2003). Nowadays, the market is still open to individual buyers and sellers, but, over the years, we have also witnessed an increased "institutionalization" of the stock market, with more and more institutions participating in stock day trading. The growing number of the institutional investors in the stock market has led to a significant improvement with regard to market operations, (Weber and Davis, 2000).

The size of the participants in the stock market is extremely varied. There are two types of exchanges in the stock market; the physical location type, and the virtual type, (Venkataraman, 2001). The former is concerned with transactions being carried out by open outcry on a trading floor, while the latter consists of a network of computers, where participants can make trades electronically. Either real or virtual, the marketplace is provided by buyers and sellers exchanging securities, and the purpose of the stock exchange is the facilitation of such exchanges. The volatility of the stock market is a well-known fact which is still dominant in many stock markets around the world. In spite of all the information available from various sources, individual traders find it more and more difficult to profit on the stock market. With stock prices being easily influenced and fluctuating widely, the ability to manage the increased risks associated with stock day trading is a must for successful and profitable trading on the stock market. The stock market offers great earning opportunities. However, stock trading involves a series of risks, and getting acquainted with the diversity of trade tools is highly recommended prior to participating in stock day trading, (Levine, and Zervos, 1998). With the advent of automated trading systems, trading has been simplified.

Approaches for creating Automated Trading Systems and recommendations for use.

The choosing of information and trading platform should be taken with all seriousness, (Jiang et al, 2001). Those who plan to use an automated trading system in their business should consider the following factors: First, define the type of tasks the automated trading system is to perform. These could be actual trading: opening and closing positions in selected instrument(s), secondary support-type functions. These could include placing protective orders, creating and sending out reports of notifications, analyzing the market with different technical analysis tools using your own algorithm. Sioud & Hmaied, (2003) asserts that after studying the user comments on the Internet and perhaps consulted the broker, proceed to getting the feel of the products offered i.e. test the system for a day or two. Pay attention to both the convenience and the tools that go with it, and the reliability and security of the control programs created with the system script.

When planning to create own scripts, take the time to study the documentation for the programming language . Naturally, for an automated trading system to be expertly organized, the scripts should be written by qualified professionals in the field of programming and finance,

(Jiang, et al, 2001). In case you wish to use one of the classic programs, remember that most of them are of trial, demonstration nature. If one decides to use programs written by third-party developers, good solutions will have to be paid for. The cost of one innovative strategy varies between $300 and $500, but the price for fine-tuned strategies that use advanced mathematical and economic techniques and especially for winners and runners-up of automated trading championships may exceed $1,000. When using an automated trading system always test the scripts, (Jiang et al,2001). The procedure can be as follows: Test the program in a script tester (if such a facility is available) several times, varying the chart period, the instrument being traded, and the program settings. Try to model the conditions close to the actual state of the market. Test the script in a demo account (if such an opportunity is available). At this stage, it is important to let the program run for a sufficiently long time (it is defined by the period of the chart). Do not stop the test if the program has at once produced a big gain or a big loss. The usefulness of the script can only be estimated after it has worked for a significant amount of time. Run the script in the live account. At this stage, it is not advisable to interfere with the script; for example, close the positions it has opened or modify their settings, or upset the internal logic of the program.

However, that there are no absolutely perfect advisers. There is only one criteria; a rigorous comprehensive testing will help one get the right impression about the script offered, (Allen, H., Hawkins, &Sato, 2000). Usually, script vendors describe their products with the results of their own testing. In most cases, however, such results are very slanted. Testing should always be performed on several histories, or simply adjust to one history fragment and show sky-high results. Some professional programmers use sophisticated mathematical tools to endow their programs with artificial intelligence, neural networks, forecasting and evolutionary algorithms are no longer surprising, (Bessembinder, & Venkataraman, 2004). Complex forecasting algorithms are very sensitive to errors and parameter settings, while simple schemes are not of much help to the advisor when it comes to generating trade signals, and can only be used to raise the price of the script. Securities trading in Kenya can be found as far back as the 1920’s when european colonialists traded shares informally pursuant to contractual commitments and physical settlement of trades. In 1953-54, local brokers in Nairobi obtained the London Stock Exchange’s (LSE) recognition of the NSE as an overseas stock exchange and registered the NSE under the Societies Act as a “voluntary association of stockbrokers.” At that time and continuing to this day, the NSE operated as a self-regulatory organization (SRO) (Ngugi, 2003).

Despite a substantial increase in regulation of business licensing and the "Kenyanization" policies that arose after independence in 1963, the NSE enjoyed relatively independent self regulation until 1971 with the establishment of the Capital Issue Committee (CIC), (Steil, 2001). The CIC essentially vetted public offerings for the purpose of ensuring that capital raised on the NSE would not subsequently be sent outside Kenya. This sounded the death knell for the regionalization of the NSE, as restrictions on repatriation, which generally were directed at foreigners who were divesting from Kenyan assets to protect themselves from "Kenyanization" policies. This applied to Ugandan or Tanzanian companies that would have raised capital on the NSE and brought that capital back to their home country to apply to various other operations there (Ngugi, 2003).

The NSE enables the mobilization of savings for investment in productive enterprises as an alternative to putting savings in bank deposits, purchase of real estate and outright consumption. Secondly it enhances the growth of related financial services sector e.g. insurance, pension and provident fund schemes which nurture the spirit of savings. Thirdly, it acts as a check against flight of capital which takes place because of local inflation and currency depreciation. It encourages the divorcement of the owners of capital from the managers of capital; a very important process because owners may not necessarily have the expertise to manage capital investment efficiently. It also encourages higher standards of accounting, resource management and public disclosure which in turn affords greater efficiency in the process of capital growth. The stock market facilitates equity financing which is perceived as a better alternative by those firms which do not want to venture into long term debt financing options. Debt financing has been the undoing of many enterprises in both developed and developing countries especially in recessionary periods. It also improves access to finance for new and smaller companies. This is now possible on the Alternative Investments Market Segment (AIMS), (Bennett, and Wei, 2006). This can also be realized through Venture Capital institutions which are fast becoming key players in financing small businesses. It also encourages floatation of private companies which in turn allows greater growth and increases the supply of assets available for long-term investment.

2.2 Empirical Literature

2.2.1 Investors satisfaction with Automated Trading System

Added liquidity to the securities markets

An automated system for managing one or more large investor portfolios containing both cash and numerous, diversified securities in a real time environment provides added liquidity to the securities markets while maintaining predetermined portfolio objectives for each portfolio, Venkataraman, (2001). ATS uses data processing equipment to place buy and sell orders on securities markets and with automated brokers to execute trade directly between users of the system and external markets. Holders of such large, diversified portfolios have usually been long-term investors. The system allows active market participation by such investors whereby they provide added liquidity and depth to the securities markets while overcoming problems caused by trader identification and the inability to enter, change or execute orders in a real time environment, (Allen,et al, 2000). The system monitors and analyzes a variety of factors which effect trading decisions in a vast number of securities.

Policy choice and stock exchange efficiency

The prevailing international policy stance implies an argument that stock exchanges will grow when they are efficient at channeling resources between those seeking to invest liquid capital and those seeking to finance private enterprise, (Christie & Huang,1994). De-listing, for example, suggests companies are searching internationally and finding more efficient providers of corporate finance. This argument masks debate about what makes a stock exchange efficient and internationally competitive (Verdier, 2001). One category of arguments emphasizes different national legal traditions that correlate with regulatory effectiveness (La Porta et al., 1998). Another set of explanations looks at effectiveness of regulations and institutions that govern information flows related to stock exchange function. A third explores choices in trading system design. Obviously some of these potential sources of efficiency are more amenable to change in the short or medium term than others. If inefficiency is driven by a centuries-old Napoleonic legal code (La Porta et al., 1998), there is little hope for effectiveness of policies designed to promote local exchange growth and development. But, to the extent that trading rules can shape efficiency, perhaps policy support for national or sub-national exchanges is warranted for

exchanges moving to reap efficiency gains by reforming trading rules. Based on a literature review and survey of stock exchange practices in lower income countries, lays out the efficiency implications of trading system design choices and suggests topics for policy-relevant research to shape public efforts to bolster young exchanges. This lays out rejoinder to the prevailing argument that public policy should only support stock exchanges in low and middle income countries to the extent these exchanges show clear, immediate potential to be internationally competitive business entities , (Christie & Huang, 1994).

According to the NSE 2007 investors trading manual, in the recent past NSE has undergone some major development on the trading and the settlement front. These developments entail establishment of a modern fully automated custody and settlement services which are being provided by the Central Depository & Settlement Corporation (CDSC). CDSC became operational in 2004 after decades of manual clearing and settlement system. The shareholders of the CDSC are brokers and some financial institutions. There was a successful implementation of the automated trading system (ATS) in September 2006 on a local area network (LAN) at the trading floor. The system has facilitated efficient trading by reducing the time it takes to execute a trade. However, in the recent past NSE has gone through some very turbulent times. Three stockbrokers have gone under in a span of three years due to poor corporate governance and other reasons mainly attributed to non compliance with market regulatory issues. This has threatened to negate some huge gains made by the automation of both trading and settlement systems.

2.2.2 The level of trust on institutions entrusted with Automated Trading System .

The integration of the ATS, CDS and brokers' back office systems improved service delivery to investors. Initially, ATS operated on a Local Area Network (LAN) but after a success testing and implementation phase the ATS now runs on a Wide Area Network (WAN) for members to trade from their offices since 17th December 2007. According to the 2008 NSE website article titled "NSE goes live with ATS WAN", the change was expected to immediately (with effect from 17th December 2007) double the value of shares traded each day on the bourse with enhanced integrity and efficiency. Investors are now able to access current information thus facilitating them to make informed investment decisions on timely basis.

Composition of institutions entrusted with Automated Trading System

The NSE has four core stakeholders; the investors, the listed companies, and the members/brokers. The most important stakeholders in any exchange are the investors. In case of Kenya, the number of investors remains very small, though in the recent years substantial number of investors has been attracted to the market. The gross number of investors in all listed companies is approximately 1.5 million based on CDS accounts that have been opened as at April 30, 2008 (CDS Preliminary Report, 2008). NSE has 55 listed companies on Equities board and 2 securities on preference shares board. It also has 9 listed Corporate Bonds and 65 listed Treasury bonds on the fixed income securities board (NSE Weekly Market Statistics, 2008). The NSE has 19 active trading members (brokers) and one dormant member. There are 11 directors on the board of the NSE. 5 of the board members are elected from the brokers, 2 are elected to represent listed companies, 2 to represent institutional interests, 1 to represent the public interest, managing director of the NSE and the legal officer/ company secretary. NSE is operated as a "club of brokers" offering its services as a monopoly. The members of the club enjoy rights of ownership, decision making (one member, one vote), and trading. Essentially it has been operated as a non-profit making organization. There has been a close identity between ownership of the NSE and the direct use of its trading services.

2.2.3 Advantages associated with introduction of the ATS at the NSE

There are clearly efficiency gains in the switch to electronic trading which provide a natural focal point for public efforts to support emerging exchanges. But contrary to conventional wisdom, a second aspect of exchange modernization, the shift to automatic trading, may not stimulate efficiency. Young exchanges may need broker-dealer centered trading systems, even at the expense of transparency, until they reach liquidity thresholds.

Electronic exchanges lower costs

Electronic exchanges may be more expensive than floor-based exchanges to open, but over the longer term operating costs of an electronic exchange are much lower, Jain (2003). The conventional wisdom is that electronic exchanges offer lower trading costs than floor-based exchanges. Electronic exchanges can provide direct access to retail customers and cut intermediaries (brokers) out of the market. Electronic exchanges may be accessed from many

locations and they can easily be scaled up as the exchange grows. Brazil's Bovespa uses a system that affords 24-hr retail access. Buyers and sellers pay a set fee for each exchange but get a “fair” price determined by supply and demand as clearly evident on electronic exchanges open order book. Electronic exchanges lower the search time and cost involved in trading because the buyer or seller just places an order and waits for a match someone willing to take the other side of the trade. These advantages can be particularly important in low and middle income countries where broadening access is socially and politically important and transparency can be a crucial antidote to a history of corruption. Jain (2003) finds that the cost of raising finance through initial public offerings on local stock exchanges falls considerably more with the introduction of electronic trading in emerging markets than in developed markets.

Electronic trading systems expand liquidity and volume

An attribute distinguishing exchange trading systems is the extent to which trading is automated, based on orders or quotes, or whether it is negotiated, Ngugi & Njiru, (2005). The central dilemma is that transparency and surveillance capability rises with the extent of automatic trading. But negotiated trading can stimulate volume and liquidity, important measures of stock market success. Dealers, traders who operate for themselves and possibly as brokers to clients also, are the key protagonists in negotiated trading. They play a market-making function that can be very important in young stock exchanges by taking risks that other market participants are not willing to bear. The Chinese case highlights the role of negotiated trading systems in emerging stock markets, Heilmann (2002). Several stock exchanges in low and middle income countries allow negotiated trading for infrequently traded securities, Hosseini, (1999). Tunisia, for example, combines an automatic trading system with a quote-driven call auction for relatively illiquid securities. Mauritius also combines both trading systems, having recently introduced a negotiated system called the Alternative Development Market explicitly designed for small and family-owned companies that are not large-enough or sufficiently well-understood to be actively traded through the automatic system.

Negotiated trading also appeals to traders who want to buy or sell quantities of a specific security that are large relative to average trading. Quantity traded translates into volume, one of the indicators that an exchange could be internationally competitive, Huang, &Stoll (1996a). Many of the low and middle income county stock exchanges have negotiated trading venues for

wholesale or large block traders. Morocco, for example, allows “hidden” orders in order to insure price stability. Turkey has a separate negotiated market for wholesale traders. Negotiated trading also reveals non-price information to those who are able to observe the details of the transaction. Exchanges vary according to whether or not they ask that details of negotiated trades be recorded after the fact in the public order book, (Theissen, 2002). Examples of non-price information include; who is selling or buying and in what quantities. These details allow market participants to guess at developments at the company whose securities are being traded or the financial circumstances of specific market participants. In contexts where non-price information is relatively hard to collect, electronic systems do relatively little to increase the informational efficiency of the exchange. Many low and middle income countries are generally less information-rich than their high income country counterparts for many reasons. According to Heilmann S. (2002), one of the reasons for the many informal stock exchanges in China is that the dealers help convey non-price information about the companies to potential investors.

Negotiated trading helps expand trading and contributes to stock market success by standard measures such as liquidity and volume, especially in the relatively low liquidity markets of lower income countries (Madhavan, 2002). In recent research, Jain (2001) finds that the presences of market makers has a significantly more positive impact on stock market performance indicators in emerging than in developed markets. Another study (Bochow et al., 1999) confirms that markets with market makers exhibit better liquidity than those without market makers.

Challenges and benefits of its implementation in emerging markets

It is well documented that two of the main problems that emerging markets face are capital supply shortage and low liquidity (Comertoe and Rydge, 2006; O'Hara, 2001; Kairys et al., 2000). Market regulators in these countries can consider a number of restructuring measures to alleviate these problems: introduction of market segmentation (i.e. segmenting trading hours, creating main and parallel markets), implementation of trading phases (i.e. offering both continuous and call auction trading in a day), or provision of special incentives for the submission of limit orders (i.e. offering hidden orders and standing orders). In addition, the implementation of a market making system can help boost liquidity, and, in combination with other restructuring measures, can provide important improvements in market quality. As Venkataraman and Waisburd (2007), Nimalendran and Petrella (2003) and Majnoni and Massa

(2001) show, the implementation of a market making system significantly promotes liquidity, lowers transaction costs, reduces volatility and improves daily turnover of listed securities. The study by Venkataraman (2007) critically evaluates the types of market making systems found in developed capital markets and identifies the factors that stock market regulators in developing countries should consider when deciding which type of system to implement.

ATS in the Developed World

Numerous theoretical and empirical studies investigate the role of market makers in the trading process. Early theoretical work by Garman (1976), Amihud and Mendelson (1980), Kyle (1985), Glosten (1989) and Hasbrouck (1991) identifies the importance of market makers and their effect in the quoted and transaction prices. Recent empirical studies have looked at the effect of market making using two distinct approaches. The first approach is that of a natural experiment which investigates market quality changes within exchanges following the introduction of market makers. The second group of studies is a cross-sectional comparison of market quality in exchanges with and without market making systems.

The first category of studies includes mainly a description of European exchanges that have recently undergone a restructuring process. Nimalendran and Petrella (2003) look at the introduction of the market making system in the Italian Stock Exchange equity trading process. Investigating different market quality measures before and after the implementation of the system, the authors find that the market has become more efficient. In particular, looking at the volume, spread and liquidity (depth of the market), they find that the introduction of market makers has substantially improved liquidity, increased trading volume and lowered the bid-ask spread (cost of trading) of each individual instrument. Evidence shows that this improvement is greater for low trading (illiquid) stocks. Venkataraman and Waisburd (2007) reach similar conclusions for the Euronext Paris. However, they fail to identify a similar effect for highly liquid stocks. These stocks are shown to be unchanged for the daily market turnover before and after the restructuring of the system.

Moving beyond European exchanges, Anand and Weaver (2006) look at the introduction of the specialist system for equity options on the Chicago Board of Options Exchange (CBOE. In 1999, the exchange superimposed the specialist system with the introduction of the Designated Primary

market makers, to the existing dealer system that employed multiple market makers. Evidence shows that the specialist system improved the spread (both quoted and effective) and the depth of the market.

There are, of course, numerous comparative studies of market design in different exchanges. Westerholm et al. (2003) examine the three existing models of trading (continuous quote driven, order-driven, and periodic auctions that can either be quote-driven or order-driven. Their results indicate that the existence of a market making system can lead to lower price volatility and to lower transaction costs than pure order driven systems. Furthermore, Jain (2003), who examined the market structure of 51 stock exchanges, finds that market makers can significantly improve stock liquidity. Interestingly enough, he finds that this effect, and in particular the reduction of transaction costs, is more pronounced in less liquid emerging markets compared to those in more developed markets. There are also a number of studies that investigate the market quality of the two largest capital stock exchanges, namely the New York Stock Exchange (NYSE), (order driven system with a market maker) and NASDAQ (quote driven system). Bennett and Wei (2006) look at recent listing switches of companies from NASDAQ to NYSE and find significant reductions in return volatilities and price reversals, quoted spreads, and trading costs. In addition, Bessembinder (1999) looks at the transaction costs between the two markets and finds evidence that the market making system at the NASDAQ market is more costly. Bessembinder and Kaufman (1997) and Huang and Stoll (1996b) also investigate execution costs between the two large exchanges and find that NASDAQ is twice as costly. Moreover, Christie and Schultz (1994) find collusion among market makers in the NASDAQ market.

According to Ellies and Ohara (2002), in this market public investors generally cannot trade directly among themselves. In order for buyers (sellers) to execute an order they have to contact a market maker (dealer) who uses his/her own inventory in the transaction. In a quote-driven system there is more than one market maker per company who announces on a continuous basis quotes to buy and sell a number of shares at a particular price. Dealers (market makers) offer almost all the liquidity in the market as they monopolize the transaction with their quotes. At the same time they compete among themselves for more competitive bid and/or ask prices that will attract the order flow from public investors. Stock markets that apply this system are the NASDAQ and the London Stock Exchange (LSE).

According to Jain P. (2003), the centralized market making system in an order-driven, floor-based market is a single market maker in the centralized dual role of matching buyers and sellers and providing the necessary liquidity when needed. The only major difference is that in an order driven market there is neither a floor nor floor brokers to interact with the limit order book for providing extra liquidity. Such a system was applied in the Amsterdam Stock Exchange (prior to its inclusion in Euronext). According to Westerholm (2003), market makers in a non-centralized trading system (in which there can be more than one per company) are required to announce limit orders to buy and sell on a continuous basis for their own account subject to specific quantitative rules set by the exchange. As opposed to the centralized system, they do not possess any monopolistic information over all other market participants on the incoming orders or the limit order book. In other words, the presence of market makers in this market is expected to increase the liquidity provided by public investors. They compete with investors for order flow. This system is applied in Euronext, in the Italian Stock Exchange (ISE) and in the Athens Stock Exchange (ASE), among others. Very recently the system was also introduced in Electronic Communications Network systems (ECNs) in the United States. The Archipelago market (Lead Market Maker) is an example of such ECN.

According to Pagano & Roel (1996), the prevailing international policy stance regarding stock exchanges in lower income countries leaves little scope to discuss the positive impact of institutional design choices on efficiency, and correlated indicators, over the medium term, thus lacks transparency. In considering institutional design choices that can improve efficiency, exchanges and their proponents confront some transitional trade-offs between transparency and liquidity. According to Huang Stoll (1996), the dilemma with negotiated, dealer-centered trading systems is that auditing is more difficult, raising the specter of corruption, but trading may be encouraged in ways it is not facilitated in a fully automated system. In practice the trade-off between transparency, on the one hand, and facilitating trade, on the other, is leading to exchanges to settle on different variants of hybrid systems that combine automatic and dealer-centered, negotiated trading. Bessembinder and Venkataraman (2004) conclude that “virtually every computerized market is accompanied by a parallel upstairs market.”

There are at least four important rejoinders to the claim that lower income countries should not aspire to local exchanges because they cannot operate efficiently, Sioud, & Hmaied (2003). The first

is that the empirical record of stock exchange development in low and middle income countries is not as dismal as the prevailing international policy stance suggests. The second is that using efficiency criteria, alone, flies in the face of a long tradition of development research and practice justifying, at least for some transitional period, government-promoted financial sector development. Third, and related, is both empirical and theoretical scholarship highlighting the externalities evident in financial markets that justify public intervention. The fourth issue is that the prevailing policy stance minimizes discussion of policy choices that might contribute to national or sub-national stock exchange growth and development.

2.3 The NSE, CDSC, ATS and CMA

2.3.1 A Brief History of the NSE

According to the NSE website 2008 article titled "a brief history of the NSE", the NSE was established in 1954 as a voluntary association of stockbrokers registered under the Societies' Act. The first privatization (IPO) through the NSE was the sale of 20% government stake in Kenya Commercial Bank in 1988. In 1991, the NSE was registered under the Company's Act and phased out the "call over" trading system in favour of the floor-based Open Outcry System.

In 1994, the NSE 20 share index recorded an all-record high of 5030 points on 18th February 1994. It was after this event that an extensive modernization exercise was undertaken e.g. the market moved to the more spacious premises at Nation Centre (July 1994) and consequently, eight more stockbrokers were also licensed. In 1996, the NSE undertook the largest share issue (until then) in its history – the privatization of Kenya Airways. On 1st august 2000, the NSE introduced a new trading cycle (T+5) and the Central Depository System (CDS) Act was passed by parliament and received presidential assent – paving the way for the full implementation of the CDS. The CDSC was officially launched in November 2004 to manage the CDS electronic system. After this period, the NSE witnessed a number of massive IPOs and a significant growth in investors numbers. These include the KENGEN IPO of May 2006, Scangroup IPO of August 2006, Eveready IPO of November 2006, Kenya-Re IPO of August 2007 and the largest of them all was the listing of 50 billion shares of Safaricom in June 2008. On Monday 11th September 2006, the NSE witnessed the implementation of live trading on the Automated trading system. Thereafter on 17th December 2007, the NSE officially implemented the Wide Area Network (a remote trading platform). In this system,

stockbrokers and investment banks trade through terminals in their offices linked to the NSE trading engine via the WAN. Trading hours were also extended from 9am to 3pm, Monday to Friday. Another milestone was the introduction of the NSE All Share Index (NASI) in February 2008.

2.3.2 The Role of the Stock Exchange

According to the NSE investors manual (2007), the major roles that the stock exchange has played, and continues to play in many economies are as follows - It promotes a culture of thrift, or saving. The very fact that institutions exist where savers can safely invest their money and in addition earn a return, is an incentive to people to consume less and save more. Secondly, the stock exchange assists in the transfer of savings to investment in productive enterprises as an alternative to keeping the savings idle. It should be appreciated that in as much as an economy can have savings, the lack of established mechanisms for channeling those savings into activities that create wealth would lead to mis-allocation or waste of those savings. Therefore, even if a culture of saving were to be encouraged, the lack of developed financial markets may lead to economic stagnation. Thirdly, a robust stock market assists in the rational and efficient allocation of capital, which is a scarce resource. The fact that capital is scarce means systems have to be developed where capital goes to the most deserving user. An efficient stock market sector will have the expertise, the institutions and the means to prioritize access to capital by competing users so that an economy manages to realize maximum output at least cost. This is what economists refer to as the optimum production level. If an economy does not have efficient financial markets, there is always the risk that scarce capital could be channeled to non-productive investments as opposed to productive ones, leading to wastage of resources and economic decline. Fourthly, stock markets promote higher standards of accounting, resource management and transparency in the management of business. This is because financial markets encourage the separation of owners of capital, on the one hand, from managers of capital, on the other. This separation is important because we recognize that people who have the money may not necessarily have the best business ideas, and people with the best ideas may not have the money. And because the two need each other, the stock exchange becomes the all-important link. To give a practical example, if an entrepreneur has a bright business idea and lacks the money, he can approach the Nairobi Stock Exchange, float shares and raise the capital he needs to turn his idea into a business. The shareholders will then appoint directors and management to run the company on their behalf. This arrangement benefits both parties because the manager of capital, who is the

entrepreneur, gets access to capital to turn his idea into a reality, while the owners of capital, who are the shareholders, get a return on their investment. Fifthly, the stock exchange improves the access to finance of different types of users by providing the flexibility for customization. This is made possible as the financial sector allows the different users of capital to raise capital in ways that are suited to meeting their specific needs. For example, established companies can raise short term finance through commercial paper; small companies can raise long term capital by selling shares; the Government and even municipal councils can raise funds by floating various types of bonds as an alternative to foreign borrowing. Sixthly, and very important, is that the stock exchange provides investors with an efficient mechanism to liquidate their investments in securities. The very fact that investors are certain of the possibility of selling out what they hold, as and when they want, is a major incentive for investment as it guarantees mobility of capital in the purchase of assets.

2.4 The Capital Market

According to Weber & Davis (2000), the capital market is part of the financial system that provides funds for long-term development. This is a market that brings together lenders (investors) of capital and borrowers (companies that sell securities to the public) of capital.

2.4.1 The Role of Capital Markets in an Economy

According to the Capital Markets Authority (CMA) investors training manual (2005), the roles played by the capital markets in Kenya include the following - They provide an important alternative source of long-term finance for long-term productive investments. This helps in diffusing stresses on the banking system by matching long-term investments with long-term capital. It also provides equity capital and infrastructure development capital that has strong socio-economic benefits - roads, water and sewer systems, housing, energy, telecommunications, public transport, etc. - ideal for financing through capital markets via long dated bonds and asset backed securities.

According to the CMA investors handbook (2007), the capital markets also provide avenues for investment opportunities that encourage a thrift culture critical in increasing domestic savings and investment ratios that are essential for rapid industrialization. They encourage broader ownership of productive assets by small savers to enable them benefit from Kenya’s economic growth and wealth distribution. Equitable distribution of wealth is a key indicator of poverty reduction. They also

promote public-private sector partnerships to encourage participation of private sector in productive investments. Pursuit of economic efficiency shifting driving force of economic development from public to private sector to enhance economic productivity has become inevitable as resources continue to diminish. The CMA investors handbook (2007) also says that the capital markets assist the Government to close resource gaps, and complement its effort in financing essential socio-economic development, through raising long-term project based capital. They also improve the efficiency of capital allocation through competitive pricing mechanism for better utilization of scarce resources for increased economic growth. They provide a gateway to Kenya for global and foreign portfolio investors, which is critical in supplementing the low domestic saving ratio.

2.4.2 The Capital Markets Authority

A Brief Overview

According to an article in the CMA website (2008) titled “the history of the CMA in Kenya”, in the 1980s the Government of Kenya realized the need to design and implement policy reforms to foster sustainable economic development with an efficient and stable financial system. In particular, it set out to enhance the role of the private sector in the economy, reduce the demands of public enterprises on the exchequer, rationalize the operations of the public enterprise sector to broaden the base of ownership and enhance capital market development. It had become evident that the commercial banks could not support and sustain a desirable economic development because they could not offer the necessary long-term credit. In 1984, a study on the Development of Money and Capital Markets in Kenya was jointly undertaken by the Central Bank of Kenya and the International Finance Corporation with the objectives of making recommendations on measures that would ensure active development and strengthening of the financial sector. This became a blueprint for structural reforms in the financial markets. The Government further re-affirmed its commitment to the creation of a regulatory body for the capital markets in the 1986 Sessional Paper on “Economic Management of Renewed Growth”. In particular, it recommended the formation of a capital markets development authority as a specialized regulatory agency.

According to the CMA website article (2008), in November 1988, the Government set up the Capital Markets Development Advisory Council and charged it with the role of working out the necessary modalities including the drafting of a bill to establish the Capital Markets Authority (the Authority).

In November1989, the bill was passed in parliament and subsequently received Presidential assent (The Capital Markets Authority was set up in 1989 through an Act Parliament (Cap 485A, Laws of Kenya). The Authority was eventually constituted in January 1990 and inaugurated on 7th March 1990. The Authority is a body corporate with perpetual succession and a common seal. The authority's mandate is both regulatory and developmental as encapsulated in its mission which is to facilitate the development of orderly , fair and efficient capital markets in Kenya through effective regulation that encourages innovation and safeguards market integrity. Efficient capital markets are indispensable tools for achieving national economic and social goals. According to the CMA investors training manual (2005), the principle objectives of the Capital Markets Authority include the following :-The development of all aspects of the capital markets with particular emphasis on the removal of impediments to, and the creation of incentives for longer term investments in productive activities; The CMA facilitates the existence of a nationwide system of stock market and brokerage services so as to enable wider participation of the general public in the stock market; It also creates, maintains and regulates a market in which securities can be issued and traded in an orderly, fair , and efficient manner, through the implementation of a system in which the market participants regulate themselves to the maximum extent; The CMA also protects investors interest and enhances investor confidence; CMA also operates a compensation fund to protect investors from financial loss arising from the failure of a licensed stock broker or dealer to meet his obligations; and to develop a framework to facilitate the use of electronic commerce for the development of the capital markets in Kenya.

2.4.3 Perceived Benefits of the electronic trading and depository System

According to the CDSC investors information handbook (2008), the CDSC stands for the Central Depository & Settlement Corporation ltd, a company incorporated in Kenya under the companies Act and approved to establish a central depository under the central depositories Act of year 2000. CDS stands for the central depository system. This is a computer system operated by CDSC that facilitates holding of securities in electronic accounts opened by shareholders and the process of transferring shares traded at the stock exchange. The above CDSC information handbook (2008) also defines a CDA as a central depository agent either a stock broker or a custodian bank which has been authorized by the CDSC to open electronic trading accounts in CDS on behalf of investors. In Kenya, a CDA includes all licensed stockbrokers and investment banks. In addition, Barclays bank,

Stanbic bank, Kenya commercial bank, National bank, Co-operative, and National Industrial Credit bank (through their custodian departments) are CDAs. It is argued that CDS assures investors of safer, faster and easier trading in their securities. Investors do not have to wait for the issue of share certificates before they can trade again as their shares are credited to the account 5 days after the date of trade. According to the CDSC information handbook (2008), the CDSC has also taken measures to ensure the security of investors' shares. The company has back up facilities and procedures that would ensure business continuity in the event of anything happening to the computer system or its usual premises. CDSC has taken measures to ensure it's not interfered with e.g. remote back-up of data. The company has also taken appropriate insurance where necessary, so in the event of an investor losing out due to any factor associated with the CDSC system, they can be compensated. The CDSC is regulated by the capital markets authority. This means that they have to follow the laid down rules and financial regulations of the capital markets authority in relation to the trading of securities at the stock exchange.

2.5 Conclusion

The concept of electronic trading in stock markets is a fairly new phenomenon in the Kenyan stock exchange. Even in other developed countries where the ATS seems to have been implemented successfully, there were other issues and teething problems that needed to be addressed prior and after implementation. With a view to phasing out the concept of share certificates manual trading, the NSE first introduced the electronic central depository system for shares in 2005 before eventually introducing the automated trading system in 2006 to phase out the manual open outcry system. However, in the recent years after the introduction of the ATS, there has been general public outcry over the credibility of the system and the security of the investors' shares. This was due to the collapse of several licensed stockbrokers and as such, the credibility of the whole automated system came into question. This has caused a knowledge gap, hence an assessment of investors' perceptions and the overall impact of the ATS at the NSE is necessary and warranted, hence this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the overall methodology that was used in the study. It includes the research design, population of the study, sample size, sample frame, data collection methods, research procedures, data analysis and the presentation.

3.2 Research Design

A research design is a plan of scientific investigation. In this particular research, an exploratory descriptive survey research study was used as the research design. This research design helped in the assessment and appraisal of the performance of the Automated Trading System at the NSE, the level of trust on institutions entrusted with the management of the ATS at the NSE, and also the perceived advantages and limitations associated with the introduction of ATS at the NSE. A survey is an attempt to collect data from members of a population with respect to one or more variables. The study involves assessing attitudes and opinions of the population towards some defined variables.

3.3 Target Population

A population is defined as the total collection of elements about which the researcher wishes to make some inferences. A population element is the subject such as a person, an organization, customer database, or the amount of quantitative data on which the measurement is being taken. For the current research work, the total population was actually the number of MBA students registered for the May to August semester at the Board of postgraduate studies of the University of Nairobi. The population consisted of the U.O.N. MBA students as surrogate investors of the Nairobi Stock Exchange, investing with different NSE members / brokers. This population was a fairly homogeneous group and also represented a fairly enlightened section of the general investing public. According to the MBA records office at the University of Nairobi, there were 1,700 MBA students who were registered for that semester and they formed the study population.

3.4 Sampling Design & Sample Size

3.4.1 Sampling Technique

Sampling is the process of selecting a number of individuals for a study in such a way that the individual selected represents the large group from which they are selected. A sample as a small proportion of an entire population; a selection from the population. Sampling procedure may be defined as a systematic selection process of individuals for a study to represent the larger group from which they are selected. The process of constructing or designing a sample is called sampling, which begins by defining the sampling frame. Sampling frame is a complete or partial listing of items comprising the population. For purposes of the current research project work, the sampling frame was done taking into careful consideration the time and resource limitations. A convenience sampling technique was used to select the specific sample members from the population. In this research study, the researcher and his assistants checked the timetable for the MBA classes, then they visited each class at the scheduled times so as to issue out the questionnaires to the available students. Before issuing out the questionnaires, the researcher asked the students who among them was an investor at the NSE with an active CDS account. Those who responded in the affirmative were then issued with the questionnaire. The justification for this was that this research study was aimed at appraising and evaluating the use of the ATS at the NSE, hence it was best to get responses from those MBA students who already had CDS accounts.

3.4.2 Sample Size

The sample size of 100 MBA students was selected for the purpose of this study. This sample size conforms to the widely held proposition that to be representative, a sample should have 30 or more test units (Wayne and Tervel, 1985). This is also supported by Emory & Cooper (1995) who observed that in a population of 10 million, a sample of more than 2 million can be misleading, while a sample of 1,000 drawn in a proper manner can be more than adequate. The selection of the sample size depends on various factors. It should bear some proportional relationship to the size of the population from which it is drawn or can be the population as a whole. For the purpose of this study, a convenience sample was picked from the MBA students who are NSE investors with an active CDS account. A sample of 100 was therefore considered adequate for this study. A similar survey study on MBA students was also carried out by Masese

(1999) for an MBA project and he picked a convenience sample of 100 out of the population of 1,009. This was done taking into consideration the time and resource limitations.

3.5 Data Collection

Data is a piece of information that helps to analyze and appraise the given problem in a research study. It could be either a primary data, which is collected individually or a secondary data that is obtained from an already existing source. The data to be used for the current research project work was primary data collected from the student respondents, while the data collection instrument was questionnaires. The questionnaire had structured, unstructured, open ended and closed ended questions.

The first section of the questionnaire dealt with demographic statistics such as age, gender, computer literacy level, period of investment at NSE. This information provided data to be used in analyzing the biodata statistics based on gender, age, how long the student had invested at the NSE and the respondent's computer literacy level. The second section seeked information on the level of the respondent's satisfaction with the automated trading system at the NSE, the third section explored the respondent's level of trust with institutions entrusted with the management of the ATS, and the fourth section was seeking information on the perceived advantages and limitations attributed to the introduction and use of the ATS at the Nairobi stock exchange. The researcher and his assistants visited the class before the lecture started and then asked the students who among them was an investor at the NSE with an active CDS account. Out of those who responded in the affirmative, the researcher used a proportionate basis to issue out the questionnaires in each class. To ensure that a student did not fill the questionnaire in the other class the researcher asked if the student had been presented with the same questionnaire earlier. The researcher then collected back the questionnaires from each respondent just before the scheduled lesson commenced, or some time just after that particular lesson, for those respondents who spared some extra time to fill it up immediately after the lesson.

3.6 Data Analysis

Before processing the responses, the completed questionnaires were analyzed and screened for completeness, errors and consistency across the respondents. The responses were thereafter coded to facilitate basic statistical analysis. The study was modelled on an exploratory descriptive research. Therefore the researcher adapted descriptive statistics to analyze the collected data. To this end, the researcher analyzed the data with the help of the Statistical Package for Social Sciences (SPSS) as well as the use of Microsoft Excel spreadsheets software. The data analysis was tied to each study objective to ensure the accuracy of conclusions.

The first section of the questionnaire which dealt with the respondent's profile was analyzed using percentages and frequency distribution tables. The second part of the questionnaire which dealt with the level of satisfaction with the ATS was analyzed using percentages, charts and frequency tables. The third part of the questionnaire which seeked to explore the level of trust on institutions entrusted with the management of the ATS was analyzed using percentages, charts, simple bar graphs and also frequency distributions. The final part of the questionnaire seeked to explore some perceived advantages and limitations of the ATS at the NSE. In this section, percentages, frequency distributions, simple bar graphs and pie charts were used to analyze the closed ended questions. On the overall, the researcher employed the use of the Statistical Package for the Social Sciences (SPSS), Microsoft Excel spreadsheets and importance ratings to analyze the collected data, make conclusions and give recommendations. Descriptive statistical measures such as percentages, frequency distributions, frequency tables, simple bar graphs and pie charts were also used to facilitate easy understanding. The data was then presented using frequency distribution tables, charts, graphs and other statistical figures to facilitate easier interpretation.

CHAPTER FOUR

DATA ANALYSIS AND RESEARCH FINDINGS

4.1 Introduction

This chapter presents data analysis and findings of the study from the questionnaires completed by the respondents. The respondents for this study were MBA students of the University of Nairobi. The findings are presented in the order of the objectives as listed in the research proposal and the questionnaire. This chapter contains the summaries of data findings together with their possible interpretations.

4.2 Response Rate

By using 100 questionnaires as the primary research instrument, the researcher had targeted to pick and use a sample of 100 respondents for this research study. The number of respondents who actually filled up the questionnaires and participated in the research was 100 MBA students, hence the Response Rate was 100 %. Once the questionnaires were filled up and collected, they were edited and coded for completeness and consistency before the data analysis could commence.

4.3 Respondents' bio-data details analysis

DATA ANALYSIS REPORT

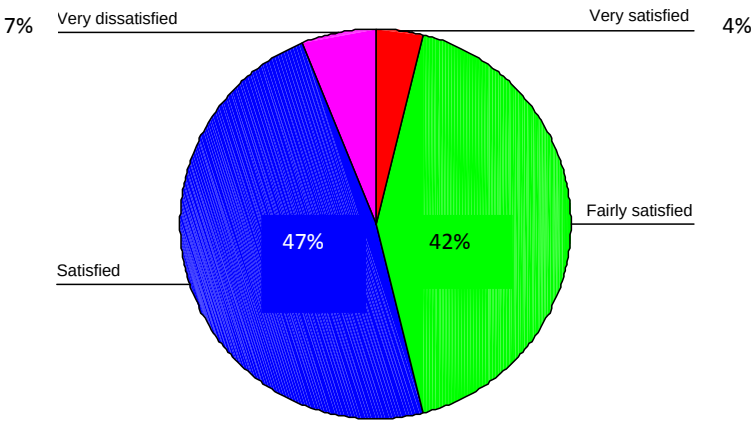
Table 4.1 – Respondent's Age * Time in the stock market : Cross tabulation

		Length of time in the stock market				
		Less than three years	3-5 yrs	5-10 yrs	Over 10 yrs	Total
Age	21-30	18	17			35
	31-40	16	18	5	6	45
	41-50	4	2		2	8
	Above 50	4	6		2	12
Total		42	43	5	10	100

From the above table, 45% of the respondents were aged between 31-40 yrs. This is also the age with the highest frequency. 35% of the respondents were aged between 21-30 yrs. Therefore, 80% of the respondents were below the age of 40. Similarly, 42% of the total respondents have

been in the stock market for less than three years, while 43% indicated they have been in the stock market for between 3-5 years. On the overall, the data indicates that 85% of the respondents have been in the stock market for 5 yrs and below. The interpretation for these could be that these are fairly young professionals who just entered the stock market due to the huge IPOs that were heavily publicized and offered in the last four years e.g. Kengen IPO, Safaricom IPO, etc. A majority of the respondents were between the ages of 31-40 years. From the data in the above table, most respondents have been in the stock market for five years and below.

Chart 4.2 – The level of satisfaction with the ATS at the NSE



From the above chart, 4% of the respondents said they were very satisfied with the ATS at the NSE, 42% said they were fairly satisfied, 47% said they were satisfied, and only 7% said they were very dissatisfied. On the overall, a total of 93% of the respondents said they were either satisfied, fairly satisfied or very satisfied with the ATS being used at the NSE. From the above graph, most respondents are generally satisfied with the introduction of the ATS at the NSE.

4.4 The level of satisfaction with the ATS market features

Table 4.3 – Market Liquidity * Effective growth policies : Cross tabulation

		Effective policies designed to promote local stock exchange growth and development				
		Very satisfied	Somewhat satisfied	Neutral	Very dissatisfied	Total
Added liquidity to the securities market	Very satisfied	8	5			13
	Somewhat satisfied	4	31	18	2	55
	Neutral		12	12	8	32
Total		12	48	30	10	100

From the above table, 55% of the respondents indicated that they were somewhat satisfied, while 13% indicated that they were very satisfied that the ATS had added liquidity to the securities market. On the overall, this indicates that 68% of the total respondents believe that the introduction of the ATS has added liquidity to the securities market at the NSE, while 32% remained neutral on this. Similarly, 48% of the respondents indicated that they were somewhat satisfied that the ATS has led to the introduction of effective policies designed to promote local stock exchange growth and development, while 12% indicated that they were very satisfied with the same. In total, 60% of the respondents indicated that they were either somewhat satisfied or very satisfied that the ATS has led the introduction of effective policies to promote stock exchange growth and development. 30% of the respondents indicated that they were neutral about this, while 10% indicated that they were dissatisfied.

The figure of 31 in the above table indicates that most respondents are somewhat satisfied with the addition of liquidity to the stock market and policies designed to promote stock exchange growth and development.

Table 4.4 - Reduction in the time it takes to execute a trade at the stock market * System security and reliability the ATS operations : Cross tabulation

		System security and reliability of the ATS operations				
		Very satisfied	Somewhat satisfied	Neutral	Very dissatisfied	Total
Reduction in the time it takes to execute a trade at the stock market	Very satisfied	10	18	6		34
	Somewhat satisfied		23	8		31
	Neutral		10	15		25
	Very dissatisfied		4		6	10
Total		10	55	29	6	100

From the above table, 34% of the respondents indicated that they were very satisfied, while 31% indicated that they were somewhat satisfied that the ATS has led to a reduction in the time it takes to execute a trade at the NSE. On the overall, this indicates that 65% of the total respondents believe that the introduction of the ATS has led to a reduction in trade execution period at the NSE, 25% were neutral about this, while 10% indicated that were very dissatisfied with the same. Similarly, 55% of the respondents indicated that they were somewhat satisfied that the ATS has led to system security and reliability of trading operations, while 10% indicated that they were very satisfied with the same. In total, 65% of the respondents indicated that they were either somewhat satisfied or very satisfied that the ATS has led to improved system security and reliability of trading operations, 29% of the respondents indicated that they were neutral about this, while 6% indicated that they were dissatisfied.

Table 4.5 - Effectiveness of regulations and institutions that govern information flows in the stock market * Internationally competitive stock exchange - World class standards stock exchange

		Internationally competitive stock exchange-World class standards in the stock exchange				
		Very satisfied	Somewhat satisfied	Neutral	Very dissatisfied	Total
Effectiveness of regulations and institutions that govern information flows in the stock market	Very satisfied	4	5	2		11
	Somewhat satisfied	17	16	14		47
	Neutral		10	22	2	34
	Very dissatisfied			2	6	8
Total		21	31	40	8	100

From the above table, 11% of the respondents indicated that they were very satisfied, while 47%

indicated that they were somewhat satisfied with the effectiveness of regulations and institutions that govern information flows at the NSE. On the overall, this indicates that 58% of the total respondents believe that the introduction of the ATS has led to effectiveness of regulations and institutions that govern information flows at the NSE, 34% were neutral about this, while 8% indicated that were very dissatisfied with the same. Similarly, 31% of the respondents indicated that they were somewhat satisfied that the ATS has made NSE to be an international competitive stock exchange with world class standards, while 21% indicated that they were very satisfied with the same. In total, 52% of the respondents indicated that they were either somewhat satisfied or very satisfied that the ATS has made NSE to be an internationally competitive stock exchange with world class standards, 40% of the respondents indicated that they were neutral about this, while 8% indicated that they were dissatisfied.

Majority of the investors are neutral with the two features.

Table 4.6 - Active market participation of investors * Reduction in the time it takes to settle (pay) a client after a trade execution : Cross tabulation

Count

		Reduction in the time it takes to settle (pay) a client after trade execution				
		Very satisfied	Somewhat satisfied	Neutral	Very dissatisfied	Total
Active market participation of investors	Very satisfied	4	6			10
	Somewhat satisfied	6	12	18	5	41
	Neutral	2	14	19	10	45
	Very dissatisfied				4	4
Total		12	32	37	19	100

From the above table, 10% of the respondents indicated that they were very satisfied, while 41% indicated that they were somewhat satisfied that the ATS has led to active market participation of investors at the NSE. On the overall, this indicates that 51% of the total respondents believe that the introduction of the ATS has led to active market participation of investors at the NSE, 45% were neutral about this, while 4% indicated that were very dissatisfied with the same. Similarly, 32% of the respondents indicated that they were somewhat satisfied that the ATS has led to a reduction in the time it takes to settle (Pay) a client after trade execution, while 12% indicated that they were very satisfied with the same. In total, 44% of the respondents indicated that they were either somewhat satisfied or very satisfied that the ATS has led to a reduction in the time it takes to settle (Pay) a client after trade execution, 37% of the respondents indicated

that they were neutral about this, while 19% indicated that they were dissatisfied with the same.

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Table 4.7 - Specialized services and expanded product ranges * Reduction in the time it takes to settle (pay) a client after trade execution

		Reduction in the time it takes to settle (pay) a client after a trade execution				
		Very satisfied	Somewhat satisfied	Neutral	Very dissatisfied	Total
Specialized services and expanded product ranges	Very satisfied	2				2
	Somewhat satisfied	8	30	19	4	61
	Neutral	2	2	18	7	29
	Very dissatisfied				8	8
Total		12	32	37	19	100

From the above table, 2% of the respondents indicated that they were very satisfied, while 61% indicated that they were somewhat satisfied that the ATS has led to the introduction of specialized services and expanded product ranges at the NSE. On the overall, this indicates that 63% of the total respondents believe that the introduction of the ATS has led to the introduction of specialized services and expanded product ranges at the NSE, 29% were neutral about this, while 8% indicated that were very dissatisfied with the same.

Majority of the investors are somewhat satisfied with the two features.

Table 4.8 - Integrity and professionalism of the ATS operator * Market Regulatory compliance

		Cooperation and compliance with the relevant market regulatory authorities				
		A little important	Important	Very important	Critically	Total
Integrity and professionalism of the ATS operator/market dealer	A little important	2		2		4
	Important	4	13			17
	Very important	2	4	14	2	22
	Critically			14	43	57
Total		8	17	30	45	100

From the above table, 57% of the respondents considered the integrity and professionalism of the ATS operator to be critically important while 22% considered the same to be very important and 17% considered it important. On the overall, 96% of the respondents believed that the integrity

and professionalism of the ATS operator is either important, very important or critically important, while only 4% considered the same as a little important. Similarly, 45% of the respondents indicated that it was critically important to cooperate and comply with the relevant market regulatory authorities, 30% said it was very important, 17% said it was important. On the overall, 92% of the total respondents considered the cooperation and compliance with market regulatory authorities as either important, very important or critically important, while only 8% considered it as a little important.

Most investors are of the opinion that the two principals should be critically considered.

Table 4.9 - Trading transactions audit trails * Transparency of trading system operations

		Transparency of trading and system operations					
		Not important at all	A little important	Important	Very important	Critically	Total
Maintenance of trading transactions audit trails	Not important at all	2					2
	A little important	2	2				4
	Important		2	8	8		18
	Very important		2	4	15	7	28
	Critically				12	36	48
Total		4	6	12	35	43	100

From the above table, 48% of the respondents considered the maintenance of trading transactions audit trails to be critically important, while 28% considered the same to be very important and 18% considered it important. On the overall, 94% of the respondents believed that the maintenance of trading transactions audit trails is either important, very important or critically important, while only 6% considered the same as either a little important or not important at all. Similarly, 43% of the respondents indicated that the transparency of trading and system operations was critically important. 35% said it was very important, 12% said it was important. On the overall, 90% of the total respondents considered the transparency of trading and system operations as either important, very important or critically important, while only 10% considered it as either a little important or not important at all.

The factors above should be critically considered according to investors.

Table 4.10 - The performance of surveillance and market regulatory functions * System Security

		Maintenance of system security					
		Not important at all	A little important	Important	Very important	Critically	Total
The performance of surveillance and market regulatory functions	Not important at all		2	2			4
	A little important				2		2
	Important		5	8	4	2	19
	Very important		2		18	18	38
	Critically	2		2	12	21	37
Total		2	9	12	36	41	100

From the above table, 37% of the respondents considered the performance of surveillance and market regulatory functions to be critically important, while 38% considered the same to be very important and 19% considered it important. On the overall, 94% of the respondents believed that the performance of surveillance and market regulatory functions is either important, very important or critically important, while only 6% considered the same as either a little important or not important at all. Similarly, 41% of the respondents indicated that the maintenance of system security was critically important. 36% said it was very important, 12% said it was important. On the overall, 89% of the total respondents considered the maintenance of system security as either important, very important or critically important, while only 11% considered it as either a little important or not important at all.

Table 4.11- Risk management policies * Consistency between financial standing of the ATS T operator & internationally accepted practices

		Consistency between financial standing of the ATS operator/ Internationally accepted practices					
		Not important at all	A little important	Important	Very important	Critically	Total
Risk management policies	Not important at all	2	2				4
	A little important		2		4		6
	Important		2	10	8	2	22
	Very important			10	22	8	40
	Critically				8	20	28
Total		2	6	20	42	30	100

From the above table, 28% of the respondents considered the existence of risk management policies to be critically important, while 40% considered the same to be very important and 22%

considered it important. On the overall, 90% of the respondents believed that the existence of risk management policies is either important, very important or critically important, while only 10% considered the same as either a little important or not important at all. Similarly, 30% of the respondents indicated that the consistency between the ATS operator and internationally accepted practices was critically important. 42% said it was very important, 20% said it was important. On the overall, 92% of the total respondents considered the consistency between the ATS operator and internationally accepted practices as either important, very important or critically important, while only 8% considered it as either a little important or not important at all.

Table 4.12 - Perceived Trust * Investor Confidence

		Investor Confidence			
		Agree	Strongly agree	Disagree	Total
Perceived Trust	Agree	26	14	2	42
	Strongly agree	11	28		39
	Disagree	9	4	4	17
	Strongly disagree		2		2
Total		46	48	6	100

From the above table, 42% of the respondents indicated that they agreed that participation in any stock exchange is based on perceived trust, while 39% indicated that they strongly agreed with the same. On the overall, 81% of the total respondents indicated that they either agreed or strongly agreed that participation in any stock exchange is based on perceived trust, while 19% either disagreed or strongly disagreed. Similarly, 46% of the respondents agreed that the stock exchange is based on investor confidence, while 48% strongly agreed with the same. On the overall, 94% of the total respondents either agreed or strongly agreed on investor confidence, while 6% disagreed on the same.

Investors agree that perceived trust and investor confidence are crucial.

Table 4.13 – Trade Execution Reliability * Full Accountability

		Full Accountability				
		Agree	Strongly agree	Disagree	Strongly disagree	Total
Execution Reliability	Agree	20	12	9		41
	Strongly agree	8	33	2		43
	Disagree	2	6	6	2	16
Total		30	51	17	2	100

From the above table, 41% of the respondents indicated that they agreed that participation in any stock exchange is based on trade execution reliability, while 43% indicated that they strongly agreed with the same. On the overall, 84% of the total respondents indicated that they either agreed or strongly agreed that participation in any stock exchange is based on the reliability of trade execution, while 16% with the same. Similarly, 30% of the respondents agreed that the stock exchange is based on full accountability of trading actions, while 51% strongly agreed with the same. On the overall, 81% of the total respondents either agreed or strongly agreed on the issue of full accountability, while 19% disagreed on the same.

Strongly agree.

Table 4.14 - Operation Transparency * Corporate Governance

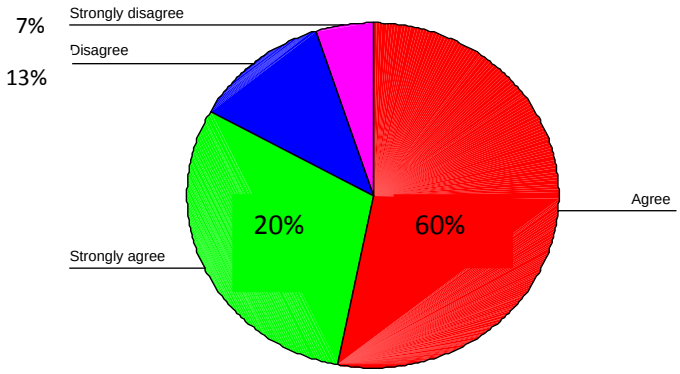
		Corporate Governance			
		Agree	Strongly agree	Disagree	Total
Operation Transparency	Agree	34	6	7	47
	Strongly agree	19	16	6	41
	Disagree	2	2	6	10
	Strongly disagree		2		2
Total		55	26	19	100

From the above table, 47% of the respondents indicated that they agreed that participation in any stock exchange is based on operational transparency, while 41% indicated that they strongly agreed with the same. On the overall, 88% of the total respondents indicated that they either agreed or strongly agreed that participation in any stock exchange is based on the transparency of trading operations, while 12% either disagreed or strongly disagreed. Similarly, 55% of the respondents agreed that the stock exchange should be based on good corporate governance,

while 26% strongly agreed with the same. On the overall, 81% of the total respondents either agreed or strongly agreed on good corporate governance, while 19% disagreed on the same.

Chart 4.15 – Timely Trade Settlement

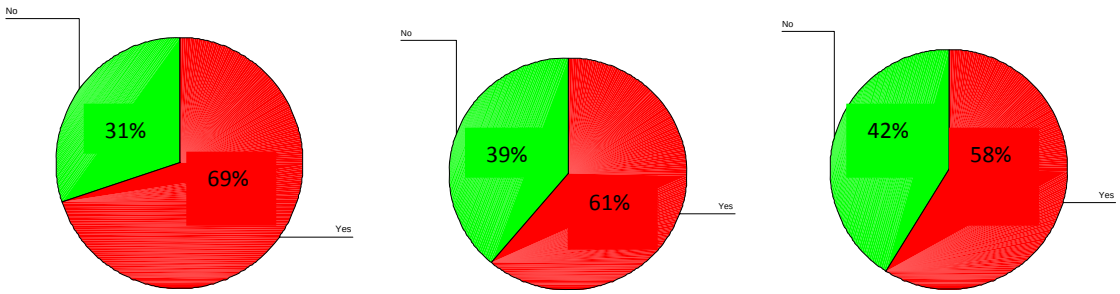
A



From the above chart, 60% of the total respondents agreed that the participation in the stock exchange is based on the ability to settle the proceeds of a trade on time, while 20% strongly agreed with the same. On the overall, 80% indicated that they either agreed or strongly agreed with the issue of timely trade settlement, while 20% either disagreed or strongly disagreed.

Chart 4.16 – NSE info **Chart 4.17 – CDSC info** **Chart 4.18 – CDA info**

Investors strongly agree that the introduction of the ATS has resulted in the collapse of the stockbrokers.

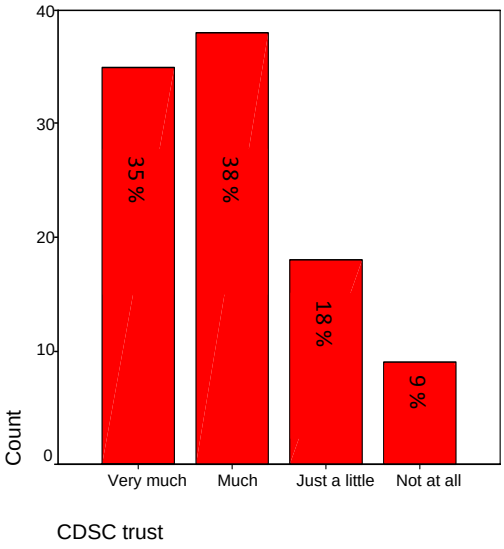


From the chart 4.16 above, 69% of the respondents indicated that they do consider information

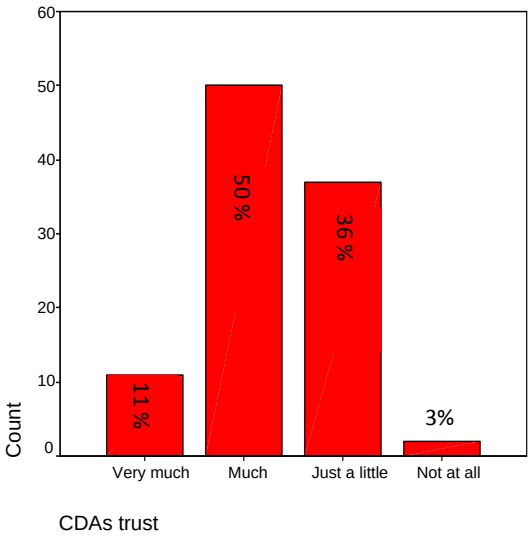
from the NSE before making their investment decisions, while 31% indicated that they do not. As per the chart 4.17 above, 61% of the respondents indicated that they do consider information from the CDSC before making their investment decisions, while 39% indicated that they do not. According to the chart 4.18 above, 58% of the respondents indicated that they do consider information from the CDAs before making their investment decisions, while 42% indicated that they do not.

4.5 The level of trust and confidence in the CDSC and NSE

Graph 4.19



Graph 4.20



Graph 4.19 – Trust & confidence in the CDSC

From the graph 4.19 above, 35% of the respondents indicated that they have very much trust and confidence in the CDSC, while 38% indicated that they have much trust in it. On the overall, 73% indicated that they have either much or very much trust in the CDSC in as far as the management of the ATS is concerned, 18% indicated that they have just a little trust and confidence, while 9% indicated that they have no trust in CDSC at all.

Graph 4.20 – Trust & confidence in the CDAs

From the graph 4.20 above, 11% of the respondents indicated that they have very much trust and confidence in the CDAs, while 50% indicated that they have much trust in them. On the overall,

61% indicated that they have either much or very much trust in the CDAs in as far as the management of the ATS is concerned, 36% indicated that they have just a little trust and confidence, while 3% indicated that they have no trust in CDAs at all.

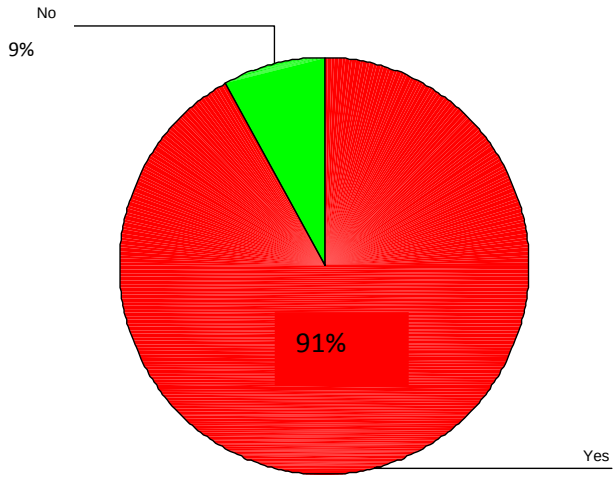
4.6 Perceived benefits / advantages brought by the introduction of the ATS at the NSE

Informtaion from NSE **Information from CDSC**

Information from CDAs

Majority of the investors consider information from the NSE, CDSC and CDAs before they make the decision to invest.

Chart 4.21 – Advantages brought by the introduction of the ATS at the NSE **obligation**



From the chart 4.21 above, 91% of the respondents indicated that they believed that the introduction of the ATS at the NSE had brought with it numerous advantages, while 9% believed

the contrary. This shows that a substantial majority of the respondents actually believe that the introduction of the ATS has brought with it numerous advantages at the NSE.

Table 4.22 - ATS means lower trading costs * Direct access to retail customers **several**

		Direct access to retail customers					
		Not important at all	A little important	Important	Very importan	Critically	Total
ATS means lower trading costs	Not important at all	2					2
	A little important		2	2			4
	Important	2		13	13		28
	Very important		2	6	22	6	36
	Critically				16	14	30
Total		4	4	21	51	20	100

From the table 4.22 above, 30% of the respondents rated the issue of ATS leading to lower trading costs at the NSE as critically important, 36% said it was very important, while 28% regarded it as important. On the overall, 94% of the total respondents considered the aspect of lower trading costs as either critically important, very important or important, only 4% considered it as a little important, while 2% said it was not important at all. Similarly, 20% of the respondents considered that the issue of direct access to retail customers was critically important, 51% said it was very important, while 21% said it was important. On the overall, 92% considered that benefit as either important, very important or critically important, only 4% considered it a little important, while 4% also thought that this was not important at all.

Table 4.23 - Electronic exchanges may be accessed from many locations * Electronic exchanges lower the execution time involved in trading – Cross tabulation

Lower trading costs and direct access to retail customers are very important.

		Electronic exchanges lower the execution time involved in trading					
		Not important at all	A little important	Important	Very important	Critically	Total
Electronic exchanges may be accessed from many locations	Not important at all	2					2
	A little important		2	4		2	8
	Important	2		6	6	2	16
	Very important		2	2	24	5	33
	Critically			3	8	30	41
Total		4	4	15	38	39	100

From the table 4.23 above, 41% of the respondents rated the issue of accessibility of electronic exchanges from many locations as critically important, 33% said it was very important, while 16% regarded it as important. On the overall, 90% of the total respondents considered the accessibility of electronic exchanges from many locations as either critically important, very important or important, only 8% considered it as a little important, while 2% said it was not important at all. Similarly, 39% of the respondents believed that the issue of electronic exchanges lowering the trade execution period was critically important, 38% said it was very important, while 15% said it was important. On the overall, 92% considered that benefit as either important, very important or critically important, only 4% considered it a little important, while 4% also thought that this was not important at all.

cess many locations and less execution time due to electronic exchanges are very important.

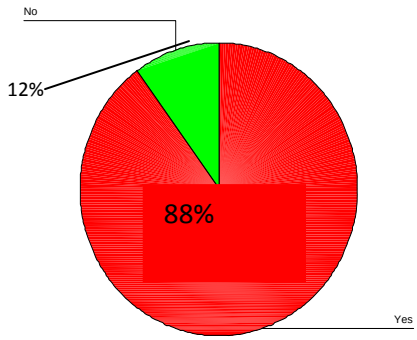
Table 4.24 - ATS/electronic trading systems expand liquidity in the market *Increased trading volume a measure of stock market success – Cross tabulation

		Increased trading volumes is a measure of stock market success					
		Not important at all	A little important	Important	Very importan	Critically	Total
ATS/electronic trading systems expand liquidity in the market	Not important at all	2		2			4
	A little important	2					2
	Important			10	6	6	22
	Very important		3	6	26	10	45
	Critically	2		2	9	14	27
Total		6	3	20	41	30	100

From the table 4.24 above, 27% of the respondents rated the issue of electronic trading systems expanding market liquidity as critically important, 45% said it was very important, while 22% regarded it as important. On the overall, 94% of the total respondents considered the expansion

of market liquidity as a result of the ATS as either critically important, very important or important, only 2% considered it as a little important, while 4% said it was not important at all. Similarly, 30% of the respondents believed that the issue of increased trading volumes as a measure of stock market success was critically important, 41% said it was very important, while 20% said it was important. On the overall, 91% considered that benefit as either important, very important or critically important, only 3% considered it a little important, while 6% also thought that this was not important at all.

The two advantages are very important.

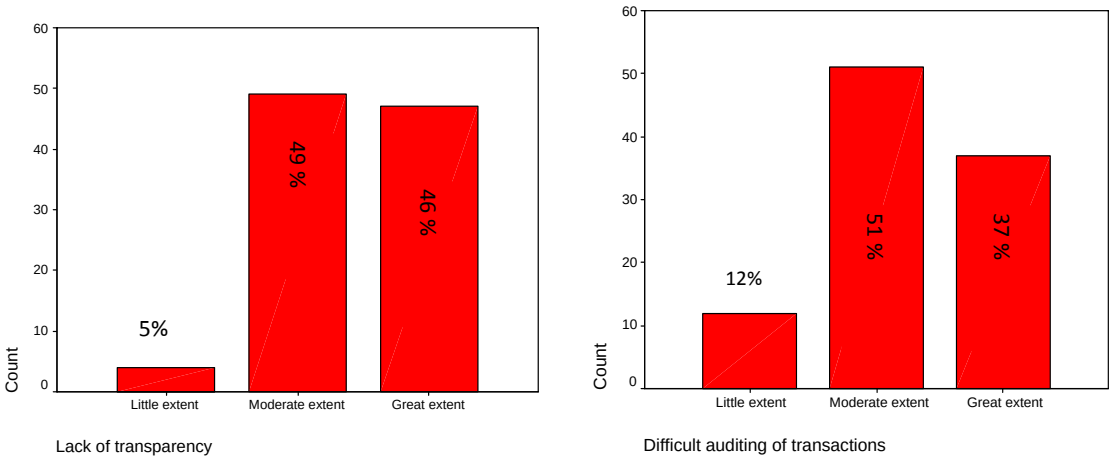


From the chart 4.25 above, 88% of the respondents indicated that they believed that the introduction of the ATS at the NSE might also have brought with it several limitations, while 12% believed the contrary.

4.7 Perceived limitations / disadvantages of the introduction of the ATS at the NSE

Graph 4.26 Graph 4.27

Most investors feel that the introduction of the ATS at the NSE might have several limitations.



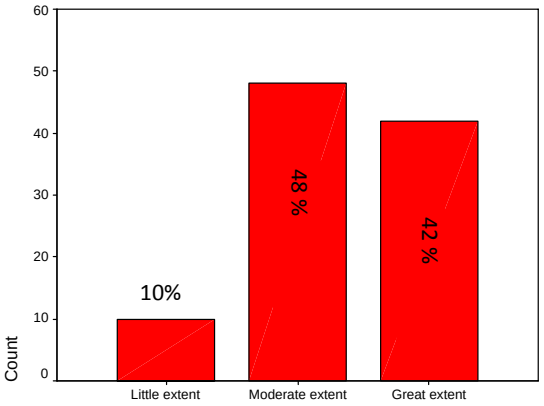
Graph 4.26 – Lack of transparency in trading

From the graph 4.26 above, 46% of the total respondents ranked the limitation of lack of transparency in trading as having affected the NSE to a great extent, 49% believed that it had only affected the NSE to a moderate extent. On the overall, 95% of the respondents believed that the lack of transparency in trading had impacted the NSE either moderately or to a great extent, while 5% believed that it had only done so to a little extent.

Graph 4.27 – Difficult auditing of trading transactions

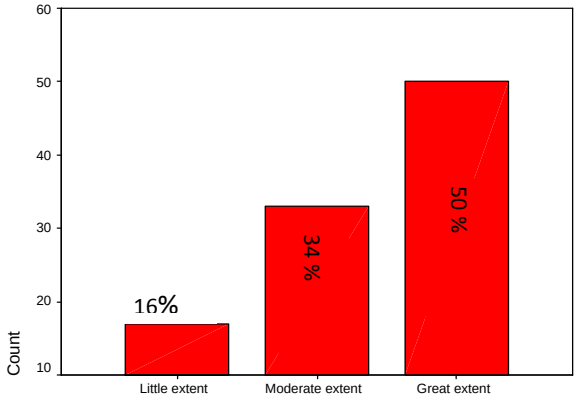
From the graph 4.27 above, 37% of the total respondents ranked the limitation of difficult auditing of transactions as having affected the NSE to a great extent, 51% believed that it had only affected the NSE to a moderate extent. On the overall, 88% of the respondents believed that the difficulty in auditing of trading transactions had impacted the NSE either moderately or to a great extent, while 12% believed that it had only done so to a little extent.

Graph 4.28



Spectre of unethical practises

Graph 4.29



Unauthorized trading in clients' shares

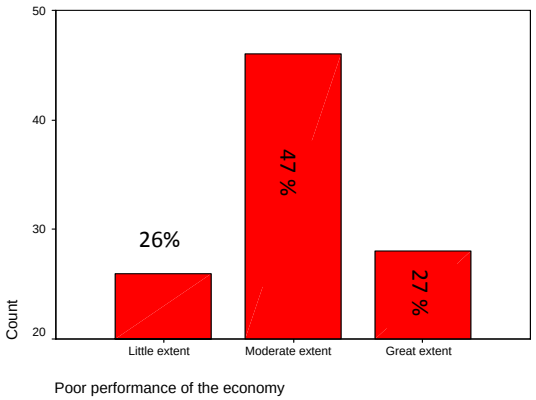
Graph 4.28 – Spectre of unethical trading practices

From the graph 4.28 above, 42% of the total respondents ranked the limitation of the spectre of unethical practices in trading as having affected the NSE to a great extent, 48% believed that it had only affected the NSE to a moderate extent. On the overall, 90% of the respondents believed that the spectre of unethical trading practices had impacted the NSE either moderately or to a great extent, while 10% believed that it had only done so to a little extent.

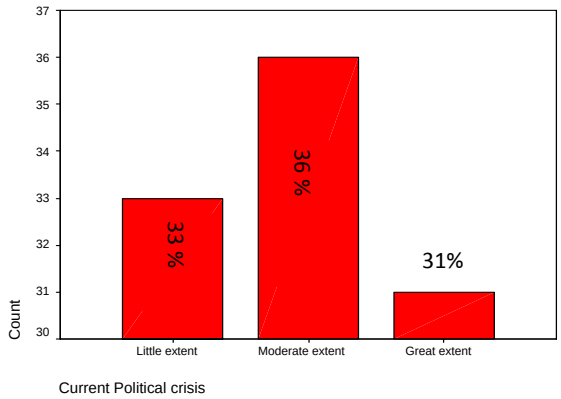
Graph 4.29 – Unauthorized trading in clients' shares

From the graph 4.29 above, 50% of the total respondents ranked the limitation of unauthorized trading in clients shares as having affected the NSE to a great extent, 34% believed that it had only affected the NSE to a moderate extent. On the overall, 84% of the respondents believed that unauthorized trading in clients shares had impacted the NSE either moderately or to a great extent, while 16% believed that it had only done so to a little extent.

Graph 4.30



Graph 4.31



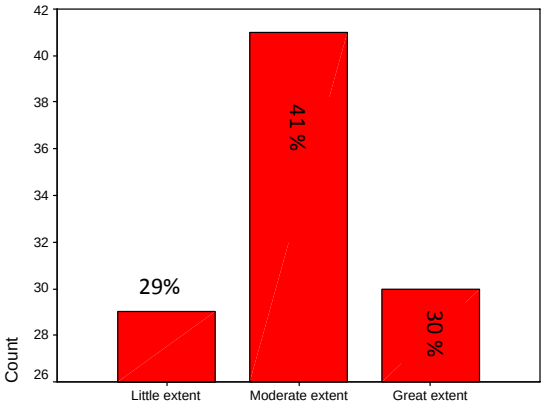
Graph 4.30 – Poor performance of the economy

From the graph 4.30 above, 27% of the total respondents believed that the poor performance of the economy had affected the NSE to a great extent, 47% believed that it had only affected the NSE to a moderate extent. On the overall, 74% of the respondents believed that the poor performance of the economy had impacted the NSE either moderately or to a great extent, while 26% believed that it had only done so to a little extent.

Graph 4.31- Current political crisis

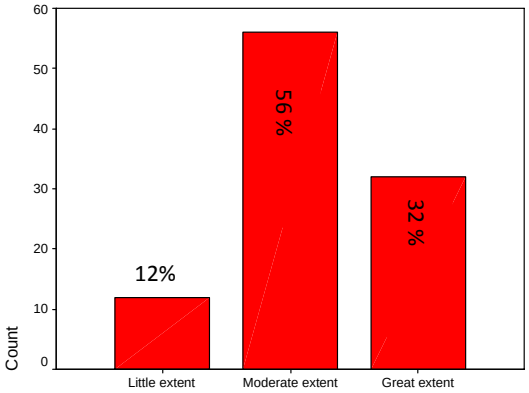
From the graph 4.31 above, 31% of the total respondents believed that the current political crisis had affected the NSE to a great extent, 36% believed that it had only affected the NSE to a moderate extent. On the overall, 67% of the respondents believed that the current political crisis had impacted the NSE either moderately or to a great extent, while 33% believed that it had only done so to a little extent.

Graph 4.32



Current Global Economic Crisis

Graph 4.33



Poor Share Prices after IPOs

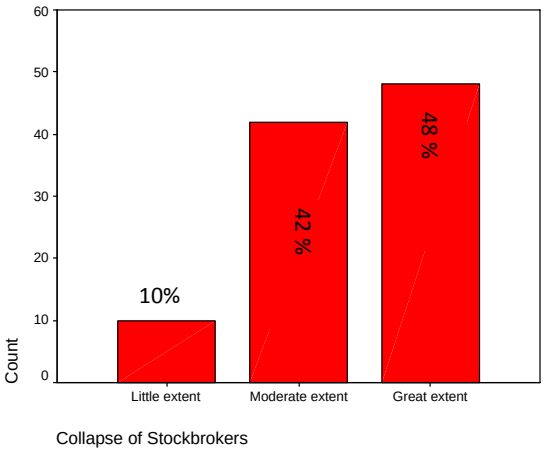
Graph 4.32 – Current global economic crisis

From the graph 4.32 above, 30% of the total respondents believed that the current global economic crisis had affected the NSE to a great extent, 41% believed that it had only affected the NSE to a moderate extent. On the overall, 71% of the respondents believed that the current global economic crisis had impacted the NSE either moderately or to a great extent, while 29% believed that it had only done so to a little extent.

Graph 4.33 – Poor share prices after IPOs

From the graph 4.33 above, 32% of the total respondents ranked the limitation of poor share prices after IPOs as having affected the NSE to a great extent, 56% believed that it had only affected the NSE to a moderate extent. On the overall, 88% of the respondents believed that the poor share prices after IPOs had impacted the NSE either moderately or to a great extent, while 12% believed that it had only done so to a little extent.

Graph 4.34



Graph 4.34 – Collapse of stockbrokers

From the graph 4.34 above, 48% of the total respondents ranked the limitation of the collapse of stockbrokers as having affected the NSE to a great extent, 42% believed that it had only affected the NSE to a moderate extent. On the overall, 90% of the respondents believed that the collapse of stockbrokers had impacted the NSE either moderately or to a great extent, while 10% believed that it had only done so to a little extent. Most investors feel that the suggested factors have moderately impacted the performance at the NSE. This is clear according to the graphs above.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

The study aimed at assessing the perceived benefits and limitations brought about by the introduction of the automated trading system at the Nairobi stock exchange. The study was of an exploratory survey nature that set out to investigate the perceptions of MBA students at the University of Nairobi towards the ATS that was recently introduced at the NSE.

5.2 Discussion

From the data analysis of the research findings, it is apparent that the majority of the respondents were aged between 31-40 years and they had been in the stock market for five years and below. The interpretation here could be that these fairly young professionals who jumped into the stock exchange bandwagon due to the recent massively publicized IPOs e.g. Kengen, Safaricom, etc. From the data analysis, it is clear that 93% of the total respondents are generally satisfied with the ATS. Over 60% indicated that they were generally satisfied that the ATS had enhanced market liquidity, reduced the time it takes to execute a trade at the NSE and also enhanced the capacity of the NSE to world class standards. A good majority of the respondents also believed that for the ATS to be effective, the integrity and professionalism of the ATS operator as well as compliance to the market regulators is of utmost importance. They also indicated that the maintenance of trading transactions audit trails, ATS system security and proper risk management policies are crucial in enhancing an effective trading system. Over 80% of the respondents also indicated that participation in the stock exchange is based on perceived trust, investor confidence, trade execution reliability, operational transparency, good corporate governance and timely trade execution and settlement. About 60% of the respondents indicated that they considered information from the NSE, CDSC and also their CDAs before making their investment decisions. 73% indicated that they had much trust in the CDSC as a custodian of their

CDS accounts, while 61% indicated that they had trust in their CDAs. A substantial majority of the respondents (91%) believed that the ATS had brought with it numerous advantages at the NSE. These include lower trading costs, lower trade execution times, expansion of market liquidity and increased trading volumes.

Similarly, about 80% of the total respondents indicated that the introduction of the ATS might also have brought with it several limitations at the NSE. These include lack of transparency in trading, difficult auditing of transactions, spectre of unethical trading practices, unauthorized trading in clients' shares as well as the collapse of stockbrokers.

5.3 Conclusion

From the findings of this particular research, it is apparent that the perception of most of the investors is that the introduction of the ATS at the NSE had brought with it numerous trading advantages both to the investors and also to the market as an institution. A substantial majority of them indicated that they were very satisfied with the ATS. However, the same investors also appear to portray some limitations in the system that they are unhappy about. These include unethical trading practices like the unauthorized trading in clients' shares which also resulted in the collapse of several Kenyan stockbrokers. In conclusion, the introduction of the automated trading system at the Nairobi stock exchange has been considered as a step in the right direction towards having a world class stock exchange in Kenya.

5.4 Recommendations

This study recommends that the perceived limitations of the ATS currently being used at the NSE be addressed with a lot of urgency and seriousness. For instance, the fact that a stockbroker can easily access a client's CDS account and transact on the securities held therein without the authority of the account owner is in itself a big disadvantage. This study recommends that apart from proper measures being put in place by the market regulators to prevent this, the integrity and professionalism of the various market players and intermediaries need to be held in top level.

5.4 Limitations of the study

The main limitation of this study is that most of the open-ended questions appearing in the questionnaire were left unanswered. For instance, when asked about their own opinions about other benefits or limitations that may be associated with the introduction of the ATS at the NSE, a vast majority of the respondents left this question blank and unanswered. A possible

interpretation of this could be that since these were students attending classes, they only concentrated on quick questions and they did want to spend a lot of time thinking or writing other views. This is because the researcher usually went to administer the questionnaires just before a lesson could begin and this was mostly 30 minutes before the lecturer arrived to start the lecture. Another limitation of the study is that most of the respondents were aged between 30-40 years and had been in the stock market for five years or less. It was apparent that these were investors who had just joined the market due to the recent IPOs. However, it could have been interesting to collect views from even much older investors who had been in the market longer than the ATS has been in operation. This includes people who may have traded heavily during the days of manual trading with share certificates, and who are still currently trading electronically.

5.5 Suggestions for further research

This research study was aimed at investigating and assessing the perceived benefits and limitations associated with the introduction of the automated trading system at the Nairobi stock exchange, with special attention to the MBA students of the university of Nairobi as the respondents. This was done due to the time and resource limitations since this was a purely academic research. However, this research could be duplicated to focus on a wide spectrum of the public investors (both individual and institutional) who might also have their perceptions and their own picture to paint in as far as the ATS is concerned. This could mean taking samples of investors from each of the licensed stockbrokers and other market intermediaries and assessing their perceptions and views about the automated trading system currently being used at the NSE.

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Appendix I: Questionnaire

ASSESSMENT OF THE PERCEIVED BENEFITS & LIMITATIONS OF THE AUTOMATED TRADING SYSTEM AT THE N.S.E. – A SURVEY OF MBA STUDENTS AT THE UNIVERSITY OF NAIROBI.

Personal Details

1. Gender: Male [ ] Female [ ]
2. Employment: Self employed [ ] Private Sector [ ]

   Public Sector [ ] Unemployed [ ]

   Others----------
3. Age (in years):

   21-30 [ ] 31-40 [ ] 41-50 [ ] above 50 [ ]
4. How long have you been in the stock market?

   Less than three years [ ] 3-5 yrs [ ]

   5-10 yrs [ ] Over 10 yrs [ ]
5. What's your level of computer literacy? Please tick one.

   None [ ] Basic [ ] Excellent [ ]

The level of satisfaction with the Automated Trading System at the NSE

On the overall, how satisfied are you with the Automated Trading System of stock trading currently being used at the NSE? (Please tick one)

Very satisfied [ ] Fairly satisfied [ ] Satisfied [ ]

Not at all satisfied [ ] Very dissatisfied [ ]

6. The ATS has brought with it several features at the NSE. Please indicate your level of satisfaction on each of the scales described in the table below.

	Very satisfied	**Somewhat satisfied**	**Neutral**	**Very dissatisfied**
Added Liquidity to the Securities Markets				

Effective policies designed to promote local stock exchange growth and development				
Reduction in the time it takes to execute a trade at the stock market				
System Security and Reliability of the ATS operations				
Effectiveness of regulations and institutions that govern information flows in the stock market				
Internationally Competitive Stock Exchange – World class standards in the stock exchange				
Active market participation of investors				
Specialized services and expanded product ranges				
Reduction in the time it takes to Settle (Pay) a client after a trade execution				

Below is a set of general principles to be considered in relation to the effectiveness of ATS operations. How would you rank these principles?

(**1-Not important at all, 2-A little important, 3- Important, 4- Very important, 5- Critically important)**

	5	4	3	2	1
Integrity and Professionalism of the ATS operator / market dealer					
Cooperation and Compliance with the relevant market regulatory authorities					
Maintenance of trading transactions audit trails					
Transparency of trading and system operations					
The performance of surveillance and market regulatory functions					

Maintenance of system security					
Risk management policies					
Consistency between financial standing of the ATS operator / dealer & internationally accepted practices					

7. The widely held preposition is that Participation in any stock exchange is based on some factors about stockbrokers, the stock exchange and other market players. Below are some of those important factors. How far do you agree with **each** ? Please tick one

	Agree	Strongly agree	Disagree	Strongly disagree
Perceived Trust	[ ]	[ ]	[ ]	[ ]
Investor Confidence	[ ]	[ ]	[ ]	[ ]
Execution Reliability	[ ]	[ ]	[ ]	[ ]
Full Accountability	[ ]	[ ]	[ ]	[ ]
Operation Transparency	[ ]	[ ]	[ ]	[ ]
Corporate Governance	[ ]	[ ]	[ ]	[ ]
Timely Trade Settlement	[ ]	[ ]	[ ]	[ ]

The level of trust on institutions entrusted with the management of the ATS

A number of institutions have been entrusted with the management of the ATS at the NSE. These include the NSE, CDSC and CDAs (stockbrokers, investment banks and custodial banks)

8. Do you consider any information from these institutions entrusted with the management of the ATS before making your investment decisions?

   NSE Yes [ ] No [ ]

   If so, which information…….

   CDSC Yes [ ] No [ ]

   If so, which information…….

   CDAs Yes [ ] No [ ]

   If so, which information…….

9. CDS accounts are managed by the Central Depository & Settlement Corporation (CDSC) and CDAs (stockbrokers, investment banks and custodial banks). Do you have trust and confidence with these institutions as far as the management of the ATS is concerned?

Please Tick One under each category.

CDSC

Very much	[ ]	Much	[ ]
Just a little	[ ]	Not at all	[ ]

CDAs

Very much	[ ]	Much	[ ]
Just a little	[ ]	Not at all	[ ]

Advantages / Limitations associated with the introduction of the ATS at the NSE.

10. The introduction and implementation of ATS at the NSE has brought numerous advantages. Do you agree?

Yes [ ] No [ ]

11. How would you rate the following advantages associated with the introduction of ATS at the NSE ?

(1-Not important at all, 2-A little important, 3- Important, 4- Very important, 5- Critically important)

	5	4	3	2	1
ATS means Lower trading costs					
Direct access to retail customers					
Electronic exchanges may be accessed from many locations					
Electronic exchanges lower the execution time involved in trading					
ATS / electronic trading systems expand liquidity in the market					
Increased trading volumes is a measure of stock market success					

In your own opinion, please list other benefits that you consider may have come with the introduction of the ATS at the NSE

……..

……..

……..

12. The introduction and management of the ATS at the Nairobi stock exchange might have several limitations. Do you agree?

Yes [ ] No [ ]

13. Several factors have impacted negatively and are perceived as limitations of the ATS currently being used at the NSE . Please Rank the following suggested factors in the order of gravity.

	Little extent	Moderate extent	Great extent
Lack of transparency in trading	[ ]	[ ]	[ ]
Difficult auditing of transactions	[ ]	[ ]	[ ]
Spectre of unethical practises	[ ]	[ ]	[ ]
Unauthorized trading in clients' shares	[ ]	[ ]	[ ]
Poor performance of the economy	[ ]	[ ]	[ ]
Current Political crisis	[ ]	[ ]	[ ]
Current Global Economic crisis	[ ]	[ ]	[ ]
Poor Share Prices after IPOs	[ ]	[ ]	[ ]
Collapse of Stockbrokers	[ ]	[ ]	[ ]

In your own opinion, please list other limitations that you consider may have come with the introduction of the ATS at the NSE

……
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……
……