**MAKERERE UNIVERSITY BUSINESS SCHOOL**

**MARKET LIQUIDITY, INFORMATION EFFICIENCY AND STOCK PERFORMANCE**

**ON THE UGANDA SECURITIES EXCHANGE (USE)**

**EDWARD SERUKUMA**

**REG NO. 2007/HD10/9026U**

**(BAF, KYAMBOGO UNIVERSITY AND CPAU)**

**PLAN A**

**ATHESIS SUBMITTED TO GRADUATE RESEARCH CENTRE IN PARTIAL**

**FULFILLMENT FOR THE AWARD OF MASTERS OF SCIENCE IN ACCOUNTING**

**AND FINANCE OF MAKERERE UNIVERSITY**

**DECEMBER 2010**

# APPROVAL

This is to certify that this dissertation has been submitted for examination with our approval as university supervisors.


Signed:…………………………….        Date:……………………………

Dr. Nkote Nabeeta

Makerere University Business School




Signed:……………………………..        Date:…………………………….

Dr. Joseph Ntayi

Makerere University Business School

# ACKNOWLEDGEMENTS

Let me start by thanking God for his continued blessings and guidance in accomplishing this work. May his name be glorified forever.

I wish to extend special thanks to my supervisors: Dr. Nkote Nabeeta and Dr. Joseph Ntayi for their constructive guidance during the preparation of this thesis. Their efforts and patience were truly encouraging and source of inspiration for me.


I also wish to thank my lecturers at the Makerere Business School for the efforts they put in helping me grasp business concepts.

To all my classmates, I say thank you for allowing me to learn from you

## DEDICATION

To all my brothers and sisters, Nadongo Angela and my grand mother.

# TABLE OF CONTENT

# LIST OF TABLES

# LIST OF FIGURES

# ABSTRACT

The purpose of the study was to examine the relationship between Market Liquidity, information efficiency and Stock Performance on the Uganda Securities Exchange (USE). This arose out of the observation that trading activities has been reducing persistently due to reducing equity prices. This made investors not to achieve better returns on the stock they buy or sell, thereby quitting the Market without profits but only with losses.

The methodology was across sectional design using a sample of 80 Market participants on the USE. Data was collected using questionnaires administered to market participants, selected using simple random sampling. Data was analyzed using Pearson correlation coefficient and regression analysis options of the SPSS program version 11.

Findings indicates that stock performance is influenced by Market Liquidity, however, if investors are to profit from equities, they should focus on the bid-ask spread for a given number of shares and commission plus fees to be paid per share. But majority of the investors were not aware of the impact of the width and were ignoring it, despite its significant effect on their return.

Findings also revealed that, the Market has to be liquid in order to attract more investors who may participate in private information seeking about stocks traded. And publically available information about a current stock on the USE is associated with its performance not the private information, so if investors want to benefit from the Market, they have to put emphasis on the amount of information available on the equities listed.

Therefore, the study recommended that if investors are to succeed in stock selection, these investors should conduct research on the nature of orders placed on the Market because a lot of information is imbedded in it regardless of who places the order.

INTRODUCTION

## 1.1 Back Ground

Capital markets contribute substantially to economic development as it offers a platform for raising funds for investments and expansion (Bohnstedt, 2009). It also contributes to economic growth by raising long-term finance for productive investment, diversifying investors' risks, and improving the management of firms (Ball & Brown, 1968).

However, sources suggest that market participants remain concerned about stocks performance in capital markets, as investors and traders have become more risk averse, and various players have withdrawn from active trading (NYSE , 2009).  Ball & Brown (1968)  and (Fama *et al,* 1969) were the first to notice that there is a concern among participants return's in  stock markets, and events that contain relevant information about stocks. Kyle (1985) defined it as information efficiency to refer to the amount of private information as reflected in prices of stocks.

Recent research by (Van Horen *et al,* 2009) shows that market down turns are positively correlated with liquidity and negatively correlated with information available on stocks traded. He further said that, trading volume increases as prices fall abruptly due to liquidity, to decline only later as market information progresses.

**Liquidity** in the market is how quickly an asset can be converted into cash at the current price, thus the more trading there is in an asset at current prices, the more liquid it is (Slav Fedorov, 2010). Berg & Rietz, (2008) claim that information structure with regard to public and private information may affect liquidity of markets thus liquidity and information efficiency of the stock markets is closely related to their returns and development. Investors are attracted by rising prices, traders--by wide price fluctuations. Price changes in securities attract capital, and increasing liquidity.

Conversely, low trading volume with little or no price change discourages investors, draining liquidity (Slav Fedorov, 2010).

The Uganda securities exchange (USE) is a small and still far from being comparable to developed stock markets. Nevertheless, the performance of the Uganda securities exchange (USE) over the last ten years has, played a significant role in the financial deepening and building the savings culture by providing an alternative platform for investments and source of financing for potential companies (USE annual report, 2008).

In spite of the success attributed, USE locally listed firms has not attracted a significant proportion of the global capital flows (CMA, 2009). Various factors like low demand on existing stock, lack of new products coming to the market, limited information, and (T+5 settlement cycle) have made the market less profitable and attractive to market participants. Investors fears of an inability of the market to absorb demand and supply offers continue to affect the market liquidity, trading activities and stocks performance (CMA, 2009).

For example, the USE increased in trading volume in shares (i.e from 6,796,461 to 153,183,123) 2,154% in4th quarter 2006 and 1st quarter 2007 respectively (USE, 2007).

In 3nd quarter of 2007, it declined from 113,162,114 to 84,245,650 (25.5%) in 4th quarter 2007, and in 1st quarter 2008, it further declined to lower figure of 67,104,615, and to 33,100,000 in the 4th quarter 2008 (USE, 2008).

The consistent decline in trading volume, and USE All Share index (ALSI) from 823.65 in February 2008, to 779.25 in December 2008, and a further, recorded downward trend throughout the third quarter of 2009, closing at 724.03 in September, and the continued drop in equity prices, poses a challenge to the Investors stocks return as well as government (USE, 2009) volume ii issue 3.

**1.2 Statement of the Problem.**

The evidence about the overall Market performance (ALSI) on the Uganda securities exchange (USE) has periodically declined. Although different explanations have been given from empirical research of (Van Horen *et al,* 2007), and Berg & Rietz, (2008), in developed markets like New York securities exchange to be attributed to Market liquidity and information efficiency, It is not yet established whether the two variables also have a link on the stock's performance among market participants on the Uganda securities exchange. The consistent decline in USE All Share index (ALSI), from 823.65 in February 2008, to 724.25 in December 2009, and a further, recorded downward trend throughout the third quarter of 2009, closing at 724.03 in September and the continued drop in equity prices, against a background of decreasing turnover (Ushs) from 36.4 bn in $1^{st}$ quarter to 5.5bn in the $4^{th}$ quarter 2008, up to 1.4 billion shillings in the $3^{rd}$ quarter 2009, has created uncertainties in the market (USE, 2009). Yet the objective of this market is towards building a more robust and profitable efficient financial sector; hence the need to address it.

**1.3 Purpose of the Study.**

The study sought to examine the relationship between Market liquidity, information efficiency and stocks performance on Uganda securities exchange as a reference case.

**1.4 Objective of the Study.**

The following research objectives were adopted:

i)  To examine the relationship between market liquidity and stocks performance on the Uganda securities exchange.

ii) To examine the relationship between information efficiency and stocks performance on the Uganda securities exchange.

iii) To investigate the relationship between market liquidity and information efficiency on the Uganda securities exchange.

**1.5 Research Questions.**

The researcher used the following research questions for guidance:

   i.   What is the relationship between market liquidity, and stocks performance on the Securities exchange?

   ii.  What is the relationship between information efficiency and stocks performance on the securities market?

   iii. What is the relationship between market liquidity and information efficiency on the securities market?

**1.6 Significance of the Study.**

The study is useful to capital market Authority in formulating effective policies and guidelines for the proper conduct of the securities business in Uganda.

The study creates awareness to investors on the relevance and importance of Market liquidity, and information efficiency in Uganda's capital market industry.

The study also enhances further research in the area of capital markets. Students and other academicians also find the research useful for academic purposes.

**1.7 Scope of the Study**

**Geographical Scope**.

The study was geographically based in Kampala. This is because the Uganda securities exchange (USE) and Brokerage firms which permitted easy access to respondents are located in Kampala District, thereby making the collection of required data not so difficult from the market participants.

**Subject Scope.**

The study focused on market liquidity, information efficiency and stock performance. It examined market liquidity , information efficiency and stock performance.

## 1.8 The conceptual Frame Work

**Figure 1:**
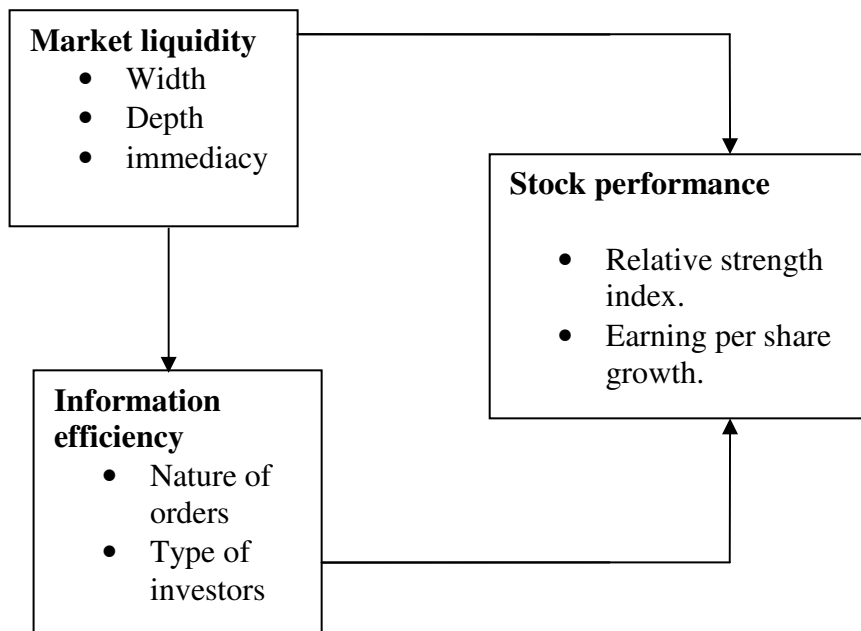


*Source: Self developed but adopted from literature of Tarun chordia (2009), He and Wang (2007), Kyle (1985),* Berg & Rietz, (2008). *and (Admati& pfleider,1988).*

The framework shows that market liquidity and information efficiency can lead to stocks performance because according to (Admati and Pfleider, 1988), more liquid markets reflects more private information because greater liquidity allow more informed agents to acquire and trade on information, which would increase information efficiency, and further, increase liquidity due to increased competition between informed. Liquidity and information efficiency leads to improvement in investor's sentiment which result into increase in trading activity (Berg & Rietz, 2008).

The frame work shows that liquidity facilitates efficiency, in the sense that the market's capacity to accommodate order flow is larger during periods when the market is more liquid. If the nature of orders placed in the market, reflects disagreement between traders upon receiving new information, the greater the degree of disagreement the larger the level of trading, which could explain why volume is found to be positively correlated with market volatility Tarun Chordia (2009).

5

The frame work indicates that market liquidity can be measured by width, depth and immediacy (Kyle,1985). He defined; Width to refer to the bid- ask spread for a given number of shares and commissions plus fees to be paid per share, Depth is the number of shares that can be traded at a given bid and ask prices, immediacy refer to how quickly trades of a given size can be done at a given cost. It is clear that these dimensions do not stand independently on their own, but may interact with each other. If a trader is patient and does not need to trade immediately, he may obtain better prices and be able to trade a larger amount at given prices, thus width and depth depend on immediacy (Berg & Rietz, 2008). .

The dependent variable is stock performance; Stock performance is a measure of the return on shares over a period of time. This can be measured by relative strength index (RSI), and it shows the rate of change in the share price (capital gains), and the earning per share (EPS) of the equities traded on the exchange. Stock performance can be influenced by market liquidity, if is high, then there is likelihood that performance will be high. This is because according to (He and Wang, 2007) private information generates trade volume both in current and future periods but public information generates volume only in current periods. He further stated, that the more active the trading, the larger the shilling amount that turns over in a particular asset or financial instrument. If a stock trades millions of shares a day, selling a couple of hundred shares at current prices is never a problem.

# CHAPTER TWO

# LITERATURE REVIEW

## 2. 1 Introduction

In the previous chapter, attempt was made to set a platform for the study. This, however, was made without a detailed backing from the existing literature. In this chapter, attempt was made to present this literature. The literature cited from relevant sources and in accordance with the main themes of the study. The themes are the sections that make up the chapter. Where necessary, the literature is contextualized so as to fit properly in the content scope of the study.

## 2.2 Market Liquidity and stock performance.

Markets have always been known as suitable institutions for achieving efficient allocation of goods and financial assets. A clear illustration of the fact that the market liquidity have an impact can be found in a recent study by (Harris, Panchapagesan & Werner, 2009). They investigate delistings from NASDAQ to the pink sheets. These were accompanied by a large decline in liquidity since spreads almost tripled, as did volatility. This decline in liquidity is associated with a significant wealth-loss to shareholders of about 19%. This makes Liquidity to be of crucial importance to a number of agents. It is obviously a concern to traders, since it determines their cost of buying and selling assets (Harris et al,2009).

However, it is also an important aspect for stock exchanges themselves in order to attract order flow from traders and in the competition for order flow with other exchanges or alternative trading systems which process creates a liquidity externality: a liquid market attracts more order flow, creating in this way even more liquidity(Slav Fedorov, 2010). Liquidity is also an argument in convincing firms to list on their exchange, as it is a determinant of their cost of capital and their decision about the optimal capital structure (Harris et al ,2009).

Despite the omnipresence of the concept "liquidity" in the finance literature of several domains and despite being seemingly a simple concept, there is surprisingly little agreement about its definition. According to (Slav Fedorov, 2010) Liquidity in the market is how quickly an asset can be converted into cash at the current price. The more trading there is in an asset at current price, the more liquid it is. This is why he further stated that, "Investors are attracted by rising prices, traders--by wide price fluctuations, Price changes in securities attract capital, increasing liquidity. Conversely, low trading volume with little or no price change discourages investors, draining liquidity". Institutions and large investors cannot sell large blocks of stock without disrupting current prices. They must create sufficient demand first by increasing the trading volume. A pick up in price and volume will bring out buyers to whom the big sellers can sell (Slav Fedorov, 2010). O'Hara (2008) makes a comparison of Market liquidity with pornography: he stated that it is hard to define, but you know it, when you see it. An early definition of liquidity can also be found in Keynes (1930), who considers an asset as more liquid if it is more certainly realizable at short notice without loss.

In order to make the definition more specific, Black (1971), O'Hara (2008) and Harris (1990) identify several dimensions of liquidity. Harris (1990) distinguishes four. The first one is *width*, referring to the bid-ask spread for a given number of shares and commissions and fees to be paid per share. Secondly, *depth* is the number of shares that can be traded at given bid and ask prices. The third one, *immediacy*, refers to how quickly trades of a given size can be done at a given cost. The final aspect is *resiliency*. It characterizes how fast prices revert to former levels after they changed in response to large order flow imbalances initiated by uninformed traders.

It is clear that these different dimensions do not stand independently on their own, but may interact with each other. For instance, if a trader is patient and does not need to trade immediately, she may obtain better prices and/or be able to trade a larger amount at given prices. In this case width and depth depend on immediacy (Berg & Rietz, 2008).

Other researchers have also approached Market liquidity in different ways relating to various factors. To begin with, (Faten lakhal, 2009) looked at it as an asset's ability to be easily converted through an act of buying or selling without causing a significant movement in the price and with minimum loss of value. The author also defined liquidity as the probability that the next trade is executed at a price equal to the last one. A market is considered deeply liquid, if there are ready and willing buyers and sellers in large quantities (market depth).

But contemporary literatures, defined stock liquidity as the ease and speed at which one can trade stocks in the market (chordia & T.R.Roll, 2008). Having defined market liquidity, the question of whether its important and desirable when determining stock performance in markets arises?.

This question has attracted quite some controversy over the years. O'Hara ((2007), (2009)) summarized it giving two opposing views that's a "dark" view and a "bright" view on liquidity. The dark side points to the dangers of liquidity and is illustrated by Keynes ((1935), p. 155). He writes: "*Of all the maxims of orthodox finance none, surely, is more anti-social than the fetish of liquidity, the doctrine that it is a positive virtue on the part of investment institutions to concentrate their holdings of 'liquid' securities. It forgets that there is no such thing as liquidity of investment for the community as a whole*". In this view, liquidity is a source of destabilization in markets.

The reasoning is that liquid markets are focused mainly on the short term and investors do no longer consider fundamentals when making their investment decision. The resulting instability can affect other markets and this contagion might lead to instability in the financial system as a whole. This is why, liquidity can be linked to corporate governance problems (O'Hara, 2009).

Coffee (2009) notes: "*The liquidity promoted by U.S. policies has obvious benefits: investors can encash their assets quickly and diversify cheaply. The same policies, however, impair corporate governance by encouraging diffuse stockholding and discouraging active investing. Diffuse stockholders face more serious collective action problems…*". Adherents to this view thus recommend to restrict liquidity. The costs of trading should be increased to force traders to

internalize the social cost of liquidity. Measures consistent with this dark view include circuit breakers and short sale restrictions. This was also the reasoning behind the famous suggestion of Tobin when suggesting a tax on financial speculation(O'Hara, 2009).

Contrary to the dark side just discussed, the "bright" view stresses the importance and the benefits of liquidity for a number of agents in financial markets, including traders, stock exchanges and listed firms(O'Hara, 2009)..

According to O'Hara (2009) investors are more likely to participate in the market if they are able to buy and sell stocks easily, quickly and at low costs, or in other words: when liquidity is high. He further suggested that greater number of participants limits the price impact of trades and thus increases the stability in the market. This is why he concluded by stating that, authorities should enhance liquidity as much as possible if investors are to expect good return's on the stocks they trade in of any stock market.

This bright view is rooted in the market microstructure literature which investigates the forces affecting trades, quotes and prices. These forces can be economic motives of agents, but also the organization of the markets in which trading takes place. It demonstrates clearly the beneficial effects of additional liquidity for a number of parties and provides ample support for the bright view (Coffee, 2009).

According to coffee (2009), traders benefit from more liquidity since it allows them to buy and sell assets at a lower cost. In addition, it affects their portfolio strategy. Vayanos (2004)  in his study discovered that, periods of high volatility are associated with a flight to liquidity due to the risk premium investors require per unit of volatility increases. Moreover, illiquid assets becomes riskier as their market betas increase.

The fact that liquidity is a risk factor that is priced in the market is confirmed in recent empirical research by (Pastor & Stambaugh, 2009), among others. This means that liquidity can be viewed as

risk-reducing, and investors will therefore be more willing to hold assets that have greater liquidity. An extensive overview of the literature on liquidity, liquidity risk and asset pricing can also be found in (Amihud, Mendelson & Pedersen, 2007).

Liquidity is further, important for stock exchanges. It is an argument in attracting firms to (cross-)list. Pagano, Randl, Roell & Zechner, (2001) show that firms are more likely to cross-list in liquid markets. It is a key variable in the competition with other exchanges for order flow as also shown in Parlour & Seppi, (2008). Finally, given that liquidity is a determinant of asset returns, it influences also decisions of firms on the optimal capital structure. Whether a firm finances investments by means of issuing shares, bonds or via debt or internal finance, is then likely to depend, among other things, on liquidity in stock and bond markets Patell & Wolfson, (2007.

Ellul & Pagano, (2009) demonstrate that liquidity risk in the secondary market is a determinant of the underpricing of initial public offerings (IPO). Lipson & Mortal (2008) show that firms that have more liquid equity, tend to have lower leverage and are more likely to choose equity over debt when they need new capital.

Although scholars have highlighted liquidity as a success factor on stocks performance, practical findings by Deutsche Bundesbank monthly report (January, 2010) and (Brennan *et al*, 2008) show that uncertainty in execution delays grows with the order size, and declines with liquidity, while uncertainty in the price impact stocks return's, and declines with liquidity and depth.

This is consistent with Kyle (1985) model, market liquidity have a positive link with stocks performance since depth, width and immediacy as a measuring variables can be used as elements in calculating the all share index (ALSI) and relative strength index (RSI) to measure stocks performance.

According to legendary (Williams O'Neill, 1980), stated that since the RSI shows the rate of change in the share price. (RSI is share price divided by ALSI), and it ranges from zero to one hundred. If RSI is fifty, it is neutral and he considers seventy overbought and thirty oversold. Thus

in his research, he concluded that stocks with RSI above seventy tend to perform well when compared to those below thirty.

Williams O''Neill findings was recently proved by (Brad Barber, 2008) who found out that, individuals buy the stocks with high volume, large price gains the day before, large price drops the day before, and news events days. He also suggested that the buying behavior of individual investors is more heavily influenced by attention than the buying behavior of professional investors. Similarly, attention-based purchases by many investors could temporarily inflate a stock's price, leading to disappointing subsequent returns" (Odean ,2008).

Scholars like (Joseph Jeyapaul, 2005,odean, 2008, HONG & Yu, 2009), and (Dey & Radhakrishna, 2009) using attention- grabbing hypothesis explains why stocks performance is associated with market liquidity, they suggested that liquid stocks in a given period especially when the market is bullish tend to perform well, compared with illiquid stocks in an entire exchange.

This was consistent with (Conrad, 2007) and (NYSE, 2008) . But they also argued that stocks performance in terms of price volatility may be low in even liquid markets due to institutional investors who have a buy and hold strategy with no active trading. This is inconsistent with (Andrew wile, 2009) who suggested that stocks performance is an important aspect of the economic interactions in financial market among different investors that bases their trading on liquidity reasons.

According to Kevin Sandler (2010), Stock performance is a measure of the returns on shares over a period of time. He stated that, there are a number of measures of stock performance and each includes its own characteristics and benefits during an analysis of returns. It includes two separate components: capital gains or losses and dividends. The capital gains or losses are the result of stock price movements, a gain results from an increase in price while a loss results from a decrease in price. The dividends are often paid by companies out of the company profits to the shareholders.

When these two components are added together, they form the total returns for the stock (Kevin Sandler, 2010).

Another measurement of stocks performance is earning per share growth, researchers ( James & Edmister, 2007) found out that, since 1980 basing on S&P 500, stocks which performed by advancing in prices at a high rate had a recorded EPS growth rate in all the 26 years. They also defined EPS as profit after tax divided by the number of outstanding shares.

A number of researchers previously provided evidence of the significant effect of market liquidity (Admati & pfleider, 1988; De long et al, 1990; He & Wang, 2008) and (Hameed,2007) tested market liquidity effects and its correlation with stock prices and returns. Their results found this link was statistically significant. Market liquidity is proved to be the major determinant of returns ( Broner *et al* ,2008) and to correlate highly with investor sentiment (Malcolm Baker, 2009). However, (Eric Postel, 2007) stated that without a large number of shares in public hands, trading will be illiquid, and shareholders will have trouble in selling their shares when they want or need to sell them, leading to reduction of trading volume in the market. Together with market liquidity, investor sentiment is a significant predictor of stocks Return (Baker & Stein, 2008). This is in line with (Aronoud W, 2009) who stated that market liquidity of a public ownership facilitates trading and lowers the cost of capital, but introduces volatility in a firm's shareholder base.

According to (Cornell & Sim, 2007) stocks performance and liquidity increases when insiders are active. But (Barclay & Warner, 2008) model stated that liquidity may depend on trade size. They found out, that medium sized trades tend to be the most informed and defined trade size as the average number of shares traded over all eligible trades. Yet (Cole & Lemmon, 2009) disagreed with his view of considering liquidity to mean trade volume since during "trading windows" when insiders are allowed to trade liquidity may dry up yet volume traded is increasing. This is in line with (Moorad choudhury, 2006) who suggested that greater market liquidity lowers the cost of raising funds for capital market borrowers. He found that repo trading transactions enhances

liquidity of equity markets and termed "Repo" as the sale of securities coupled with an agreement to repurchase them at a future date.

According to (Reilly, 1985), market liquidity is measured using market size, number of shares and the bid-ask spread. The most important determinant of market liquidity is the number of shares traded in the security and or the volume of shares traded.

Additionally, according to (Gravelle, 2007), there is empirical support for the hypothesis that an increase in the effective supply of securities enhances market liquidity and stock return's.

Harris (2007), and (Pagano, 1989), point out that any factor that increases the number of market participants in the securities market has a self- enforcing or self-sustaining effect on market liquidity due to positive externality effects. However, (Md Hamid Uddin, 2009) suggested that an infrequently traded stock may not necessarily be considered as illiquid in any particular period, if the market liquidity as a whole is low during the same period. He further said that "apart from illiquidity of stocks, the variability in the level of liquidity is considered to be risky to the investors as the more the stock liquidity fluctuates the higher the uncertainty in trading returns. This leads to erosion of investor's confidence in the trading activities.

Recent financial crises however suggest that at times, market conditions can be severe and liquidity can decline or even disappear. According to (Jones, 2008), and (Amihud, 2009), show that liquidity predicts expected returns in the time-series, while (Pastor & Stambaugh, 2007), found that expected stock returns are cross-sectionally related to liquidity risk.

Research done by notable firms such as Goldman Sachs and Deutsche Bank show that stock market liquidity gets considerable attention by the business community (Economist, 2009, TIME, 2009). For most individual investors, financial markets have traditionally been considered close to perfectly competitive, so that the size of a typical investment has little impact on prices. For such free investment opportunities, volume is irrelevant and returns becomes the basic objects of study, not prices. But as institutional investors have grown in size and sophistication over the past, and as

frictions in the trading process have become more important because of the volume of trade. It has become clear that securities markets are not perfectly competitive, at least not in the short rum (Talla & AL Deehani, 2007).

However, market sources from developed economies suggest that market participants remain concerned about liquidity, as investors and traders have become more risk averse, and various players have withdrawn from active trading, after observing that the insiders such as chief executive officers for a long time are no longer buying stocks of their companies, but only are selling if they had any share in the company. (NYSE, 2009).

This situation is also evident on the Uganda securities exchange, when major market participants such as National Social Security Fund (NSSF) have suspended trading on the USE, as reported in Daily Monitor dated November 5, 2009 that the National Social Security Fund incurred a Shs 23 billion loss from the trading of Shares. The need to establish whether there is a relationship between Market liquidity and stocks performance is therefore valid and timely.

## 2.3 Information efficiency and stock performance.

As Coase (1988: 9) notes, financial markets are often cited as examples of perfect competition. As such, they have three features. First, they are assumed to be efficient; they have prices that fully reflect available information (Fama,1970). Second, they are characterized by perfect information, such that all actors have the information necessary to trade both costlessly and immediately; Market efficiency is largely referred as information efficiency (Ball, 1989), and it is measured by the amount and speed with which information is incorporated into prices by observing orders submitted by different type of investors.

Empirical investigations provide evidence on information efficiency and stocks performance. Ever since the work of (Osborne, 1959), the relation of stock prices and stock Return's has been attracting a considerable attention from scholars and investors. Although earlier research attempts

found no solid connection between the price series and the corresponding return series. Subsequent empirical investigations provided strong evidence for the existence of such a relation.

In fact some researchers are confident enough to conclude that "prices and volumes of sales in the stock market are joint products of a single market mechanism, any model that attempts to isolate prices from return's or vice versa will inevitably yield incomplete if not erroneous results".(Ying, 2006), and (Tall & Deehani, 2009).

But financial economists do not generally assert that financial markets are perfect and informational efficient. If this were the case, then there would be no profit opportunities (defined as a return in excess of the risk). As (Bernstein, 2008) puts it: 'at any level of risk, all investors would earn the same rate of return' (p. 297).

Berry & Horne, (2007) found out that public information arrival is associated with stock performance. The study done by (O'Hara, 2008) also found out that trading volume reflects the quality of trader's information, however, this was not in line with (De Long *et al,* 1990), who stated that investors are of two types; rational arbitrageurs who are sentiment free and irrational traders prone to exogenous sentiment who compete in the market and set prices and expected return.

Kyle, (1985) states that when liquidity increases, informed traders bet more aggressively based on the existing information because their trades have a smaller impact on prices.

Previously (Granger & morgeristern, 1963), use spectral analysis to relate price to performance, found no connection between the price and volume. But using the same methodology (Tall M *et al,* 2007), showed that; a small volume is usually accompanied by a fall in price, a large volume is usually accompanied by arise in price, and practically found out that if orders have been decreasing consecutively for a period of five trading days, then there will be a tendency for the price to fall over the next four trading days, and if the volume has been increasing consecutively for the period of five trading days, then, there will be a tendency for the price to fall over the next four trading days.

Recently, (Al – Saad & Moosa, 2009) observed, however, that information efficiency tends to be high in a rising market than in a falling market. They interpreted this result by the fact that major traders in the stock exchange have to be involved in information seeking fearing a crash because the government is not always expected to support market. But, they assumption was based on Kyle (1985) definition of information efficiency to refer to the amount of private information as reflected in prices of stocks.

This is consistent with (Karpoff, 1987) who suggested, that higher volume orders was found to be associated with rising prices, thus investors preferring to trade on private information should do so when stock prices are rising.

The above work of Karpoff (1987) show that different buy and sell orders are available for the facilitation of gaining more control over stock transactions. The different orders have different restrictions. For instance, some of them restrict transactions by price, whereas others restrict them by time (Slav, 2010).

According to Kim & Verrecchia (2009), highlighted that Under a market order the broker is required to sell or purchase a particular stock immediately no matter what the prevailing price is, since it's the quickest and least expensive way in which you can complete your order. He further stated, Volatile markets may deprive you of the possibility of getting a price close to the one that is listed last which in the end affects your return on a stock traded. Additionally, you are not guaranteed that you will get the last price listed if you are following the market.

Hong and YU (2007) also stated that, Stop loss order states a price level which if reached turns the order into a market order. As a result the broker is required to sell the stock. The price set at the stop order is below the current market level. Stop loss orders protect their holders from losses

incurred from big drop in a stock. In case the price of the stock rises, the stop loss order becomes useless, since no actions are taken.

A single order is either a buy order or a sell order, and an order can be used either to enter a trade or to exit a trade. If a trade is entered with a buy order, then it will be exited with a sell order, and vice versa (Carvel,2007).

As compared to the stop loss order above, the trailing stop order protects your profit. Trailing stops can be used to follow up the profit you have in a particular stock (Carvel, 2007). Researchers states that, trailing stop order is entered as a percentage of the market price. A transformation into a market order is done in case the market price falls by the percentage stated in the trailing stop order. As a result the broker is required to sell the stock (Hong & YU, 2007).

In the case of rising stock prices, the trailing stop order represents a percentage of the market price thus a protection to the further gains is provided (Kim & Verrecchia ,2009) .

This is in agreement with (Ying, 2006) who suggested that, Stop limit orders are a combination of stop orders and limit orders. Like stop orders, they are only processed if the market reaches a specific price, but they are then processed as limit orders, so they will only get filled at the chosen price, or a better price if there is one available but all these orders are only used by investors who have private information about a stock.

Recent work in the market microstructure literature suggests that the speed with which orders arrive in the market impacts traders' order submission decisions (Stephen. G, 2009). Using an asymmetric autoregressive conditional duration (ACD) model to empirically investigate the influence on the submission of limit and market orders of changes in the time between the past submissions of different types of orders, changes in the slope of the limit order book, and changes in price uncertainty.

Stephen.G and Miller (2007) find that the expected time between the arrivals of successive orders in the foreign exchange market depends on the previous type of order submitted and the slope on both sides of the order book. Price uncertainty (volatility) plays a secondary role after accounting for the impact of changes in the slope of the order book. Lastly, He found that there are fundamental changes in the level of information contained in the submission of orders at the opening and closing of markets which affects stocks performance.

However, Larry Potter (2006), states that market orders expose you to a poor entry price where limit orders define your price such that you know how much you will pay. If you exclusively use limit orders and feel that you can always wait for the price to come down to your limit, you may feel you are one of the smart guys. Well, you are as long as the price comes back to you.

Contrary (Adam & Y.C.Lei, 2006), argued that stocks experiencing high(low) trading orders over a day or a week tend to appreciate (depreciate) over the course of the following month. This is in line with, authors that suggested earlier that investor heterogeneity or the diversity of opinions among investors can generate stocks performance.(Karpoff, 1986, Grundy & Mc Nichols, 2005). (Kim & Verrecchia, 2009), Miller, 2007) framework suggested, that high stock return premium is a result of the market adjusting to existing demands reflected in the orders available.

Carvel (2007) suggested that stocks of firms neglected by financial analysts are subject to the lack of information /greater uncertainty on their ex-ante return distributions. Investors therefore demand larger risk premiums on holding these stocks, to the extent that a larger investor base attracts more analyst followings, (Arbel & Strebel, 2006). This imply that stocks with higher visibility among investors will sell for higher prices hence there return's in the short run is abnormal to day traders (Carvel, 2007). This is true because in the long run, the market will adjust the stocks prices to their true values.

However, Fang and Peress (2008), argued that stocks with no media coverage earn higher returns than stocks with high media coverage thus, investors should only focus on acquiring information about these stocks.

In (Hong & Yu, 2007), high trading orders from brokers indicates the presence of noise traders, and risk- averse rational traders who demand a risk premium to compensate for the sentiment risk. But (Odean, 2008) presented that stocks in the news have both high volume and high net buying by individuals. Further, argue that these stocks subsequently underperforms, suggesting that individual investors pushed up prices too high in response to the news. This was in agreement with (Dey & Radhakrishna, 2006) who presented that individual investors trade heavily and are net buyers on earnings announcements, no matter whether the news is good or bad.

Schmidt & May, (2008) suggests that investors and future investors are expected to value the share price of a company according to available public financial information. However, (Foster, 2009) stated that information in the statements hardly gives an observable explanation of the share volatility. The explanation for this could be the time of disclosure of information, as annual statements are published at a point in time when the market has already incorporated the information in the form of press releases and quarterly financial statements in the stock prices.

Raymond M. Brooks, (2007) suggested that, it's only new orders and especially new, and unpredictable orders that moves prices. He found that it's the responsibility of investors to separate the anticipated and unanticipated portion of the information announcement from the listed entities that can influence investors to sell or buy the existing shares they hold. Thus, the ability of the investor to separate the two is critical to stock Return's.

However, (Dann *et al,* 1977) studied the equity market's reaction to announcements of block trades and find that a trader would have to react within 5 minutes of an announcement to earn a positive return and that transaction prices adjust completely 15 minutes after block trades. But Jennings & Starks, (2007) find that the ability to earn excess return lasts no longer than 10 – 15 minutes.

However, volatility remains high for several hours following the announcement. For Uganda securities exchange (USE), it's yet to be discovered since it uses a manual system, this means prices cannot change within minutes and most supply orders do not have demand (USE report, 2009).

Fleming & Remolona, (2008), also shaded light on the impact of different investors following scheduled macroeconomic news release on the US Treasury market. They found that the arrival of public information results in a two- stage adjustment process. In the first stage, prices react immediately, trading volume drops, and bid-ask spreads widen. In the longer second stage, order volume surges, volatility persists, and spreads remain wide. The second stage findings indicate disagreement among investors on the information content of the public announcement. This is why liquidity and volatility return to their normal levels once the Treasury market reaches a consensus.

Study done by Ederington & Lee, (2000,2008) suggested that Treasury bond, and deutsche mark futures prices responds quickly (within seconds) to scheduled macroeconomic news like inflation, while Patell & Wolfson, (2007) found that stock prices respond within an hour to firm – specific news. This implies that if investors want their portfolio to perform better, they need to look for information in advance before the release. Prior research like that of (MC queen & Roley,1993) also stated that the stock response to unemployment news is quite different when the economy is weak than when it is strong.

Farger and Weigand (2008) also find that the speed of stocks response to news has increased with time and technology. Thus, the strength of the stock/unanticipated inflation relationship varies with the strength of the economy and the direction of the news which later lead to better stocks performance.

However, scholars such as (Vassilis polimenis, 2009), (Barndorff- Nielssen,1998) and (Van Horen *et al*, 2009) also argues that a model which capture realistic trading should acknowledge that a "small" order gets executed almost immediately and with no price impact, while a large order takes

time and adversely impacts the execution price. This is why it is not surprising to read authors citing efficient hypothesis as an explanatory model for stock return and information efficient in markets (wolfers & Zitzemitz, 2007a). Efficient market hypothesis states that all available and relevant information about an asset in a financial market is reflected in its market price (Fama, 1970). According to this theory, if new information is made available, the market price tends to adjust so quickly that one cannot obtain any profit from trading insider information (Patell & Wolfson, 2007). Clearly, additional research is needed to clarify this issue, this is why our second research question is. "**What is the relationship between information efficiency and stocks performance on the securities market**?".

## 2.4 Market Liquidity and information efficiency.

According to (Ross Levine & Sera Zervos, 2005), legal, regulatory, accounting, tax, and supervisory systems influence stock market liquidity. The efficiency of trading systems determines the ease with which investors can buy and sell their shares thus, macroeconomic and political environments affect market liquidity

While considering the impact of liberalizing controls on international capital flows through reduction of impediments to repatriating dividends or capital, (Ross Levine *et al,* 2007) found that stock market liquidity brose significantly in 12 out of 14 countries that liberalized restrictions on the repatriation of dividends by foreign investors in January 1988. None of the 14 countries experienced a statistically significant drop in liquidity following liberalization.

 Findings by Bernstein et al (2002) show that, the reasoning of beginning investors is that there must be someone out there who has mastered the secrets of stock trading and is willing, for a price, to share winning techniques with them. Rather than take time to learn how to invest and trade, they go to the internet to search for stock market trading systems (software programs that actually

analyze stocks for you and tell you what to buy or sell and when to do it) that they can use to attain their goals

Berg & Rietz, (2008) claim that information structure with regard to public and private information may affect liquidity of markets. The results of their ongoing research are still not available but their survey results show that only 76% of the market participants reported basing their trades in at least 50% of cases on information. This explanation is in line with (Wolfers *et al*, 2005b) model showing market price in stock markets to be very close to the mean of market participants beliefs on liquidity of the stock.

Tirole (2003) show that the stock price incorporates performance information that cannot be extracted from the firm's current or future profit data. He argued that, the amount of information contained in the stock price depends on the liquidity of the market.

But (Mayshar, 1983) suggest that when the supply of a stock is limited, the most optimistic investors will bid up the price and end up holding existing shares. In other words, share prices will reflect only the most optimistic opinions of investors if the short-sales constraints are binding. Given the short-sales constraints in the real markets, it follows that larger investors bases should be desirable since share prices would reflect only the "good" thoughts but not the "bad" thoughts of investors (Merton, 1987).

Amihud *et al,* (2007), present evidence that improvement in stock liquidity leads to increased stock prices. Similarly, Gardiol *et al,* (2008), find that liquidity effects are important in the price formation process of common stocks and the price differential between Swiss Bearer and Registered shares. This is in line with (Diana, 2009) who suggested that, the more money speculators are willing to put work in the market, the more liquid it is and the easier it is to buy and sell without causing big ripples in prices.

On the other hand, Simaan & Weaver, (2003) presented that decrease in transparency reduces liquidity in the market, while more recent research finds reduced transparency improves market

quality, that is, a transparent market allows dealers to collude and past wider spreads, with anyone providing tighter spreads easily identified and subsequently reprimanded by other dealers. This is in line with Foucault,Moinas & Theissen, (2008), theoretical model which predicts that anonymity leads to a narrowing of bid-ask spreads. They argue that in a market setting that provides broker identification, informed traders who supply liquidity provide information regarding future price movements.

De long et al, (1990) stated that, given the fact that the noise traders that act on the market are making unpredictable decisions, prices can be significantly different from the fundamental values. In this context, it is relatively difficult to prove the existing differences between a fair market value and a current price for assets as long as these values are based on current expectations for future earnings.

But prices of stocks can follow a random walk; this random walk can be completely independent of the relevant available information. If prices do not fully reflect all available information, the market can over or under-react to inaccurate information (Ann Wetterlind & Dorner, 2008).

For example, on the Uganda securities exchange (USE) basing on the data available on its website. Uganda clays limited (UCL) share prices changes did not reflect the company's earning per share from 2000 to 2007 as shown in the table below:

**Table 2.1 Earning per share and price changes.**

| Year | Company | EPS"shs" | EPS growth rate(%) | Price"shs" | Price changes(%) |
|------|---------|----------|--------------------|-----------|------------------|
| 2000 | UCL     | 710      | 10                 | 4,495     | 0                |
| 2001 | UCL     | 252      | -65                | 4,605     | 2.45             |
| 2002 | UCL     | 1260     | 400                | 4,585     | -0.4             |
| 2003 | UCL     | 936      | -25.7              | 5,025     | 10               |
| 2004 | UCL     | 1915     | 104.6              | 7,505     | 49               |
| 2005 | UCL     | 1700     | -12.6              | 8,000     | 6.6              |

| 2006 | UCL | 261 | -84.6 | 22,580 | 182 |
|------|-----|-----|-------|--------|-----|
| 2007 | UCL | 422 | 62 | 11,420 | -49 |

*Source: USE data base 2009.*

Demirgue-kunt & Masksimovie, (2007) also argue that stock trading transmits information about a firm's prospects to potential investors and creditors. But earlier, (Tirole, 1993) presented that stock liquidity increases incentives for getting information about firms.

According to (Ann Wetterlind & Dorner, 2008) using computer-based content analysis suggested that financial public information has an impact on stock market behaviors. This was in accordance with other studies (Mitchell & Muhlerrin, 1994, Lang *et al*, 1992)

However, (Bloomfield *et al*, 2006) presented that informed traders who take on the role of liquidity providers presume that the significant increase in liquidity combined with a decrease in informed liquidity taking could be associated with informed traders changing behavior in providing liquidity more aggressively in an anonymous environment.

But, empirical results vary; (Comerton-Forde *et al*, 2008), find an increase in pre-trade anonymity increases liquidity, while displaying broker identities leads to a decrease in liquidity.

Perotti & Rindi, (2007), also conducted an experimental analysis concerning the effects of pre-trade anonymity. They find that disclosure of trader's identities reduces the incentive to acquire information, and as a consequence reduces liquidity and volatility. Naik, & Radcliffe, (2008), suggested that when a stock is traded more frequently, it is easier for traders to close their position and thus it is more liquid.

But (Liu, 2009) proposes that when the order of a stock can be executed faster, that stock is more liquid. However, Frazzini & Lamont's, (2006) states that trading activities of illiquid stocks tends to be more concentrated during the month of earnings announcements than those of liquid stocks.

According to (Anand Moham Goel, 2008), suggested that investors may have to sell their shares in the future due to liquidity reasons. Such as an unexpected contingency. He assumed that, these investors who trade with informed investors end up losing money on average. In fact, it is their trading loss that compensates the informed investors for their information acquisition cost. He further, said that, "competition among the informed investors causes their expected trading profit to equal their information acquisition cost". When the volatility of the firm's earning is high private information about the firm is more valuable, and more investors become informed. This means higher expected losses for shareholders who trade for liquidity.

Its improbable that the role of market liquidity has been pointed out by authors.(Admati & Pfleiderer 1988) who stated, further, that market liquidity can be interestingly interpreted in terms of market "depth" which is consistent with (Wang, 2006) who postulated that daily stocks Return's depends on market liquidity.

Chordia *et al, (*2009) pointed out that well-known financial events such as the international stock market crash of October 1987 and the liquidity crisis in the bond market in 1998 were not linked to any specific major news, but were characterized by a temporary reduction in aggregate market liquidity.

Van Bommel (2003) looks at situations in which traders can spread rumors in the market about their trades. He shown in a Kyle (1985) setting that, a potentially informed trader with limited wealth can raise her trading profits by pretending to be informed even when he is not. He also shown that a potentially informed trader would prefer not to trade against her own information (i.e., buying when the true value is low).

# CHAPTER THREE

## METHODOLOGY

### 3.1 Introduction

The previous chapter shows that there was a gap in the existing literature. This gap was addressed following the methodology presented in this chapter. This chapter therefore discusses the process by which the study was conducted. It starts with the research design adopted for the study and progresses systematically through all the steps that were followed to collect and analyze the data.

### 3.2 Research Design

The study was conducted using a cross sectional analytical design and a descriptive approach to ascertain the relationship between market liquidity, information efficiency, and stocks performance on the Uganda securities exchange. The study was analytical because it was approached using secondary statistical methods like correlation and regression analysis to establish the relationship

between the variables (market liquidity, information efficiency and stock performance) from a representative population.

**3.3 Target Population.**

The target population comprised of 1000 market participants who had stocks in locally listed firms; BATU, UCL, NVL, BOBU ,SBU, and DFCU, as a unit of analysis. Seven stock brokerage firms licensed by the capital markets Authority (1996) (S.25) statute No.54. Investors were part of this population because in their position as investors, they were expected to know how their stocks they hold were being affected by market liquidity and information efficiency. They therefore had information to contribute towards answering the research questions of the study. The population size considered was disaggregated into, 40 broker from seven firm's, 20 Uganda securities exchange staffs, 80 institutional investors and 860 individual investors for the purposes of the study. However, all market participants from the listed companies were considered as investors in order to foster homogeneity of respondents.

**3.4 Sample size.**

From a total population of 1000, using Krejcie and Morgan (1970), the estimated ideal sample size is 278 as per strata. A summary of this is shown in the table 2 below:

**Table 3.1 Distribution of the sample.**

| Group | Population size | Sample size |
|---|---|---|
| Brokers | 40 | 12 |
| USE Staffs | 20 | 6 |
| Investors | | |
| ▪ Institutional | 80 | 23 |
| ▪ Individual | 860 | 237 |

| Total | 1000 | 278 |
|-------|------|-----|

## 3.4 Sample design and procedures.

The choice of 237 individual and 23 institutional out of 1000 market participants were selected using simple random sampling. The researcher walked into the premises of stock Brokerage firm's, introduced himself to the Brokers by explaining the purpose and objectives of the study, and those who accepted to participate in the study were given questionnaires to fill in. further attempts were made to request the Brokers for permission to have access to their investors who had come either to place buy or sell orders within the premises. Once the permission was granted, efforts were made to talk to the investors, convincing them to participate in the study by filling in the questionnaires designed for them. Purposive sampling was used to select 12 Brokers, and 6 USE officers to give an informed representative view of market liquidity, information efficiency and stocks performance on Uganda securities exchange (USE). The researcher also used convenience sampling design to respondents who were willing to talk to him. The use of convenience sampling design was also commended by authors like (Krajcie & Morgan, 1970), and (Andrews *et al,* 2003).

**Table 3.2 Sample actual size**

| Respondents | Population | Target Sample(A) | Actual Sample(B) | % Response turn up=(B/A)*100 |
|-------------|------------|------------------|------------------|------------------------------|
| BROKERS | 40 | 12 | 10 | 83 |
| USE STAFF'S | 20 | 6 | 6 | 100 |
| Investors. ▪ Institutional ▪ individual | 80 860 | 23 237 | 20 236 | 87 100 |

| Total | 1000 | 278 | 272 | 98 |
|---|---|---|---|---|

Source: primary Data

## 3.5 Data Sources

The researcher used primary data as the main source. A self-administered questionnaire was issued to respondents to obtain primary data. The researcher used only non cross listed stocks to avoid any possibility of the results being influenced by differences in trading protocols (cross listed stocks). The major secondary source was obtained from the company's annual reports, and USE database (www.use.ug).

## 3.6 Data collection methods.

A self-administered questionnaire was designed according to objectives of the study with close-ended questions to ensure clarity of response on the themes of the study. It was preferred because, according to (Kenyon, 2004), it has the advantage of being flexible; it permits those who can read and read to fill it by themselves.

## 3.7 Measurement of Variables.

The variables are; stock market liquidity, information efficiency, and stocks performance.

Market liquidity was measured using width, Depth and immediacy of the market, using previous studies (Kyle, 1985) and (De Long *et al,* 2007), this information was obtained from both investors, and USE daily reports on its website.(www.use.co.ug).

Information efficiency was measured by variables (nature of orders placed on the USE as recorded, and from investors (institutional, and individuals) as per (Admati & Pfleider, 1988) model.

Stock performance was measured using Relative strength index and the historical annual earning per share growth from companies records as by (Tarun chordia, 2008), (Fama, 1970) and (He & Wang, 2008).

**3.8 Validity and Reliability of instruments.**

To ensure Validity and reliability of the instrument the following was followed; Content validity was used, the instrument was given to experts on the topic to agree whether the statements do relate to what they are supposed to measure as it was used from previous studies (Admati & Pfleider, 1988; De Long *et al*, 2007; He & Wang, 2008) to avoid being vague and ambiguous.

A scientific test was carried out to determine the reliability of the instrument using Chronbach's Alpha bearing in mind that different researchers have recommended different lower limits, with (Sabit, 2002), (Hair *et al*, 1998) and (Straub, 1989) recommending 0.5, 0.7 and 0.8 respectively. The reliability results indicated that the research instruments were worth using since they had cronbach alpha values above 0.5 as shown in Table 3.3 below.

**Table 3.3:    Cronbach's Alpha (α) Coefficient for the study Variables**

| Variables | Cronbach's Alpha (α) |
|---|---|
| Market Liquidity | **0.761** |
| Information Efficiency | **0.602** |
| Stock Performance | **0.666** |

Source: Primary data

**3.9.1 Data Analysis.**

Data was analyzed using the computer program referred to as the special package for social scientists (SPSS), Version 11.0 this programme accepts questionnaire items as variables. Accordingly, each item in the questionnaire was defined as a variable and given a label. Since each item had a likert scale of response options, coding was used to transform the options into the numerical language that SPSS accepts in its data entry sheets as value labels. A five likert scale was used to assign codes response options (strongly Disagree, Disagree, Neither agree nor Disagree, Agree, and strongly agree) ranging from ("1","2","3","4", and"5") respectively.

Data was entered in the programme. For each item, a response option selected by a respondent was entered in the data entry sheets of the programme using the assigned codes. Thereafter, appropriate analysis tools, options and commands of the programmes were applied to produce the desired results. Depending on the results required, the specific methods used to analyze the data were: the descriptive, data reduction, correlation, and regression.

The descriptive method helped to generate descriptive results in terms of frequencies and percentages. Under data reduction, the extraction method was used basing on the varimax method to conduct rotated principle component analysis. This was carried out in order to reduce the various manifest indicators (items in the questionnaires) of each variable of the study into principle or independent components. The aim was to identify the non- collinear factors that were explaining the effect of the independent variable of the study on the dependent variable.

The Pearson rank correlation method was then used to establish the relationships between the independent and the dependent variables of the study, as well as between their principle components generated as explained above. Regression analysis was also carried out to establish how the independent variables predicted the dependent variable. Results are presented in the next chapter.

### 3.9.2 Ethical Consideration.

An introduction letter from Makerere University Business School (MUBS) was obtained to formalize the research. The questionnaire used to obtain primary data had a confidentiality clause, and there were no need to investors to disclose their names, and the purpose of the research was to get a better understanding of the relationship between Market Liquidity, information efficiency and stocks performance on the Uganda securities exchange.

### 3.9.3   Limitations/ Problems Encountered During Data Collection.

There were problems that were faced during data collection. The first problem was the skepticism and suspicion respondents had about the intentions of the information they were requested to contribute to the success of the study.

Although this study is expected to contribute to the understanding of the relationship between Market liquidity, information efficiency and stock performance. They expressed a feeling that those who were collecting data were spies trying to copy there investment skills in stock selection which could result into the market being unprofitable, especially those who had written plan on the way they select and monitor stocks performance. This problem was minimized by assuring respondents ( investors) that the study is purely academic and after the report, they will also receive a hard copy of the final report after it has been approved by the graduate research centre of  Makerere university Business School.

 Another problem was that some of the respondents demanded to be given money before participating in the study. They were claiming that the study was being sponsored only that those collecting data were not giving out the money that had been given to facilitate data collection through motivating respondents. Thorough explanations regarding the objectives of the study and the conditions under which it was being conducted were given. Some respondents were convinced but there were those who stuck to their guns until money was given to them. This increased data collection expenses. To overcome this problem, more money was mobilized from the researcher's sponsor.

The study used a cross sectional approach not longitudinal, if we had used longetitudial may be our results of the predictors could have improved.

Another problem was that some of the respondents who requested for time to study the questionnaires and fill in them properly never returned those questionnaires. Whenever attempts were made to check on them, they would claim they had not finished to fill in the questionnaires,

until such a time when they would finally say they had misplaced the questionnaires. This problem was minimized by giving them other copies of the questionnaire. Despite this, some respondents continued misplacing and losing the copies. This led to collecting less than the administered number of questionnaires. Despite this, data enough to successfully accomplish the study was collected and the findings are presented in the next chapter.

.

# CHAPTER FOUR

## DATA PRESENTATION, ANALYSIS AND INTERPRETATION

### 4.1 Introduction

This chapter presents the results of data analysis and findings compiled from the field. It is divided into three main sections. The first section deals with the general/demographic characteristics of the respondents. The second section discusses the findings from the study. Section three analyses and discusses the relationship between the various variables in the study.

### 4.2 Demographic Characteristics of the Respondents

The demographic characteristics of the respondents include the gender, age, level of education, job position and work experience.

**4.2.1 The Sex of the Respondents**

**Fig. 4.1:        Sex of the Investors and USE staff**
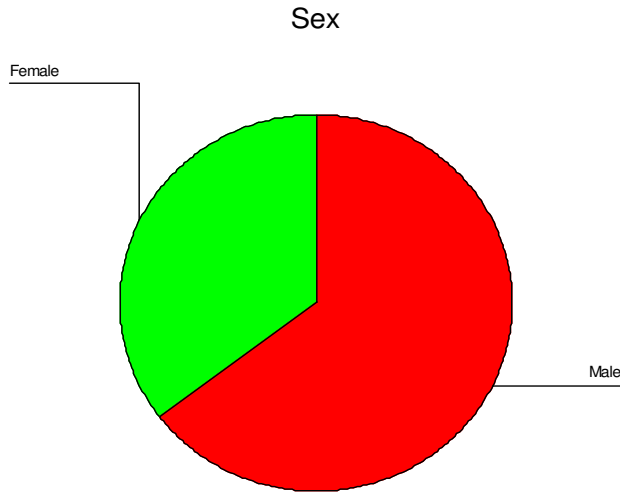


Source: Primary data

The majority of the respondents (65%) of the investors and USE staff on the stock market were men as shown in figure 4.1 above, this showed male dominance on the stock trading . The women constituted small number (35%) of the respondents. This is because the nature of the field of investing in stock market is viewed as speculative by most women.

**4.2.3   The Age of the Respondents**

**Fig. 4.2:        Age of the Investors and USE Staff**
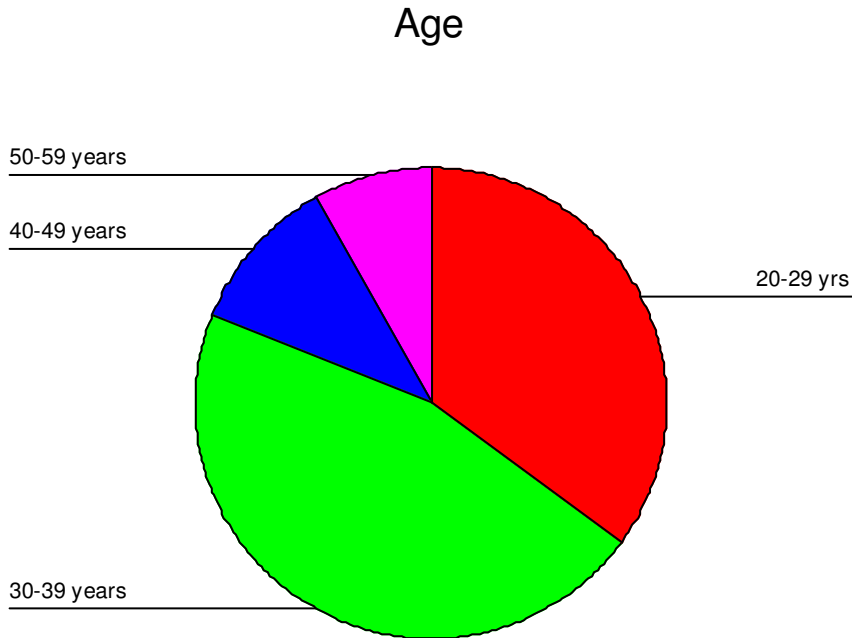


Source: Primary data

According to the findings in figure 4.2 above, majority of the respondents (46%) were in the age

bracket of 30 – 39 years. This could imply that this is the most active and mobile age group on USE

trading activities who focus at wealth creation. Those in the age bracket of 20 – 29 years were 35%.

While respondents in the age bracket of 40 – 49 years and 50 – 59 years were 11% and 8%

respectively.

### 4.2.3   The Level of Education of the Respondents

**Fig. 4.3:**       **Level of Education of Investors and USE Staff**
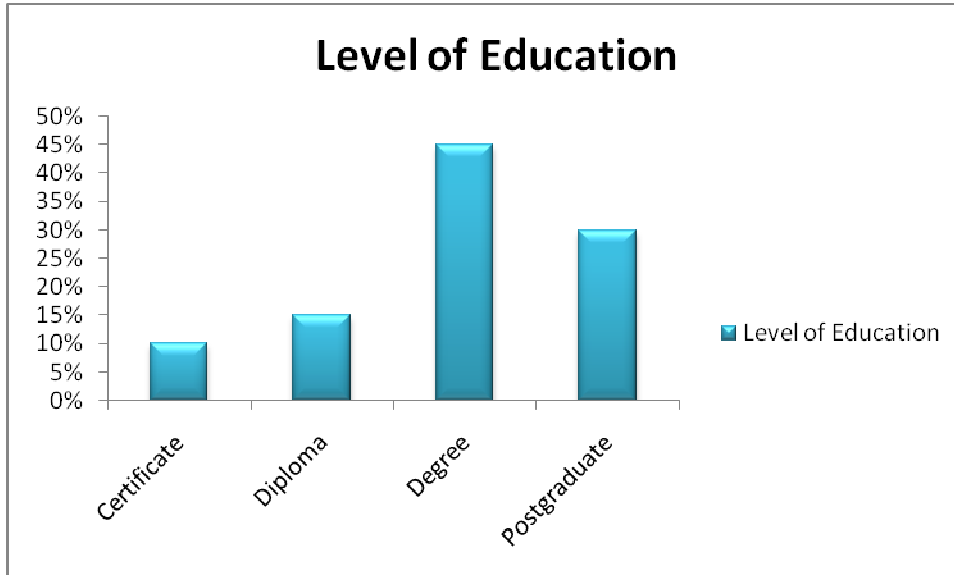


Source: Primary data

The findings in figure 4.3 above indicate that the majority of the respondents on the stock trading (45%) were degree holders and 30% were holders of postgraduate qualifications. While 15% and 10% of the respondents on the stock trading were holders of diplomas and certificates respectively. This indicates that, respondents had enough education who participated in the study.

### 4.3    INFERENTIAL STATISTICS

**Factor Analysis**

Factor analysis was used to extract the most important factors that measured the study variables. These factors explained patterns of correlation between the dependent and independent variables. The Principal Component Analysis extraction method and Varimax rotation methods were used to extract and reduce on the many items into few and relevant factors that can be worked on. Only factors with Eigen values greater than 1(one) were extracted and correlation coefficients of ± 0.3

were deleted from the rotated component matrix table. The extracted factors were used to fit the regression models. The rotated component matrix for each variable is outlined below.

**4.3.1.1 Market Liquidity Variable.**

The principal component analysis was used to analyze the seventeen (17) internal market liquidity dimensions. This is shown in table 4.1 below.

**Table 4.1: Rotated Component Matrix for Market Liquidity**

**Market Liquidity Components**

| Market Liquidity Dimensions | Width of market | Depth of market | Immediacy of market |
|---|---|---|---|
| **Width** | | | |
| We would pay a high price to acquire a stock on demand | 0.940 | | |
| The bid and ask price influence my decision to invest | 0.902 | | |
| My quoted market prices meets my demand needs of investing in shares. | 0.735 | | |
| The last price movement reflect current investor's final demands | 0.802 | | |
| **Depth** | | | |
| Shares on the Uganda securities exchange are expensive and plenty | | 0.710 | |
| All shares in the stock market you need are available | | 0.800 | |
| In Uganda people can borrow to invest in stocks | | 0.614 | |
| The role of the capital market Authority is understood by people when it comes to shares | | 0.808 | |
| Some stocks are not liked by investors on the USE. | | 0.8260 | |
| The USE regulations give the individual traders protection on all stock | | 0.641 | |
| People buy shares hoping to get more money in them in future. | | 0.520 | |
| **Immediacy** | | | |
| Fees paid to brokers for buying and selling stocks are high. | | | 0.757 |
| Any quantity of stocks ordered can be received on the same day. | | | 0.784 |
| In Uganda people can sell and buy stocks easily. | | | 0.764 |
| I prefer to buy stocks that are easily sold. | | | 0.554 |
| I prefer not to sell a stock which is on demand | | | 0.560 |

| | | | |
|---|---|---|---|
| Share prices can be seen to move according to company activities. | | | 0.729 |
| | | | |
| **Eigen values** | **4.475** | **4.111** | **4.148** |
| **% of Variance** | **24.809** | **16.216** | **15.860** |
| | | | |
| **Cumulative Percentage explained** | **24.809** | **41.025** | **56.886** |

| |
|---|
| Extraction Method:   Principal Component Analysis.<br>Rotation Method:      Varimax with Kaiser Normalization.<br>                            A Rotation converged in 5 iterations |

Source: Primary data

Three factors were extracted from seventeen (17) items constituting 57% of the Total Variance of Market Liquidity. This implied that the three constructs/factors contributed 57% of Market Liquidity.  It was found out that market width (25%) contributed more to market liquidity, followed by depth of the market (16%) and market immediacy (16%) respectively. Further analyses verify that the total success of USE investors is enhanced by market width which highly contributes to its stock Return's. This analysis is important to investors and USE staff in Uganda because it helps in defining the magnitude of the market liquidity dimensions to the responsible policy makers.

### 4.3.1.2 Information Efficiency Variable

The principal component analysis was used to analyze the twenty one (21) dimensions of information efficiency. This is shown in table 4.2 below.

**Table 4.2:      Rotated Component Matrix for Information Efficiency**

| | Information Efficiency Components | |
|---|---|---|
| **Information Efficiency Dimension** | **Nature of Orders** | **Type of Investors** |
| **Nature of orders** | | |
| *I prefer to place market orders when selling* | 0.703 | |
| *Current orders of shares reflect available demand and supply* | 0.627 | |
| *All my orders are good until cancelled(GTC).* | 0.911 | |

| | | |
|---|---|---|
| I prefer limit orders when buying a stock. | 0.802 | |
| Do you think investors orders matters alot | 0.826 | |
| All my stocks I hold have stop loss prices along them. | 0.482 | |
| I prefer to buy few shares at a given time. | 0.865 | |
| Stock orders take long time to be executed on the USE. | 0.916 | |
| **Type of investor** | | |
| I have an investment club | | 0.768 |
| Stocks relevant information is given to the public by USE. | | 0.721 |
| People receive information as shareholders at the same time. | | 0.559 |
| Most of my trading bases on non-informational reasons. | | 0.714 |
| I have a plan I follow to monitor stock market prices. | | 0.613 |
| My source of investment ideas is from Business news. | | 0.467 |
| I prefer buying stocks after earnings announcement | | 0.645 |
| I receive advice on shares from stock Brokers. | | 0.683 |
| There is a group of people who gets company information first | | 0.828 |
| I have knowledge of investments | | 0.810 |
| I feel comfortable investing on my own. | | 0.739 |
| I receive company news updates direct from the company. | | 0.811 |
| **Eigen values** | **4.400** | **4.043** |
| **% of Variance** | **33.526** | **30.126** |
| **Cumulative Percentage explained** | **33.526** | **63.652** |

Source: Primary data

Two factors were extracted from twenty one (21) items constituting 64% of the Total Variance of information efficiency. This implied that the two constructs/factors contributed 64% to information efficiency. Nature of orders on the stock exchange contributed more (34%) to information

efficiency, followed by the type of investors (30%). On further analysis of the two constructs/factors identified, it was possible to discover that the strongest component in information efficiency was type of the investors and weakest component was the nature of orders. This affirms the facts that what matters most in the security exchange market is type of investors.

## 4.4 RELATIONSHIP BETWEEN THE STUDY VARIABLES

The Pearson correlations was used to examine the relationships between the variables in the study and the findings are shown in the matrix in Table 4.3 below.

**Table 4.3 Magnitude of the Pearson Correlation Coefficient**

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Depth-1 | 1.000 | | | | | | | |
| Width-2 | .441** | 1.000 | | | | | | |
| Immediacy-3 | .099 | .002 | 1.000 | | | | | |
| **Market liquidity-4** | .446** | .483** | .390** | 1.000 | | | | |
| Nature of Orders-5 | .283 | .260 | .105 | .307* | 1.000 | | | |
| Type of Investors-6 | .368* | .378* | .350* | .486** | .679** | 1.000 | | |
| **Information Efficiency-7** | .291 | .322* | .374* | .437** | .515** | .739** | 1.000 | |
| **Stock Performance-8** | .355* | .313* | .348* | .343* | .363* | .711** | .560** | 1.000 |
| ** Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | |
| * Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | |

### 4.4.1 Relationship Between Market Liquidity and Stock Performance

According to table 4.3 above, there is a significant relationship between market liquidity and stock performance as shown by the Spearman correlation ($r = 0.343^*$, $p - \text{value} < 0.05$). This means that as market liquidity increases, stock performance moves in the same direction. Market liquidity therefore affects the stock performance level by increasing the stock demanded on the security exchange.

### 4.4.2 Relationship Between Information Efficiency and Stock Performance

From correlation table 4.3 above, there is a significant positive relationship between information efficiency and stock performance ($r = 0.560^{**}$, $p - \text{value} < 0.01$). This means that as information efficiency increases, stock performance improves and moves in the same direction as a result of the effect. Increase in information efficiency promotes and strengthens stock performance.

### 4.4.3 Relationship Between Market Liquidity and Information Efficiency

Further analysis from correlation table 4.3 above, shows that there is a significant positive relationship between market liquidity and information efficiency ($r = 0.437^{**}$, $p - \text{value} < 0.01$). This means that as market liquidity increases, information efficiency increases and moves in the same direction as a result of the effect. Increase in market liquidity provides more information to the investors on the security exchange.

### 4.5 REGRESSION ANALYSIS

Multiple regression analysis was used to find the influence of the independent variable on the dependent variable. The independent variables used were market liquidity and information Efficiency. The dependent variable considered was stock performance on the USE. Table 4.4 below presents the regression model.

**Table: 4.4: Regression of Market Liquidity and Information Efficiency on Stock Performance on USE**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | .181 | .934 | | .193 | .848 |
| Market liquidity | .266 | .310 | .121 | .859 | .395 |
| Information Efficiency | .655 | .182 | .507 | 3.600 | .001 |
| Dependent Variable: Stock Performance | | | | | |
| R Square | | | 0.326 | | |
| Adjusted R Square | | | 0.294 | | |
| F Change | | | 10.143 | | |
| Sig. F Change | | | 0.000 | | |

Source: Primary data

The regression result shows that about 29.4% of the variations on USE stock performance is explained by a combination of market liquidity and information efficiency. This means about 70.6% of the variation in USE stock performance remain unexplained. Accordingly, table 4.4 shows that market liquidity ( beta = 0.121) and information Efficiency (beta = 0.507) significantly accorded for 32.6% ($R^2$ = 0.326) of the variation in stock performance on the USE before adjusting for errors yet they predict 32.6% ( adjusted R = 0.326) of the stock performance after adjusting for errors.

Looking at the standardized Beta coefficients, Table 4.4 indicates that Information Efficiency predicted significantly the stock performance on the USE more than Market Liquidity. Indeed, 100% change in information efficiency leads to 50.7% change in Stock Performance, Market Liquidity lead to 12.1% change in Stock performance. This implies that stock Performance is more affected by information Efficiency

# CHAPTER FIVE

## DISCUSSION, CONCLUSION AND RECOMMENDATIONS

### 5.0    Introduction

This chapter presents a discussion of findings observed and inferred from the data presented in chapter four. The discussion of findings is based on the literature available in chapter two. This chapter also provides the conclusions, recommendations and suggestions of areas for further study. The study is divided into three sections; discussion of results, conclusion and recommendations.

The findings are discussed in terms of the research objectives in relation to literature in chapter two. The level of constructs of market liquidity, information efficiency and stock performance and relationship between these variables are discussed.

### 5.1    Relationship Between Market Liquidity and Stock Performance

The Spearman's correlation coefficient shows that there is a significant positive relationship between market liquidity and stock performance.

This is in consistent with Fama (1970) in the efficient market hypothesis who states that all available and relevant information about an asset in a financial market is reflected in its market price. According to this theory, if new information is made available, the market price tends to adjust so quickly that one cannot obtain any profit from trading insider information.

It is also consistent with NYSE (2009) which suggest that market participants remain concerned about liquidity, as investors and traders have become more risk averse, and various players have withdrawn from active trading, after observing that the insiders such

as chief executive officers for a long time are no longer buying stocks of their companies, but only are selling if they had any share in the company.

According to Kyle (1985) market liquidity is measured by width, depth and immediacy. Width refer to the bid-ask prices for a given number of shares and commissions plus fees to be paid per share. A depth is the number of shares that can be traded at given bid and asks prices. Immediacy refer to how quickly trades of given size can be done at a given cost. From Kyle (1985) model, market liquidity have a positive link with stocks performance since depth, width and immediacy as a measuring variables can be used as elements in calculating the all share index (ALSI) and relative strength index (RSI) to measure stocks performance.

Williams O'Neill (1980) argues that since the RSI shows the rate of change in the share price. (RSI is share price divided by ALSI), and it ranges from zero to one hundred. If RSI is fifty, it is neutral and he considers seventy overbought and thirty oversold. Thus in his research, he concluded that stocks with RSI above seventy tend to perform well when compared to those below thirty.

The findings is also in conformity with scholars like Joseph Jeyapaul (2005), Odean (2008), HONG & Yu (2007) and Dey & Radhakrishna (2009) who using attention-grabbing hypothesis explains why stocks performance is associated with market liquidity, they suggested that liquid stocks in a given period especially when the market is bullish tend to perform well, compared with illiquid stocks in an entire exchange. This was consistent with (Conrad, 2007) and (NYSE, 2008). But they also argued that stocks performance in terms of price volatility may be low in even liquid markets due to institutional investors who have a buy and hold strategy with no active trading. This is

inconsistent with (Andrew wile, 2009) who suggested that stocks performance is an important aspect of the economic interactions in financial market among different investors that bases their trading on liquidity reasons.

The above finding is further in line with the Cornell & Sim (2007) who concluded that stocks performance and liquidity increases when insiders are active. But (Barclay & Warner, 2008) model stated that liquidity may depend on trade size. He found out, that medium sized trades tend to be the most informed and defined trade size as the average number of shares traded over all eligible trades.

Lastly in Amihud *et al,* (2009) they present evidence that improvement in stock liquidity leads to increased stock prices. Similarly Gardiol *et al,* (2008), find that liquidity effects are important in the price formation process of common stocks and the price differential between Swiss Bearer and Registered shares.

### 5.1.1    Relationship Between Information Efficiency and Stock Performance

The Spearman's correlation coefficient shows that there is a significant positive relationship between information efficiency and stock performance. This finding is consistent with Berry & Horne (2007) who found out that public information arrival is associated with stock performance.

It is also in agreement with the  study done by O'Hara (2008) who  found out that trading volume reflects the quality of trader's information and stock performance.

Kyle (1985) also states that when liquidity increases, informed traders bet more aggressively based on the existing information because their trades have a smaller impact on prices. On the other hand Carvel (2007) suggests that stocks of firms neglected by financial analysts are subject to the lack of information/greater uncertainty on their ex-

ante return distributions. Investors therefore demand larger risk premiums on holding these stocks to the extent that a larger investor base attracts more analyst followings Arbel & Strebel (2006). This imply that stocks with higher visibility among investors will sell for higher prices hence there performance in the short run is abnormal to day traders. This is true because in the long run, the market will adjust the stocks prices to their true values.

But Odean (2008) however, further argues that stocks in the news have both high volume and high net buying by individuals. Further, argue that these stocks subsequently underperforms, suggesting that individual investors pushed up prices too high in response to the news. This was in agreement with Dey & Radhakrishna, (2006) who presented that individual investors trade heavily and are net buyers on earnings announcements, no matter whether the news is good or bad.

Schmidt & May (2003) also further suggests that investors and future investors are expected to value the share price of a company according to available public financial information. However, Foster (2006) stated that information in the statements hardly gives an observable explanation of the share volatility. The explanation for this could be the time of disclosure of information, as annual statements are published at a point in time when the market has already incorporated the information in the form of press releases and quarterly financial statements in the stock prices.

## 5.1.2 Relationship Between Market Liquidity and Information Efficiency

The findings of the study indicate that the relationship between market liquidity and information efficiency is significant with positive correlation.

The above finding is consistent with Simaan & Weaver (2003) who contends that decrease in transparency reduces liquidity in the market, while more recent research finds reduced transparency improves market quality that is a transparent market allows dealers to collude and past wider spreads, with anyone providing tighter spreads easily identified and subsequently reprimanded by other dealers.

But Mayshar (1983) suggest that when the supply of a stock is limited, the most optimistic investors will bid up the price and end up holding existing shares. In other words, share prices will reflect only the most optimistic opinions of investors if the short-sales constraints are binding. Given the short-sales constraints in the real markets, it follows that larger investors bases should be desirable since share prices would reflect only the "good" thoughts but not the "bad" thoughts of investors (Merton, 1987).

Wetterlind (2008) further argues that using computer-based content analysis suggested that financial public information has an impact on stock market behaviors. This was in accordance with other studies (Mitchell & Muhlerrin, 1994), and (Lang *et al,* 1992). When the volatility of the firm's earning is high private information about the firm is more valuable, and more investors become informed. This means higher expected losses for shareholders who trade for liquidity.

## 5.2    Conclusion

It is observed from the study that there is a significant positive relationship between market liquidity and stock performance. This confirms that the market has to be liquid in order to attract more traders on the security market. The study findings showed that the more liquid the market is the more stocks were bought and sold by the traders on the

trading flow thus Uganda securities exchange (USE) must also be automated if investors are to benefit from their information seeking.

The study also revealed that there is a significant positive relationship between information efficiency and stock performance. Publicly available information about a current stock on the security exchange is associated with its performance. The trading volume of any stock depends on information concerning its quality and future demand.

On the relationship between market liquidity and information efficiency, there was a significant and positive relationship. Transparency improves market quality whereby the transparent market allows dealers to collude and past wider spreads, with anyone and tighter spreads are easily identified and subsequently reprimanded by other dealers. However, the efficiency of trading systems determines the ease with which investors can buy and sell their shares thus, macroeconomic and political environments affect market liquidity.

## 5.3    Recommendations

Since market liquidity increases stock performance on the security exchange trading flow, the investors, insiders and bodies like Uganda Capital Market Authority should endeavor to create good trading environment and regulatory frame work to guide the operations of the USE so that there is fairness on stock performance of different companies listed on the security exchange.

Uganda Capital Market Authority through USE should create awareness on the importance of security market in Uganda. Many more people should be encouraged to go and trade on the security exchange. Brokers on the security market should guide the new investors on how to take risk in investing in shares. The brokerage companies should be

made known to the general public who may not have interest in the investment at a given time but may be interested in future.

Information on performance of all companies listed on the security market should be availed to the citizens. Audited annual financial reports and performance indicators of these companies should be published in the media.

USE should encourage cross border listing for companies listed on the security exchange so that there is increase in numbers of investors on the security market, and companies to be cross listed in Uganda should not be from countries with political unrest.

## 5.4    Areas for Further Study

Why are there very few Ugandan investors on the USE trading flow compared to its 30 million populations?

Is it worth to cross list companies from neighboring countries with political unrest on USE?

What steps has the Uganda Capital Market Authority taken to sensitize Ugandan on investing on the security market?

How can investors on USE adopt better risk management techniques on their investments on the security market?.

**REFERENCES**

Admanti and pfleider (1988): "*Management ownership and Market Valuation,*

*an empirical analysis"*. Journal of financial Economics 20.

Amihud (2009): *"Asset pricing and the bid- ask spread"*. Journal of financial Economics

Analysis. Vol 27. No.2

Anand Mohan Goel (2008): "*Why do firms smooth Earnings?* Journal of financial

economics 30. 345-350.

Andrew Lo, and Craig Mackinlay (1990). " *When are contrarian profits due to stock*

*market overreaction?"*. Review of financial studies 39. 819-834.

Baker and Stein (2008): *"Forecasting crashes, Trading Volume, Past Returns, and*

*Skewness in security prices"*. Journal of finance,Vol 61.

Barberis, A. Shleifer (2008).*"Amodel of investor sentiment"*. Journal of financial

Economics 49, 307-433.

Ball S, Brown and G.Saar (2006).*"Asset Returns and the listing choice of*

*firms"*.Workingpaper.

Bohnstedt Andrea (2009): *"Capital markets Development in Uganda- private sector*

*Opinions on listing"* FBD Series No.2

Berg and Rietz (2008).*"The Iowa electronic market; lessons learned and answers*

*yearned"*. University of Iowa Tippie school of Business. Working paper (2005).

Brad Barber and Terrance Odean, 2008, "All That Glitters: The Effect of Attention and

News on the Buying Behavior of Individual and Institutional Investors," Review of

Financial Studies, 21(2), 785-818.

Broner et al (2006): *"Analysis Disagreement, Mispricing, and Liquidity"*. Journal of financial markets.

Brunnermeier M. K (2008).*"Asset pricing under Asymmetricc information;* Bubbles, Crashes,technical Analysis and Herding. Oxford University.

Capital market (2009); *"The journal for the capital Market industry",* Vol 2, No.1,1[st] CBS College publishing. The Dryden press.

Chan K, and Fong (2009). *"Trade size, order imbalance, and the volatility- volume choices"*. World Bank Economic Review, PRWP 1461.

Chordia, T.R.Roll, and A. Subrahmanyam (2009).*"market Liquidity and Trading Activity"*. Journal of finance 56, 501-530.

Conrad, Jennifer, and Gautam (2007).*"Time varying expected returns"*. Journal of Business 61, 409-425.

Dann L.Meyers D. and Raab, R, (2007). *"Trading rules, large blocks and the speed of adjustment"*. Journal of financial economics 4: 3-22

Datar. T. Naik N Y,Ragcliffe R (2008).*"Liquidity and stock returns, alternative test"*. Journal of financial markets 1. 203-219.

De Long . W.F.M and Thaler R. H. (1990): *"Noise trader risk in financial markets",* NBER Working papers,

Demirguc-kurt, A & Levine, R (2007): *"Stock market Development and Financial Development"* unpublished (World Bank).

Easley, D and M O'Hara (2007). *"Adverse Selection and large Trade volume. The implications for Market Efficiency"*. Journal of financial and quantitative analysis  Vol 27, No.2

Ederington, L, and J. lee (2008). *How markets process information: news release and volatility:* Journal of finance 48 (September); 1161-91.

Ederington, L, Stephen.G.and J. lee (2007). *The short run dynamics of the price adjustment to new information:* Journal of financial and quantitative analysis 30 (march): 117-34.

Ellul, A. and Pagano, M., (2009), IPO Underpricing and After-Market Liquidity, *Review of Financial Studies* 19, 381-421.

Eric Postel (2008): *"Price Discovery among the punters". Using New financial Betting facts and some market microstructure comparisons of the US Treasury market".* Stanford university working paper.

Fama E.F. (1969): *"Efficient capital markets".* A review of Theory and empirical work, financial markets, forthcoming.

Fleming M. and Remolana .E. (2009). *"Price formation and liquidity in the US market: The response to public information".* Journal of finance 54: 1901-27.

Foucault, T. (2009): *Order flow composition and the trading costs in adynamic limit order market".* Journal of financial markets 2. 99-134.

Granger. C.W, and Morgenstern (1963).*"Spectral Analysis of New York Market prices".* Kyklos 16, 1-27.

Grossman S, and M. Miller (1998).*"liquidity and Market structure".* Journal of finance 43, 617-633.

Hameed (2007): *"Liquidity and market efficiency",* Emory university working paper.

Harris et al (1993): *"Estimation of stock prices Variances and Serial covariance's from Discrete observations".* Journal of finance vol.25.

Vayanos, D.,( 2004), Flight to Quality, Flight to Liquidity, and the Pricing of Risk,

NBER Working Paper 10327.

He and Wang, Larry potter (2007): *"Market microstructure theory"*. Blackwell

publishing.

Jones (2001): *"Are institutional investors speculators?"*. Journal of portfolio

management 25, 383-417

Karpoff, J.M (1987).*"The relation between prices changes and Trading volume"*. A

suryvey journal of financial and quantitative Analysis 22, 109-162.

Kenyon , p.(2004). *"Questionnaires on the internet*: part 1",

http://salmon.psy.plym.ac.uk/mscprm/forms.htm

Kevin Sandler (2010) "Investing performance measurement". Journal of University of

Phoenix.

Lemmon. L (2006).*"Multi-market Trading and liquidity; Theory and Evidence,"*

forthcoming, Journal of finance.

Malcolm Baker (2008): *"Market Liquidity as a Sentiment indicator,* Journal of financial

markets 7..

Merton R.C (1975).*"option pricing when underlying stock Returns are Discontinuous"*.

Journal of financial economics 3, 125-414.

Odean T (2008). *Trading is hazardous to your health. The common stock investment

opinions on listing"* FBD Series No.2.

 O'Hara, M.,(2007), Liquidity and Financial Market Stability, Working Paper 55,

(National Bank of Belgium).

Osborne, M.F.M (1959).*"Brownian motion in the stock market"*. Operations Research 7,

145-173.

Pardy, R (1992), *"Institutional Reform in emerging securities markets"*. Policy Research

Pastor and StanBaugh (2009): *"Liquidity and expected Returns"*. Journal of political

      performance of individual investors, Journal of finances 5. 773-806.

Raymond M.Brooks (2007); *"How the equity market responds to unanticipated events"*.

      Journal of political economy. Oregon state university.

Reilly K, Frank (1985); *"Investment Analysis and Portfolio Management"*. 2nd Edition.

      relation". Journal of financial economics 57. 247-273.

Ross Levin and Sera Zervos (2007); *"Capital control Liberalization and stock market*

      *Skew ness in Security Prices"*. Journal of financial Economics, Vol 61.

Slav Fedorov (2010): "Market Liquidity and Trading activity" Journal of finance. Vol 11

Tall .M. AL-Deehani (2007).*"Modeling Asymmetry in the price volume Relation"*.

      Evidence from nine markets; journal of investment management. Vol 4, issue 4.

Toni Gravelle (2008): *"liquidity of the government of Canada securities Market, Stylized*

      *Trading Activity"*. Journal of finance 56. 501-530.

TIME (2009). *"The end of management?"*. Newspaper article (2004).

*Uganda securities exchange limited*. "Annual Report; 2004/2005, 2005/2006, 2006/2007,

      working papers(financial policy and systems) the world Bank, WPS, 907.

      WP99-11.

Wang .J. (2008).*"Amodel of competitive stock trading volume"*. Journal of political

      Economy 102, 127-168.

Wolfer and Zitzewitz (2007a).*"Prediction markets in theory and practice"*. University of

      Pennsylvania. The Wharton school. Working paper (2005).

Ying.C.C (2007).*"Stock market prices and Volumes of sales"*. Econometrica 34,

676-686.

<p style="text-align:center"><b>APPENDIX 1</b></p>

<p style="text-align:center"><b>QUESTIONNAIRE</b></p>

Dear respondent, kindly spare your valuable time to respond to the following questions.

You are requested to respond to the questions in section B for your specific key result

area. Where the area does not apply to you, please indicate that it is not applicable (N/A).

your answers will be treated with utmost confidentiality: there is no need to write your

name on the questionnaire.

Questionnaire for investors and USE staff

**SECTION A: BACKGROUND INFORMATION**

(please tick as appropriate)

Sex

☐ Male          ☐ female

Age

| 20-29 years | 30-39 years | 40-49 years | 50-59 years | 60 and above |
|---|---|---|---|---|
|  |  |  |  |  |

Highest education level attained

| Certificate | Diploma | Degree | Post graduate | Other(specify) |
|---|---|---|---|---|
|  |  |  |  |  |

Current status

| Married | Widowed | Divorced | Separated | Never married |
|---------|---------|----------|-----------|---------------|
|         |         |          |           |               |

## SECTION B: MARKET LIQUIDITY

Please respond to this questionnaire by ticking the appropriate response.

| Strongly Disagree | Disagree | Neither agree nor Disagree | Agree | Strongly Agree |
|-------------------|----------|----------------------------|-------|----------------|
| 1 | 2 | 3 | 4 | 5 |

| | **Width** | | | | | |
|---|---|---|---|---|---|---|
| 1 | We would pay a high price to acquire a stock on demand | 1 | 2 | 3 | 4 | 5 |
| 2 | The bid and ask price influence my decision to invest | 1 | 2 | 3 | 4 | 5 |
| 3 | My quoted market prices meets my demand needs of investing in shares. | 1 | 2 | 3 | 4 | 5 |
| 4 | The last price movement reflect current investor's final demands | 1 | 2 | 3 | 4 | 5 |
| | **Depth** | | | | | |
| 5 | Shares on the Uganda securities exchange to trade are few | 1 | 2 | 3 | 4 | 5 |
| 6 | Trading shares in the stock market is depend on quantities | | | | | |
| 7 | In Uganda people can get as many shares as they wish to buy | | | | | |
| 8 | The role of the capital market Authority is understood by people. | 1 | 2 | 3 | 4 | 5 |
| 9 | Some stocks are not liked by investors on the USE. | 1 | 2 | 3 | 4 | 5 |
| 10 | The USE regulations give the individual traders protection | 1 | 2 | 3 | 4 | 5 |
| | **Immediacy** | | | | | |
| 11 | Fees paid to brokers for buying and selling stocks determine | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | execution delays | | | | | |
| 11 | Any quantity of stocks ordered can be received on the same day. | 1 | 2 | 3 | 4 | 5 |
| 12 | In Uganda people can sell and buy stocks easily. | 1 | 2 | 3 | 4 | 5 |
| 15 | I prefer to buy stocks that are easily sold | 1 | 2 | 3 | 4 | 5 |
| 16 | I prefer not to sell a stock which is on demand | 1 | 2 | 3 | 4 | 5 |
| 17 | Share prices can be seen to move according to company activities | 1 | 2 | 3 | 4 | 5 |

## SECTION C: INFORMATION EFFICIENCY.

**Evaluate the items using the following.**

| Strongly Disagree | Disagree | Neither agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| | **Nature of orders** | | | | | |
|---|---|---|---|---|---|---|
| 1 | *I prefer to place market orders when selling* | 1 | 2 | 3 | 4 | 5 |
| 2 | *Current orders of shares reflect available demand and supply* | 1 | 2 | 3 | 4 | 5 |
| 3 | *All my orders are good until cancelled(GTC).* | 1 | 2 | 3 | 4 | 5 |
| 4 | *I prefer limit orders when buying a stock.* | 1 | 2 | 3 | 4 | 5 |
| 5 | *Do you think investors orders matters a lot* | 1 | 2 | 3 | 4 | 5 |
| 6 | *All my stocks I hold have stop loss prices along them.* | 1 | 2 | 3 | 4 | 5 |
| 7 | *I prefer to buy few shares at a given time.* | 1 | 2 | 3 | 4 | 5 |
| 8 | Stock orders take long time to be executed on the USE. | 1 | 2 | 3 | 4 | 5 |
| | **Type of investors (individual & institutional)** | | | | | |

| 9 | I have an investment club | 1 | 2 | 3 | 4 | 5 |
|----|---------------------------------------------------------------|---|---|---|---|---|
| 10 | Stocks relevant information is given to the public by USE. | 1 | 2 | 3 | 4 | 5 |
| 11 | People receive information as shareholders at the same time. | 1 | 2 | 3 | 4 | 5 |
| 12 | Most of my trading bases on non-informational reasons. | 1 | 2 | 3 | 4 | 5 |
| 13 | I have a plan I follow to monitor stock market prices. | 1 | 2 | 3 | 4 | 5 |
| 14 | My source of investment ideas is from Business news. | 1 | 2 | 3 | 4 | 5 |
| 16 | I receive market reports from stock Brokers daily. | 1 | 2 | 3 | 4 | 5 |
| 17 | I prefer to buy stocks after earning release. | | | | | |
| 18 | I receive advice on shares from stock Brokers. | | | | | |
| 19 | There is a group of people who gets company information first | 1 | 2 | 3 | 4 | 5 |
| 20 | I have knowledge of investments | 1 | 2 | 3 | 4 | 5 |
| 21 | I feel comfortable investing on my own. | 1 | 2 | 3 | 4 | 5 |
| 22 | I receive company news updates direct from the company. | 1 | 2 | 3 | 4 | 5 |

## SECTION D: STOCKS PERFORMANCE..

Please respond to this questionnaire by ticking the appropriate response.

| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| | Relative strength | | | | | |
|---|---|---|---|---|---|---|
| 1 | An investor's gains in stocks is related to the risk he takes | 1 | 2 | 3 | 4 | 5 |
| 2 | I prefer stocks whose prices follow market direction | 1 | 2 | 3 | 4 | 5 |
| 3 | The identity of people who buy shares should be disclosed | 1 | 2 | 3 | 4 | 5 |
| 4 | The number of shares traded on monthly basis is depend on price changes | 1 | 2 | 3 | 4 | 5 |
| 5 | I have a different opinion on each stock traded on USE | 1 | 2 | 3 | 4 | 5 |
| 6 | I use all share index to compare market performance. | 1 | 2 | 3 | 4 | 5 |
| | Earnings per share | | | | | |
| 7 | My profits would increase if I had adequate capital | 1 | 2 | 3 | 4 | 5 |
| 8 | I prefer to buy stocks of companies those earnings are growing fast | 1 | 2 | 3 | 4 | 5 |
| 9 | Money from stocks should be re-invested in the same stocks. | 1 | 2 | 3 | 4 | 5 |
| 10 | People who buy shares and keep them for a long time get profits | 1 | 2 | 3 | 4 | 5 |
| 11 | People consistently make money in the market through dividends | 1 | 2 | 3 | 4 | 5 |
| 12 | When I buy shares I make sure I do not lose my initial capital. | 1 | 2 | 3 | 4 | 5 |
| 13 | I buy shares so that I get money at the end of the year. | 1 | 2 | 3 | 4 | 5 |