THE RELATIONSHIP BETWEEN SHARE LIQUIDITY AND STOCK RETURN OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

This research project is my original work and has not been presented for the award of a degree in this or any other university.

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DEDICATION

To my parents and brother, who have been extremely supportive; financially, emotionally and spiritually throughout my study period and always encouraged me to achieve my goals.

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ABBREVIATIONS

AMEX	American Stock Exchange
ASX	Australian Securities Exchange
CAPM	Capital Asset Pricing Model
CMA	Capital Market Authority
CPI	Consumer Price Index
EAC	East Africa Community
IMF	International Monetary Fund
JSE	Johannesburg Stock Exchange
MSCI	Morgan Stanley Capital International
NASDAQ	National Association of Securities Dealers Automated Quotation
NASI	NSE All Share Index
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
USA	United States of America
USD	United States Dollar

ABSTRACT

The objective of the study was to determine the relationship between stock returns and share liquidity for firms listed at the NSE. The research design was descriptive aimed at finding the correlation between share return and share liquidity. The population of the study was 62 listed companies and purposive sampling was applied where 53 firms were selected for a 60 months period, January 2013 to December 2017, excluding firms listed during the period or firms that had their share trading suspended in the period. Turnover ratio was used as liquidity proxy measured as the ratio between monthly traded share volume and issued shares. Stock return comprised of holding period yield and dividend yield. Stock beta, inflation rate and 91 days Treasury bill rate were included as control variables. Secondary monthly data was collected and analysed for the five variables. Panel data analysis was used to determine the nature of the relationship in exclusion of macroeconomic variables while time series data analysis was used to analyse the nature of the relation with inclusion of macroeconomic variables. Both correlation analysis and regression analysis showed that the relationship between share liquidity and stock return to be very low, positive and significant when firm specific variables were used. However the liquidity return relationship became insignificant on inclusion of macroeconomic variables. The relationship between share return and stock beta, inflation rate and 91 days T-bill rate were insignificant in both analyses. The coefficient of determination showed that very little variation in stock return can be explained by the models. This shows that liquidity as measured by turnover ratio does not influence stock return. This could be due to the low trading in the NSE and thus investors may not view it as a risk factor. The study thus recommends policy makers to come up with strategies to improve trading in the market and thus improve liquidity.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Return is of key importance to an investor since it is their compensation for deferred consumption. Security market investors therefore seek to reap the highest return at a given risk level. Hence factors affecting stock returns are of great concern to investors, fund and portfolio managers and investment consultants.

Many theories have been proposed on factors that influence returns. Capital asset pricing model (CAPM) developed by Sharpe in 1964 relates a security required rate of return to its systematic risk as measured by beta. It focuses on the sensitivity of the security return to the market return. On the other hand Arbitrage pricing theory (APT) developed by Ross in 1976 relates a security's return to various factors other than beta such as macroeconomic factors depending on the return sensitivity to these factors. Both CAPM and APT assume a frictionless market.

However studies have shown actual trading prices to be different from those estimated in a frictionless market. Based on this limitation, market microstructure theory, developed by O'hara in 1995, focused on transaction costs, information and other market structure and their influence on price formation and thus returns. These factors are frictions in the market and security returns are a function of those frictions. Thus the relaxation of the frictionless trading assumption introduces liquidity risk. Trade volume theory developed by Karpoff in 1986 focuses on the informational aspect of trade volume and thus its influence on stock prices. According to Bodie, Kane and Marcus (2013) liquidity, was

ignored for a long time and is yet to be accurately measured and incorporated in portfolio management.

Early studies on effects of liquidity on stock returns have been done by Amihud and Mendelson (1986), Demirgic-Kunt and Levine (1996), Pastor and Stambough (2003) among others. In Kenya a number of research papers have been done on share liquidity-return relationship by Koech (2012), Okanga (2014), Kahuthu (2017) among others.

Kyle (1985) noted that liquidity is defined by different transactional properties and there's no one fits all measure of these properties. A liquid market is therefore deemed to have little or no delays in sale and purchases of stocks, prices are not influenced by the trade size and prices are expected to bounce back to the equilibrium after an uninformed shock. Chordia, Sarkar and Subrahmanyam (2005) noted that many assets pricing models rarely factor in time and costs aspects of a trade which are key indicators of an asset's liquidity.

Equity markets that are liquid make it easy for investors to make an investment since the assets are readily available and transaction costs are low. Therefore investor wishing to buy / sell can easily find a counter party to sell/ buy the required security hence facilitating ease with which they can alter their portfolio as per their need (Demirgic-Kunt & Levine, 1996).

According to Demirgic-Kunt and Levine (1996) liquidity is one of the most important factor that investors consider when making an investment. Over the past 10 years the NSE has experienced periods of high and low returns. Similarly the market liquidity has been rising and falling over the same period. However CMA has strived to have major

improvements in the market to improve liquidity over time. It is in this light that this study will be carried out to find out the share liquidity- return relationship for firm listed at the NSE as Amihud and Mendelson (1986) noted that the role of liquidity in capital markets is rarely reflected in academic research despite its importance in practice.

1.1.1 Stock Liquidity

Liquidity is a slippery and elusive concept in part because it encompasses a number of transactional properties of the market (Kyle, 1985). Liquidity has many dimensions and involves a number of aspects and therefore there is no one fits all measure for it (Amihud & Mendelson, 1986). Kyle (1985) highlighted three aspects of liquidity that is tightness, depth and resilience. Tightness is the cost incurred to buy or sell a security in a short time, depth is the ability to buy or sell any trade size in the market without significant change in price and resilience is the speed at which securities bounce back to their equilibrium price after an uninformed shock.

Pastor and Stambough (2003) define a liquid market as one where large quantities of securities are traded quickly with low impact on their prices and at a low cost. Similarly according to IMF 2015 market liquidity report, for a market to be liquid it needs to be efficient in terms of low search and transaction costs, availability of accessible funds to all investors and have diverse investors with a risk appetite in that no group of investors can influence the prices in the market.

The microeconomic concept of liquidity is multifaceted since liquid financial markets are characterised by low transaction costs, fast trading and large trade sizes having low price impact. Liquidity measures are therefore classified based on the aspect of liquidity they

are meant to measure. They include; transaction cost measures that capture costs such as bid ask spread and volume based measures that capture depth such as turnover ratio and trading volume (Sarr & Lybek, 2002).

1.1.2 Stock Return

Return is the compensation to an investor for deferring current consumption and investing in a security. The compensation is for the period an investor's funds are committed, the expected inflation over the period and the future uncertainty of the return. Stock return is the appreciation of stock price known as capital gain and any dividend paid divided by the initial stock price. Investors enjoy stock return by directly holding the stock. Stocks return is divided into historical and expected rate of return. Historical rate of return is the return an investor gets over a period that he holds an investment whereas the expected rate of return is an investor's anticipated rate of return on a future investment (Reilly & Brown, 2012).

Stock return differs from share to share and from investor to investor based on the asset risk perceived by an investor and their risk preference. If an investor perceives a stock to be risky compared to another then the investor will require a higher rate of return for that stock. Risks influencing stock return include business risk, liquidity risk, leverage risk and economic and political risks. These factors that would negatively affect return pose a risk to investor's wealth and thus an investor will require a higher return to compensate for the additional risk (Pastor & Stambough, 2003).

1.1.3 Stock Return and Liquidity of Shares

Stocks with high transaction costs are deemed to be illiquid. An investor will thus require a higher return to compensate him or her for the high transaction cost incurred. Therefore illiquid securities are expected to have higher expected returns and vice versa (Amihud & Mendelson, 1986; Pastor & Stambough, 2003).

According to Amihud (2002) overtime, as the stock market expected illiquidity increases so does the expected excess return thus the expected excess return acts as compensation for expected stock market illiquidity. Therefore expected market illiquidity influences expected excess return. Acharya and Pedersen (2005) noted that a decline in a stock liquidity in the market may be seen as a prediction of future illiquidity of the asset. Investors will require higher expected returns for the stock and will thus lead to a decline in the current stock price. Liquid stocks have been found to have relatively lower expected returns when compared to the less liquid stocks and thus expected stock returns found to be a function of expected liquidity (Amihud & Mendelson, 1986; Amihud, 2002 and Pastor & Stambaugh, 2003).

1.1.4 Firms Listed at the Nairobi Securities Exchange

Share trading is said to have started way back in 1920s in Kenya with trading taking place on a gentle man agreement with no physical trading floor. However Nairobi Stock Exchange (NSE) was registered in 1954 as a voluntary association of stockbrokers with business being transacted by telephone and price determined through negotiations. The number of listed securities was sixty six (66) by 1968 including some from Tanzania and Uganda as NSE operated as a regional market in East Africa. However with collapse of EAC delisting of companies domiciled in Uganda and Tanzania was done. In 1991 NSE

was registered as a private company and trading moved to the floor based open outcry system (NSE, 2018).

In 2004 the central depository system was commissioned thus automating the process of clearing and settlement of shares. The stock market introduced remote trading on their wide area network in 2007 thus brokers and investment banks didn't have to be physically present at the market. In 2008 a new index, NSE all share index (NASI) was introduced thus investors had a comprehensive measure of performance of the market. In 2011 the Nairobi Stock Exchange changed its name to Nairobi Securities Exchange thus a reflection of being an all service securities exchange. In 2014 the NSE self listed its shares in the main investment market segment becoming the second in Africa after Johannesburg Stock Exchange to be listed. Over the years the trading has improved in the NSE; number of trading hours has increased from two hours to six hours and equity settlement cycle has improved from T+4 to T+3. (NSE, 2018)

Liquidity at the NSE has been rising and falling over time. For instance turnover ratio increased throughout the period 2011 to 2015 from 8.9% to 10.24% respectively then reduced in 2016 and 2017 averaging 7% and 9%. The liquidity is relatively low when compared to the 15% MSCI target for an emerging market. Likewise market capitalization has been on the rise from USD 10.34 billion to USD 25.57 billion from 2011 to 2014 but declined to USD 20.032 billion in 2015. It further declined in 2016 to USD 19.31 billion and then increased to USD 25.21 billion in 2017. The CMA is still continuing to implement strategies that would lead to improvement of market liquidity in the long term such as direct market access, leveraging on technology and the recent introduction of short selling (Dyer and Blair, 2016; CMA, 2018).

Share returns at the NSE have been both negative and positive since 2008 based on NSE all share index (NASI) return. Starting with an almost flat return in 2008 when it was introduced, the index return saw an increase in 2009 to 2010 but declined in 2011. It however had a positive returns in 2012 through to 2014 and then once again had a negative return in 2015. However for the seven year period from 2008 to 2015 NASI has had positive total returns (Dyer and Blair, 2016). In 2016 NASI had a negative return, but the index later had a positive return in 2017 on to the first quarter of 2018 (Cytonn, 2018).

1.2 Research Problem

Every investor requires a return for their investment. Investors will demand a return commensurate with the risk characteristic that they perceive in their investment. Securities with high transaction costs are deemed to be less liquid. Then if investors value a security based on its return net of transaction costs, they will require higher expected return for a security with high transaction costs rather than one with low transaction cost to compensate them for the extra cost. It is thus imperative that investment decisions depend on an asset's liquidity as well as risks inherent in the asset. Therefore expected stock returns increases as transaction costs (illiquidity) increases. Thus expected stock return has a positive relationship with transaction cost- illiquidity (Amihud & Mendelson, 1986).

Share returns at the NSE seem to move in line with liquidity as shown by NSE all share index. For instance as turnover ratio increased from 8.9% to 10.24% in 2011 to 2015 the NASI returns also were positive in the period 2011 to 2014. Similarly a decline in the turnover ratio to 7% in 2016 was accompanied by a -8.5% NASI returns. In 2017 the

turnover ratio increased to 9% and NASI return likewise increased to 28.4% (Dyer & Blair, 2016; CMA, 2018)

A number of studies done globally on the liquidity return relationship show expected return to be negatively related to share liquidity. Amihud (2002) found that expected liquidity influences the expected return on stocks. These were similar results as was his and Mendelson study in 1986. Likewise Acharya and Pedersen (2005) found that an increase in illiquidity is a sign that there will be high illiquidity in the future and thus there will be a decline in current prices leading to an increase in expected return. Pastor and Stambaugh (2003) noted that stocks that were more sensitive to aggregate liquidity had higher expected returns. Chan and Faff (2003) found stock returns to be strongly negatively related to liquidity in the Australian market.

Many studies in the developed markets such as NYSE, NASDAQ, AMEX and ASX have found a negative relationship between share liquidity and return. However studies done in emerging markets, show diverse results. For instance study by Jun, Marathe and Shawky (2002) on 27 emerging markets found stock returns to be positively correlated to market liquidity. These results were contrary to other findings in the developed market. Similarly studies on the share liquidity- return relationship in Kenya have had differing findings. For instance Okanga (2014) found that illiquidity has a positive effect on excess stock return. Kahuthu (2017) found that there is a negative causal relationship between liquidity and stock return but Koech (2012) found the relationship between liquidity and return to be very weak. Similarly both Odongo (2008) and Batta (2014) found no relationship between liquidity and return.

As explained by Jun, Marathe and Shawky (2002) the differing results could be explained by low global market integration therefore illiquidity does not act as a risk factor. However the NSE through the CMA is improving its global market integration by opening up to foreign investors. The authority is also continuing to facilitate strategies implementation aimed at improving long term market liquidity such as securities lending and borrowing, direct market access and leveraging on technology.

It is notable that the various studies in Kenya have had differing results (Koech (2012), Okanga (2014), Batta (2014) and Kahuthu (2017)) compared to studies in developed markets. This study therefore seeks to answer the question: What is the share liquidity-return relationship for firms listed at the Nairobi Securities Exchange?

1.3 Objective of the Study

The objective of the study is to investigate the relationship between stock liquidity and stock return in the firms listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The study will be significant in the academic field since it will offer more insight into the relationship between liquidity and return in the equity market. Many studies done on the same topic have come up with different results especially in Kenya and will add to the research work aimed at finding the return- liquidity relationship per sector in the NSE.

The study will be of interest to investors in the NSE as it will add to their knowledge on the impact of share liquidity on returns per individual industry sector and therefore be able to make more informed decision when making investments in the security market.

It will also benefit the CMA who are the regulators of the NSE in coming up with more strategies to help improve liquidity in the security market. The study is also significant to portfolio managers since it will help them come up with tools or improve on the existing ones thus factor in liquidity in their prices since liquidity risk is one of the factors that influence asset pricing.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter looks at the theoretical framework applicable to the study, other determinant of returns and empirical studies done globally and locally on the liquidity- return relationship.

2.2 Theoretical Framework

Various theories have been advanced to explain why return of one security may vary from another. Some of the theories discussed are: Market microstructure theory that explains that asset returns are influenced by market frictions; Capital Asset Pricing Model that explains that expected return is dependent on an asset beta against the market; Arbitrage Pricing Theory that explains that expected return is a function of other factors other than beta such as macroeconomic factors; and Trading Volume Theory that explains that expected return is dependent on liquidity as proxied by trading volumes.

2.2.1 Market Microstructure Theory

Market microstructure theory was developed by O'hara in 1995. It focuses on the trading mechanisms in the financial markets mainly focusing on the market frictions that reduce market efficiency (Krishnamirti, 2009). Many financial market models assume trading in a frictionless environment. However in the real world friction such as transaction costs, information asymmetry, heterogeneous needs of investors among others are present and tends to impede trading. Studies have shown actual trading prices to be different from those estimated with an assumption of a frictionless market. Factors causing frictions

should therefore be included in financial models to better understand the functionality of financial markets (Cohen, Hawawini, Maier, Schwarts & Whitcomb, 1980).

According to Cetin, Jarrow and Protter (2004) models such as CAPM and arbitrage pricing theory have frictionless and perfectly competitive market assumptions which when removed bring about the notion of liquidity risk. Understanding the role of liquidity risk, transaction costs among other frictions in pricing and their effect on market efficiency is thus important in financial markets (Krishnamirti, 2009). For instance when the market demand for a security is more elastic any trade size will have a low impact on price. Conversely when the demand is less elastic, a given trade size will have a high price impact. Less market demand elasticity for a security is an indication of heterogeneity in the market. Likewise securities with large bid ask spread tend to have low trading due to the negative relation between bid ask spread and trading. On the other hand securities with small bid ask spread tend to trade more frequently and thus their prices adjust fast to new information in the market (Cohen et al., 1980).

This theory informs the study in that it recognises that there are many frictions that influence share returns one of them being liquidity. It shows the informational aspect of liquidity and its implication on market efficiency.

2.2.2 Capital Asset Pricing Model

Capital Asset Pricing Model (CAPM) was developed by Sharpe in 1964. It shows that the equilibrium rate of return on a risky asset is a function of its covariance with the market portfolio. It focuses on the systematic risk as the only important risk of a firm. Therefore

expected return on any asset *i* is the risk free interest rate, R_f, plus a risk premium, $[E(R_m) - R_f]$, multiplied by the market beta of asset *i*, β_{im} as follows.

$$E(R_i) = R_f + [E(R_m) - R_f]\, \beta_{im}$$

The market beta of any asset *i* is given as covariance of return of *i* with market return divided by variance of market return. Therefore with a given risk free rate (R_f) and market return (R_m) a security with a higher beta will have a higher return compared to a security with low beta because the security is more sensitive to the market return increasing the risk to a portfolio and thus would require higher compensation (Madura, 2010).

CAPM has a number of assumptions that are deemed unrealistic such as: investors have homogeneous expectations, are price takers and risk averse, the market is perfect and frictionless and information is available simultaneously and costless among others. In the real world these assumptions do not hold and thus lends the question whether asset returns are fully explained by the market beta. As noted by Fama and French (2004) CAPM assumptions do miss important dimensions of risk. For instance CAPM assumes that investors only focus on the mean and variance of a single period portfolio return. This assumption ignores that investors also look at how their portfolio performance is in relation with the economy and if the performance is in line with their risk appetite and future investment plan among others. Fama and French (2004) thus noted that a security risk may not fully be captured by beta and therefore beta may not explain the variances in return.

This concern raised by Fama and French (2004) on CAPM inform this study to find out whether share liquidity also causes the differences in expected returns when the firm's beta is controlled and in what magnitude.

2.2.3 Arbitrage Pricing Theory

Developed by Ross in 1976, Arbitrage Pricing Theory is based on the notion that return is a function of factors other than beta as proposed by CAPM. It is a multifactor model which takes into account the sensitivity of securities return to these factors. Expected return is thus calculated as;

$$E(R) = \beta 0 + \sum_{t=1}^{m} \beta i Fi$$

Where E(R) is the expected return, β_0 is a constant, F_i---F_m is the value of factor1 to m and β_i is the sensitivity of return to factor *i*. As the included factor change in value so does security return and thus value to the investor. One major limitation with APT model is that it does not identify the factors and leaves it upon the investor or analyst to identify the factors. However Chen, Roll and Ross (1986) identified macro economic factors such as inflation, gross domestic product, investors' confidence and shift in yield curve as some of the factors that influence stock returns. Once the economic factors are identified, the factor betas are estimated and thus can describe expected change on return with respect to the factors.

This theory informs this study in that it recognises that macro economic factors influence stock return. In this light two macroeconomic factors; inflation and money market interest rate, will be control variables in this study.

2.2.4 Trading Volume Theory

Developed by Karpoff (1986) trading volume theory is developed on the fact that investors usually change their portfolio from time to time based on the investment goals and as they trade they get counterparties to change positions with randomly. Volume is said to show some information and/or event. However in many financial markets models volume is ignored since investors are assumed to be homogeneous. This is however unrealistic in the real world since each investor has their own investment goal and would thus change his portfolio to meet that goal (Karpoff, 1986).

Easley and O'Hara (1987) noted that trade volume signals information about the security and even affects the price of the security based on the information signalled due to a change in investors' perception. For instance a large sale trade size may signal a future decline in firm value making investors holding the said security to dispose it off leading to a decline in its price and thus affecting return.

There are a number of interpretations of what trading volume may be indicating. For instance it may act as proxy for risk that is; when volume is low an investor may require a higher expected return for holding a stock that trades less frequently. Alternatively it may reflect new information coming to the market if recent trading volumes are high and thus investors may expect higher returns. Thus trading volume does have an impact on stock performance depending on what it is thought to reflect (Brown, Crocker & Foerster, 2009).

This theory is relevant to the study in that it gives an insight into the informational aspect of trading volume and its impact on prices thus returns. Trading volume shows the

market depth aspect of liquidity and will thus be used in the liquidity measure of this study.

2.3 Determinants of Share Return

Share return is the appreciation of value known as capital gain and any dividend paid to an investor. Share return is determined by many factors since any factors affecting share price and/or dividends will affect returns. These include:

2.3.1 Share Liquidity

Liquidity is the ease of selling a security with little impact on share price. High illiquidity in the market is seen as a risk factor and thus an investor will expect higher returns for holding an illiquid stock. Liquid stocks have lower transaction costs when compared to the illiquid stocks and thus an investor seeking to acquire the latter will incur high cost and hence will demand high return to compensate them for the additional cost (Bodie et al., 2010)

2.3.2 Inflation

Inflation is the general increase in price leading to a decline in purchasing power. Inflation may have both positive and negative effect on stock return. For instance a firm may increase its product prices after an increase in inflation in line with the increased cost of production and thus their rate of earning and dividend will increase and hence lead to an increase in return. On the other hand if firms do not increase their product prices after an increase in inflation then their profit margins decrease due to the increased production cost. In this case stock prices will reduce thus leading to a decline in return. Generally there is negative relationship between inflation and return but the effect may

vary between industries in that some may have a positive relationship with inflation (Reilly & Brown, 2012).

2.3.3 Risk Free Rate

Risk free rate is the rate of return an investor is expected to gain if they invest in a riskless asset. An investor investing in a risky asset should only do so if the required rate of return is the risk free rate plus a premium as compensation for taking up the risk. A high risk free rate will thus lead to a high required rate of return in theory. In reality however there is no riskless asset but Treasury bills are deemed to be of very low risk and thus their rate is used as the risk free rate (Madura, 2010).

2.3.4 Investor Sentiments

Investor sentiment is the mood among investors of the market driven by emotions and biases. Investors may often not make investment decisions based on market information but may rather copy what other investors are doing (herd instincts). This may lead to market performance that is out of the norm and cannot be attributable to economic conditions. This can result in stock prices increasing/ decreasing without reason due to the increased demand/ supply respectively leading to high volatility driven by uncertainty about the future (Bodie et al., 2010).

2.3.5 Beta of a Stock

Beta of a stock indicates how sensitive a security's return is to the market return. It shows how a security return co-moves with the return of the market. A security with high beta requires a high return since it is highly sensitive to the market thus has a higher risk especially when the market is on the down turn (Madura, 2010).

2.3.6 Information

New releases on earnings, dividends announcement, new product announcement and any other new information from a company to the market will affect share returns. These new information in the market is processed by investors differently based on their perception on future company growth and will thus affect the stock price of the company. However investors sometimes try to anticipate new information before it is released into the market so as to take advantage of the information before other investors become aware of it and the information is reflected in the price. However trading with incomplete information may lead an investor to misinterpret a firm's future policies and may miss a good investment opportunity (Sharpe, Alexander and Bailey, 1999).

2.4 Empirical Studies

A number of studies have been done on the share liquidity- return relationship. Amihud and Mendelson (1986) in their study on the NYSE for the period 1961- 1980 and using bid ask spread as their proxy found that high spread, an indication of illiquidity, led to high expected return. As spread increased the average portfolio rate of return increased at a decreasing rate. They also noted that clientele effect came into play where investors with longer holding period required higher return.

In a follow up study, Amihud (2002) using an illiquidity ratio calculated as absolute daily stock returns to dollar volume averaged over a period found that across stock and overtime increase in expected illiquidity led to increase in expected stock returns. He noted as expected illiquidity increases, stock prices tend to decline leading to an increase in expected return for all stocks. Investors then tend to move from less liquid securities to

more liquid securities. This leads to further decline in prices for less liquid stocks while the more liquid stocks prices increase. Therefore expected return for less liquid stocks will increase further but will reduce for the more liquid securities.

Acharya and Pedersen (2005) using NYSE and AMEX data for the period 1963-1999 found that securities that are illiquid (proxied by Amihud illiquidity measure) also have high liquidity risk. They further noted that securities with high illiquidity have high commonality with market liquidity and their returns are highly sensitive to the market liquidity. Likewise liquidity co-moves with returns and therefore an increase in illiquidity predicts an increase in illiquidity in the future thus lowering current prices and thus leading to an increase in expected stock returns.

Using NYSE and AMEX data for the period 1966 to 1999, Pastor and Stambaugh (2003) found that expected return is related to aggregate liquidity across stock. Therefore securities with high sensitivity to liquidity were found to have a relatively higher expected return even after factoring in size, value, market return and momentum. Similarly Chordia, Subrahmanyam and Anshuman (2001) using turnover ratio and dollar trading volume as proxies for liquidity, found that as trading volume increased the expected rate of return reduced. Likewise as turnover level increased expected return declined thus there was a significant negative relationship between trade volume/ share turnover and expected return. Their study period was from 1966 to 1995.

Chan and Faff (2003) did a study on the Australian equity market for the period 1990 to 1999 and found that stock returns are strongly negatively related to liquidity (proxied by turnover ratio). The study provided additional analysis by incorporating a momentum

variable and testing both January and July seasonality. They found that the role of turnover ratio is not weakened much by seasonality and it is robust to the inclusion of momentum factor.

Many studies done on the share return- liquidity relationship have been done on developed markets more so the USA market. However some studies done on emerging markets have had different findings. Bekaert, Harvey and Lundblad (2007) focused on nineteen (19) emerging equity markets for the period 1993 to 2003. Using the daily zero firm returns observed over the relevant month for each equity market, then averaged over the month as proxy for illiquidity they found that the daily zero return measure has a significant positive relationship with expected return but negatively correlated to dividend yield. They also observed that zero daily firm return is positively correlated with bid-ask spread and negatively correlated with share turnover.

In a similar study Jun, Marathe and Shawky (2002) focused on twenty seven (27) emerging markets for the period 1992 to 1999. Using three different measures of liquidity; turnover ratio, trading value and turnover-volatility multiple they found that liquidity was positively correlated to returns in emerging markets. These findings were however different from similar studies done in developed markets. This can however be explained by the low global integration of emerging markets and thus liquidity does not act as a risk factor. Therefore less liquid securities may not necessarily be deemed to be risky and thus investors may not expect high return.

In Africa a number of studies have been done on the liquidity return relationship. Using Amihud measure of illiquidity, Omri, Zayani and Loukil (2010) found illiquidity affects

stock returns in the Tunis Stock market for the period from 1997- 2003. They noted investors require a higher return for less liquid stocks, stocks of small firms and stocks whose returns are more volatile. They also did not detect a seasonality effect of liquidity.

Mpofu (2012) in his study on the stock return and trading volume relationship in the JSE stocks for the period July 1988 to June 2012, found stock returns to be positively correlated to the change in trading volumes. Also testing for causal relationship between stock return and trading volumes he found stronger stock return causing volume than volume causing returns. Onoh (2016) did a study on the impact of liquidity proxied by different measures on returns in the Nigeria stock market for the period 1999 to 2013. Turnover was found to have a positive and significant impact on stock return. Market capitalisation value ratio was found to have a positive and significant impact on stock return and volume of share traded had a negative and significant impact.

In Kenya, the studies done have yielded different results. Odongo (2008) in his study on effects of liquidity on shares found no relationship between returns and liquidity at a confidence level of 90% and that there is no liquidity premium at the NSE. His study focused on the companies constituting the NSE 20 share index for the period 2000 to 2002 and used trading volumes as the liquidity proxy.

Koech (2012) using turnover rate, found that the share liquidity- return relationship to be very weak and by extension the explanatory power of the regression was very low. He found a very weak correlation between liquidity and return for the study period (2007-2011). Batta (2014) did a study on the relation between trading volume and return volatility in the companies in the NSE 20 share index for the period 2008 to 2013 and

concluded there is a weak relation. He noted that major variations of returns are explained by variables other than trading volume. These findings were contrary to findings in the developed markets.

Okanga (2014) used Amihud measure of illiquidity and reversal measure of illiquidity advocated by Pastor and Stambough (2003) in his study for the period 2009-2013. He found that illiquidity has a positive effect on portfolio return and on excess return. Analysing both width and depth aspects of liquidity impact on return Kahuthu (2017), found that depth measured by turnover rate has a negative correlation with return though it was insignificant. On the contrary she found width measured by bid-ask spread to be significant and had a positive correlation with returns. She also sought the perception of market participants on the impact of liquidity on return and found that they perceived both market liquidity aspects to be significant to stock returns.

2.5 Conceptual Framework

The framework of this study takes into account that share liquidity plays a role in share returns. The dependent variable is the share return whereas the independent variable is share liquidity measured by turnover ratio while controlling for firm stock beta, inflation rate measured by consumer price index (CPI) and risk free interest rate measured by 91 days Treasury bill rate.

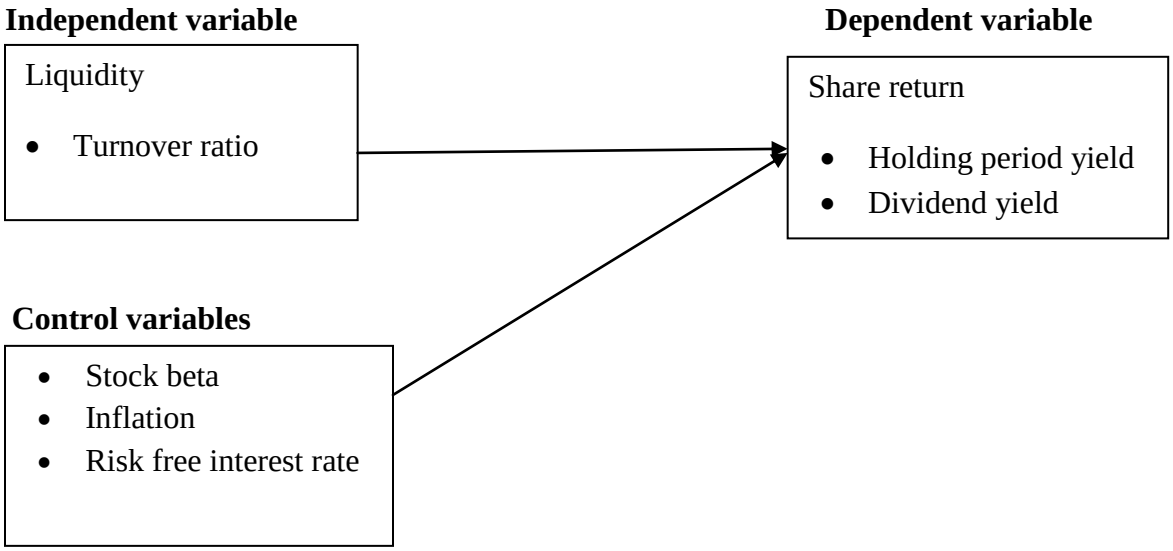

Figure 2.1: Conceptual framework

2.6 Conclusion

The studies done on the liquidity return relationship have focused more on the developed markets. They have found a negative relation between the two variables (Amihud and Mendelson(1986), Amihud (2002), Acharya and Pedersen (2004), Pastor and Stambaugh (2003) and Chan and Faff (2002)). On the other hand studies done in emerging markets and more so in Africa have yielded mixed results. For instance, Omri, Zayani and Loukil (2010) found a negative relationship between liquidity and return in the Tunis market. Conversely Mpofu (2012) and Onoh (2016) found returns to be positively related to liquidity in the JSE and Nigerian market respectively.

In Kenya similar results have been found in a number of studies. Okanga (2014) and Kahuthu (2017) found a negative relationship between liquidity and returns. However Kahuthu (2017) found the depth aspect of liquidity to be insignificant. As for Odongo (2008), Koech (2012) and Batta (2014) they found weak to no relationship between share liquidity and return. These diverse results show that there is consistency in the developed

market but none in the emerging markets. Low global market integration is deemed as a plausible explanation. The studies done in Kenya have been generalised for the whole market and thus raises the question whether the results apply for all sectors in the market. It's thus worthy to undertake a study on the relationship of share liquidity and return per sector of the listed firms in the NSE.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlays the research methodology used in the study including; research design, the population, sampling design, data collection, diagnostic tests and data analysis.

3.2 Research Design

This was a descriptive research aimed at finding the correlation between share liquidity and share returns for firms listed at the NSE for the period January 1, 2013 to December 31, 2017 while controlling for firm stock beta, inflation rate and risk free interest rate. Correlation method is a statistical measure of a relationship between two or more variables that gives an indication of how one variable may predict another (Sekaran, 2003).

Share liquidity was measured by monthly turnover ratio, share return was measured by monthly holding period yield and monthly dividend yield, inflation was measured from consumer price index and risk free interest rate was proxied by 91-days Treasury bill rate. Panel regression was used to analyse the data and define the nature of the relationship between the two variables while controlling for firm beta, inflation and risk free interest rate. Analysis was done for all of the ten sectors of the market thus excluding investment services sector whose constituent firm shares started trading in between the study period.

3.3 Population

The population of the study was the 62 listed companies in the NSE as at December 31, 2017. Listed companies were suitable for this study due to the availability of the data and its credibility due to the strict regulations by the CMA on the securities market.

3.4 Sample Design

Judgement sampling design was used in the study. Judgement sampling is a purposive, non probability sampling method. It is defined as the choice of samples that are most advantageously placed to provide required information based on some criteria set by a researcher (Sekaran, 2003). The study used this sampling design since the sample constituted firms that had continuously traded in the NSE for the five year study period and excluded firms that had listed during the period and those that had suspended trading in the period. This ensured continuity of observation of data used in the study.

3.5 Data Collection

Data was collected from secondary sources, primarily the Kenya National Bureau of Statistics (Consumer Price Index), Central Bank of Kenya (91 days Treasury bill rate), NSE (historical trading data) and companies' annual financial statements (dividend) for the study period. Monthly traded share volume, outstanding shares in the market and share price data were collected for analysis. Monthly opening and closing NASI price, yearly interim and final dividends per company, monthly consumer price index and monthly 91 days Treasury bill rate were also collected.

3.6 Diagnostic Tests

Variance Inflation Factor was calculated to check whether there is multicollinearity between the predictor variables. Autocorrelation in the error term was tested using Wooldridge test for autocorrelation in panel data. To test for group wise heteroscedasticity in the error term modified Wald test was used (Gujarati, 2003).

3.7 Data Analysis

Share liquidity is expected to influence share return and thus is the independent variable where as share return is the dependent variable with firm stock beta, inflation and risk free rate as the control variable. Share liquidity per sample was measured by turnover ratio. Turnover ratio is the number of shares traded in a period divided by the outstanding (issued) shares in the same period as follows:

$$\frac{Vt}{SHt}$$

Where V_t is the volume traded in month *t*, SH_t is the number of shares on issue in the market in month *t*. The higher the turnover ratio, the higher the liquidity indicating high volumes are being traded in the market. On the other hand share return is the sum total of capital gain or loss and dividend in a month and will be calculated as follows;

$$R_{it} = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

Where R_{it} is the return for firm *i* share in month *t*; P_t is month *t* closing share price; P_{t-1} is month *t-1* closing share price and D_t is dividend issued in month *t*. Dividend issued per month was calculated as both interim and final dividend issued in a year divided by the number of months in a year thus assuming dividends accrue evenly throughout the year.

The stock beta of firm *i* (β_{it}) in month *t* was calculated as the covariance of the stock return (R_i) and the market return (R_m) divided by the variance of the market return. The NSE All Share index return was used to proxy the market return and was calculated by subtracting the index value at the beginning of the month ($NASI_{t-1}$) from the value at the

end of the month ($NASI_t$). Beta was calculated using the previous two years monthly price data that is from month t-23 to month t.

NASI return (R_m)= $NASI_t - NASI_{t-1}$

β_{it} = Covariance (R_i, R_m)/ Variance (R_m)

Inflation rate was calculated using monthly Consumer Price Index (CPI) where a change in the CPI in month *t* in comparison to month *t-1* was considered as month *t* inflation rate. Panel regression was used to analyse and establish the nature of the relationship. The analytical model was:

$R_i = \beta_0 + \beta_1 X_i + \beta_2 X_{2i} + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where: R_i is monthly return for firm *i*; β_0 is intercept of regression model; β_1, β_2, β_3 and β_4 are the degree in which return changes as liquidity, stock beta, inflation and risk free rate change respectively; X_i is the monthly liquidity ratio for firm *i;* X_{2i} is the monthly stock beta of firm *i*, X_3 is the monthly inflation rate, X_4 is the monthly risk free rate and ε is the error term. Coefficient of determination measured how much variability of the dependent variable is attributed to variability in the independent variable. T-test was used to test the significance of the association between the variables and F-test showed the overall fit of the model. Analysis was done using Stata statistical software.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter outlays the descriptive and inferential analysis finding, diagnostic tests and interpretation on the relationship between share liquidity and stock returns for firms listed at the NSE.

4.2 General Information

Analysis was done on a sample of fifty three (53) firms out of a population of sixty two (62) listed firms for a period of 60 months from January 2013 to December 2017. Five variables were analysed with stock return being the dependent variable, liquidity as the independent variable and stock beta, inflation rate and 91 days T-bill rate as control variables. Monthly stock returns were calculated as the change in the closing share price per month in comparison to the previous month closing price to get holding period yield. Annual dividend issued (interim and final) were divided evenly across the months thus assuming they accrued evenly in the year they are issued. For firms that had stock splits and bonus issues in the study period, their monthly prices prior to the split and/or bonus issue were adjusted with the split and/or bonus ratio for ease of comparison in stock returns. Transaction commission (levy) was assumed to be zero (0) per cent.

Share liquidity was the independent variable and was calculated using the turnover ratio which is the ratio of the shares traded in a month compared to the number of issued shares in the market in that particular month. Stock beta, inflation rate and 91days T-bill rate were the control variables. Each month's stock beta was calculated as the variance of each stock return in comparison to the market return measured by change in NSE all share index for a period of 24 months. Inflation rate was calculated as the change in

monthly consumer price index while 91days T-bill rate was the quoted rate by Central Bank of Kenya.

4.3 Descriptive Analysis

Table 4.1: Descriptive statistics

Variable	Stock return	Liquidity	Stock beta	Inflation rate	T-bill rate
Observation	3,180	3,180	3,180	60	60
Mean	1.1771	0.0062	0.7100	0.5200	9.1335
Std. Dev	13.1523	0.0123	0.6226	0.6161	2.1387
Min	-50.2193	0.0000	-2.0866	-1.1982	5.9200
Max	380.2632	0.2534	4.3442	1.8186	21.6500

The descriptive statistics were carried out on 53 firms for a period of 60 months thus 3180 observations for three firm specific variables; stock return, liquidity and stock beta. However inflation rate and T-bill rate had an observation of 60 since they are not firm specific but macroeconomic variables.

The average monthly stock return for the listed firms was 1.17% with standard deviation of 13.15%. The minimum monthly return was -50.22% that was for Kenya Airways in November 2017 after its restructuring and reverse stock split. The maximum stock return was 380.26% for Kenya Orchard in September 2014 that had a price change from Kes.15.20 in August to Kes.73 in September. On the other hand turnover ratio (liquidity) ranged between 0 and 0.25 thus less than a 25% of the issued shares was traded in the market. The average monthly liquidity was 0.006 with a standard deviation of 0.012.

Monthly stock beta ranged between -2.0866 and 4.3442 with an average stock beta of 0.7100. The stock beta standard deviation was 0.6226.

For the 60 months study period the monthly average inflation rate was 0.52% with a standard deviation of 0.61%. The monthly inflation rate ranged between -1.198% and 1.82%. The monthly 91days T-bill rate ranged between 5.92% and 21.65% per month with a monthly average of 9.13% and a standard deviation of 2.12%.

4.4 Diagnostic Tests

A number of diagnostic tests were carried out. Multicollinearity of variables was tested using variance inflation factor (VIF), modified Wald test was used to test for groupwise heteroscedasticity in the panel data, Wooldridge test was used to test for autocorrelation and Hausman test was used to choose between the fixed effect and random effect model of panel regression.

4.4.1 Multicollinearity Test

Table 4.2: Multicollinearity test

Variable	VIF	1/VIF
Stock beta	1.10	0.9093
Inflation rate	1.08	0.9221
Liquidity	1.08	0.9259
T-bill rate	1.02	0.9848
Mean VIF	1.07	

The multicollinearity test shows that the independent variables are not linearly related to each other since all variance inflation factor values are less than 10.

4.4.2 Autocorrelation and Heteroscedasticity Tests

Autocorrelation test shows that there is no autocorrelation of residuals since the p-value is more than 0.05 and thus fail to reject null hypothesis that there is no first order autocorrelation. Heteroscedasticity test shows that there is group wise heteroscedasticity in the residuals since the p-value is less than 0.05 and thus reject the null hypothesis of homoscedastic variances. To correct for heteroscedasticity robust standard errors were used in the regression model thus ensuring t and F values are unbiased.

Table 4.3: Autocorrelation and Heteroscedasticity Tests

Autocorrelation test	Wooldridge test for autocorrelation in panel data H0: no first order autocorrelation F(1, 52) = 0.501 Prob > F = 0.4820
Heteroscedasticity test	Modified Wald test for GroupWise heteroskedasticity in fixed effect regression model H0: homoscedastic variances chi2 (53) = 2438.21 Prob>chi2 = 0.0000

4.4.3 Hausman Test

The Hausman test helps in choosing the applicable regression model on panel data. Since the p-value is less than 0.05 the null hypothesis of random effect model was rejected and fixed effect model was chosen.

Table 4.4: Hausman Test

	Coefficients	
	fixed	**random**
Liquidity	74.21012	53.99971
Stock beta	-0.532638	-0.20266

Prob>chi2 = 0.0011

The Hausman test was done on Liquidity and Stock beta variables since they are the firm specific variables. Fixed effect model assumes that case specific variables may bias the predictor or outcome variable and thus need to be controlled to ascertain the net effect of the predictor on the outcome variable. On the other hand random effect model assumes variation across cases is random and uncorrelated with the predictor variables included in the model (Baltagi, 2005).

4.5 Inferential Analysis

Inferential analysis was done in two parts. The first analysis was done for the firm specific factors, that is, stock return, liquidity and stock beta. The three variables were analysed for a total of 53 firms over 60 months thus forming pooled panel data. For the second analysis the macroeconomic variables (inflation rate and 91 days T-bill rate) were added in the model. Monthly averages of stock return, share liquidity and stock beta were calculated for the 53 firms thus having 60 average values for each of the variables. The five variables thus form time series data.

4.5.1 Correlation Analysis

The correlation between Liquidity and return is very low at 0.0453 though it is significant at 5% significance level. This indicates a very weak positive relationship between the two variables. Stock beta and stock return have a very low negative relationship that is insignificant. However stock beta and liquidity have a significant correlation though it is low as well.

Table 4.5a: Correlation analysis- Panel data

	Stock return	**Liquidity**	**Stock beta**
Stock return	1.0000		
Liquidity	0.0453*	1.0000	
Stock beta	-0.0032	0.0901*	1.0000

*significant at 95% confidence level

The correlation analysis for the time series data using monthly averages for stock return, liquidity and stock beta and the monthly values for inflation rate and T-bill rate show a slightly higher correlation between liquidity and stock return at 0.2212. However the correlation is now insignificant. The correlation between stock return and stock beta, inflation rate and T-bill rate is also insignificant.

Table 4.6b: Correlation analysis- Time series data

	Stock return	Liquidity	Stock beta	Inflation rate	daytbill
Stock return	1.0000				
Liquidity	0.2212	1.0000			
Stock beta	0.0395	-0.1747	1.0000		
Inflation rate	-0.0106	-0.1707	-0.1875	1.0000	
T-bill rate	-0.1950	-0.0488	0.1199	-0.0098	1.0000

4.5.2 Regression Analysis

Table 4.7a: Regression Analysis Output- Panel data

		Robust			Confidence Interval			
Stock return	**Coefficient.**	**Std. Err.**	**t**	**P>|t|**	**Lower 95%**	**upper 95%**		
Liquidity	74.2101	20.5387	3.61	0.001	32.9962	115.4241	F(2,52)	6.87
Stock beta	-0.5326	0.5413	-0.98	0.330	-1.6189	0.5537	Prob>F	0.0023
Constant	1.0930	0.3998	2.73	0.009	0.2907	1.8952	R-sq	0.0046

The panel analysis was on the firm specific variables for 53 firms that formed the panels whose data was collected over 60 months. The model explains about 0.46% change in stock return and is significant with a p-value less than 0.05. The liquidity coefficient is significant at 5% significance level and thus rejects the null hypothesis that there is no relationship between stock return and share liquidity. However stock beta coefficient is insignificant in this model.

Table 4.8b: Regression Analysis Output- Time series data

Stock return	Coefficient.	Robust Std. Err.	t	P>|t|	Confidence Interval Lower 95%	upper 95%		
Liquidity	373.8215	346.6307	1.08	0.286	-320.8419	1068.4850	F(4, 55)	1.22
Stock beta	8.5565	10.8145	0.79	0.432	-13.1162	30.2291	Prob>F	0.3135
Inflation rate	0.3739	0.9735	0.38	0.702	-1.5770	2.3248	R-sq	0.0955
T-bill rate	-0.4236	0.2249	-1.88	0.065	-0.8743	0.0270		
Constant	-3.5516	8.4149	-0.42	0.675	-20.4154	13.3122		

The time series analysis was on the monthly averages firm specific variables for all the firms together with the macroeconomic variables over 60 months period. The model explains about 9.55% change in stock return though it is insignificant with a p-value more than 0.05. The liquidity coefficient is insignificant in this model and thus do not reject the null hypothesis that there is no relationship between stocks return and share liquidity. All the other variables coefficients are insignificant as well.

4.6 Discussion of Research Findings

The objective of the study was to investigate the relationship between stock return and share liquidity for NSE listed firms. The descriptive statistics show that stock return is low for the firms listed at the NSE with an average monthly return at 1%. The stock returns had some extreme monthly returns with a minimum of -50% and a maximum of 380% though majority of the monthly returns were close to the mean.

Share liquidity was also very low in the market with an average monthly turnover ratio of less than 1%. The maximum monthly turnover ratio was 25% thus meaning more than 75% of the issued shares are not traded in the market. Thus investors could be buying and

holding stocks rather than frequently trading in them thus leading to low trading in the market. The average stock beta for the firms is less than one meaning the stock returns is less volatile in comparison to the market return. However the stock beta ranges between negative to positive values that are above one. The monthly inflation rate was not high in the study period ranging between -1.2% and 1.8%. However the 91 days T-bill rate differed quite much over the study period with a low of 5.92% and a high of 21.65%.

The diagnostic tests done on the data included multicollinearity test, heteroscedasticity test and autocorrelation test. Multicollinearity test showed that the regressor variables do not have a linear relationship with each other. Heteroscedasticity test showed that the error terms do not have equal variance in relation to the explanatory variables thus violating the homoscedastic assumption. In violation of the homoscedastic assumption the standard errors are biased and thus hypothesis testing, therefore t and F values are biased. To correct for this robust standard errors were calculated in the regression analysis. Autocorrelation test showed that the error terms are uncorrelated

The correlation analysis on panel data showed that there is a very low positive and significant relationship between shares return and share liquidity. This shows that as liquidity increases share return also increases. This is contrary to theoretical expectations that liquidity and return have a negative relationship. On the other hand stock beta had a very low negative insignificant relationship with stock return.

The correlation on the time series data shows that the correlation between the average monthly liquidity and average monthly stock return is slightly higher though insignificant. The correlation is still positive thus indicating that as liquidity increases

stock return also increases contrary to theoretical expectation. The correlation between average monthly stock return and average monthly stock beta is very low and positive. Similarly the correlation between average monthly stock return and monthly inflation rate is very low and negative thus implying as inflation increases stock return decreases. The average monthly stock return and 91 days T-bill rate relationship is also low and negative thus implying as T-bill rate increases stock return declines. All the correlation values are insignificant.

The regression analysis for the panel data showed that the explanatory power of the model is very low since over 99% of variation in stock return cannot be explained by the predictor variables. However the model is significant as shown by the F-test which has a p-value of less than 0.05. The liquidity coefficient is significant as shown by t-test p-value of less than 0.05. This is in support of the correlation analysis findings. Stock beta coefficient is insignificant similar to the correlation analysis findings.

The regression analysis for the time series data shows that the model cannot explain over 90% of stock return variation. The model is however insignificant an F-test p-value of 0.3135. Likewise all the variables coefficients are insignificant with t-test p-values of more than 0.05 similar to the correlation analysis findings.

Both regression and correlation analysis findings of a weak positive relationship between liquidity and return are in contradiction with prior studies done in developed markets using turnover ratio as liquidity proxy. Prior studies have found a strong negative relationship between turnover ratio (liquidity) and stock return. They are also contrary to

studies that have used other measures of liquidity such as bid-ask spread, trading volume and Amihud's illiquidity ratio.

These findings are similar to findings by Koech (2012) and Kahuthu (2017) in that turnover ratio (liquidity) has a very weak relationship with stock returns in the NSE. However the findings are slightly different to the two studies findings, in that the relationship is significant when using the firm specific variables but turns insignificant on introduction of macroeconomic variables. It is thus plausible that investors may not view turnover ratio as a sign of liquidity in the market and thus does not influence the return they demand. However the positive relationship means that investors demand higher returns for liquid stocks rather than illiquid stocks.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the findings and the study's conclusion. It also outlays limitations of the study, recommendations and suggestions for further research.

5.2 Summary of Findings

The objective of the study was to ascertain the relationship between share liquidity and stock return for firms listed at the NSE. Liquidity was measured by the turnover ratio and stock beta, inflation rate and 91 days T-bill rate were added as control variables. The study included both descriptive and inferential analysis. Inferential analysis was done on two data sets; panel data that included firm specific variables only (stock return, liquidity and stock beta) and time series data that included the monthly averages of the firm specific variables and the macroeconomic variables (inflation rate and 91 days T-bill rate).

The study revealed that liquidity is very low for the listed firms with an average of 0.6% of issued shares traded in the market per month. Share return is also very low with an average of 1% return per month for the firms. Previous studies in the NSE have found stock return to be relatively low. Koech (2012) found an average return of 2.9% for the period 2007 to 2011, Okanga (2014) found an average return of 1.51% for the period 2009 to 2013 and Kahuthu (2017) found an average return of 0.6% for the period 2012 to 2017.

Inferential analysis revealed that liquidity has some influence on return with liquidity coefficient being significant when macroeconomic variables were excluded. However on

inclusion of the macroeconomic variables liquidity became insignificant to return. Stock beta, inflation rate and 91 days T-bill rate do not have an influence on return since their coefficients are insignificant at 5% significance level in both models. The explanatory power of the models is very weak with the coefficient of determination being below 10% meaning over 90% change in the stock return cannot be explained by the models.

The correlation between liquidity and stock return is positive and significant on exclusion of macroeconomic variables. On inclusion of macroeconomic variables the correlation between liquidity and return is insignificant though still positive. This is contrary to theoretical prediction that the two variables are negatively correlated. These findings are contradictory to previous studies done using turnover ratio as liquidity proxy especially in the developed market. For instance Chordia, Subrahmanyam and Anshuman (2001) found a significant negative relationship between turnover ratio (liquidity) and stock return. Similarly Chan and Faff (2003) found liquidity to be negatively related to stock return in the Australian market.

Contrary to these study findings, prior studies that used other liquidity measures both locally and globally found a strong relationship between stock return and liquidity. For instance studies using bid ask spread by Amihud and Mendelson (1986) on NYSE market and Kahuthu (2017) on NSE market found a strong significant relationship between liquidity and return. Similarly studies using Amihud's illiquidity ratio (Acharya & Pedersen (2003), Pastor and Stambaugh (2003), Omri, Zayani and Loukil (2010) and Okanga (2014)) found a strong negative relationship between the two variables.

Although the findings of this study are contradictory to existing theory and prior studies they are similar to a number of studies that used turnover ratio as liquidity proxy on emerging markets. Jun, Marathe and Shawky (2002) found a positive relationship between liquidity and return. Similarly Onoh (2016) found a positive relationship between the two variables. In Kenya Koech (2012) found turnover ratio (liquidity) to have a very weak positive relationship with stock return while Kahuthu (2017) found a weak negative relationship between the two variables. However both Koech (2012) and Kahuthu (2017) found the relationship to be insignificant though they had not included macroeconomic variables.

5.3 Conclusion

The study sought to ascertain the relationship between share liquidity and stock return for firms listed at the NSE with stock beta, inflation rate and 91 days T-bill rate added as control variables. Monthly data for 53 companies in ten sectors in the NSE for the period of 60 months from January 2013 to December 2017 was used. Nine (9) companies were excluded from the study having been either listed or had trading suspended during the study period. Panel data analysis was used to establish the nature of the relationship for firm specific variables and time series analysis was used to establish the nature of the relationship on inclusion of macroeconomic variables.

The study showed a very weak and significant positive relationship between liquidity and stock return when firm specific variables were used. On inclusion of macroeconomic variables the relationship became insignificant though still weak and positive. These findings contradict prior studies that have found turnover ratio (liquidity) and stock return

to have a negative relationship in the developed markets such as NYSE and AMEX (Chordia, Subrahmanyam & Anshuman, 2001) and ASX (Chan & Faff, 2003).

The findings also contradict other prior studies' findings that used other proxies for liquidity such as bid ask spread, Amihud illiquidity measure, trading volume and daily zero return. These measures showed a strong negative relationship between liquidity and stock return (Amihud & Mendelson (1986), Acharya & Pedersen (2005), Pastor & Stambaugh (2003) and Omri, Zayani & Loukil (2010)). However, the findings are similar to a number of studies done in emerging markets (Jun, Marathe & Shawky (2002), Onoh (2016), Koech (2012) and Kahuthu (2017)).

The study findings show that liquidity and return in the NSE are quite low. From the regression models it can be concluded that stock return for the listed firms is influenced by majorly other factors not included in the model. However liquidity depth aspect as proxied by turnover ratio has some slight positive influence on stock return meaning as turnover ratio (liquidity) increases so does stock return. The other three variables, 91 days T-bill rate, inflation rate and stock beta, do not have a significant influence on stock return.

The contradictions of the study findings and prior empirical studies could be due to the level of market development since studies in developed markets are in line with the theoretical prediction. Similarly maybe investors did not find turnover ratio as an indicator for liquidity. As suggested by Jun, Marathe & Shawky (2002) illiquidity may not be considered a risk factor in emerging markets and thus the positive relationship

therefore investors may be demanding higher returns for liquid stocks as they may be viewed as high return stocks.

5.4 Recommendations

The study found that there is a very low positive significant relationship between stock return and share liquidity for listed firms at the NSE. However on inclusion of macroeconomic variables the relationship becomes insignificant. Therefore from these findings it is imperative that investors may not be viewing turnover rate as a sign of liquidity in the market. This could be due to the low share volumes traded in comparison to the issued shares. It can thus be concluded that many investors in the market use buy and hold strategy and thus may not frequently trade in stocks. Policy makers should therefore come up with strategies to encourage investors to frequently trade in shares thus creating more liquidity in the market. The trading process could be made faster thus encouraging investors to keep on changing their portfolios. As more investors' trade they will demand for higher returns for less traded stocks.

The findings of this study also indicate that variations in the stock return of listed firms are not explained fully by turnover ratio (liquidity), stock beta, inflation and 91 days T-bill rate. Fund managers and investment managers should therefore put into consideration other factors that influence stock return while making investment decisions. However turnover ratio (liquidity) should not be ignored though its influence is low. Other aspects of liquidity such as tightness and resilience can also be factored in.

5.5 Limitations of the Study

The study was limited to listed firms with 53 out of the 62 listed firms (85%) with the rest not meeting the selection criteria. The investment services sector was excluded from the study and thus the relationship between liquidity and return was not ascertained for the sector. Monthly data was used in the study and thus excluded day to day changes in the variables. The study thus shows the monthly effect of liquidity on monthly stock return. The study was limited to use of historical data. However historical performance may not always predict future performance. The study findings do not thus have a futuristic aspect of the liquidity return relationship.

Another limitation of the model is that only four quantitative factors were included in the model. Due to time limitations qualitative factors such as investors' sentiments, effects of corporate announcements and new economic information could not be included in the model. Other quantitative factors that influence stock returns could also not be added for simplicity reasons.

5.6 Suggestions for Further Research

The contradictory findings raise room for further research on the liquidity- return relationship using other measures of liquidity since previous studies that have used other liquidity measures have found a strong significant relationship between the two variables. Research study could also be done using daily data rather than monthly data and thus establish the liquidity- return relationship on a daily basis.

Similarly research could be done for longer time periods. Studies in the developed markets have been for extensive time periods between ten (10) and forty (40) years and

their findings have been generally consistent with theoretical expectations. Thus longer study periods could eliminate biased findings dues to influence from time specific factors such as political influence and economic cycle.

Research could also be done on other factors that influence return other than liquidity. For instance a research study could be undertaken using both firm specific variables and macroeconomic variables and check on their interaction. Likewise inclusion of qualitative factors such as investors' sentiments would give a greater understanding on factors that influence stock return.

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APPENDICES

APPENDIX 1: Data Entry Tables

1.1 Firm Data Entry Table

Company Name			
Day/Month/Year	Closing Price	Share Volume Traded	Number of shares on issue

Year	Interim dividend	Final dividend	

1.2 NSE All Share Index Data Entry Table

Month/ Year	Opening Price	Closing Price

1.3 Consumer Price Index and 91-days Treasury bill rate Data Entry Table

Month/ Year	Consumer Price Index	91-days Treasury bill rate

APPENDIX 2: Listed Firms at the NSE

AGRICULTURAL	
	Eaagads Ltd
	Kapchorua Tea Co. Ltd
	Kakuzi Plc
	Limuru Tea Co. Ltd
	Sasini Ltd
	Williamson Tea Kenya Ltd
AUTOMOBILES AND ACCESSORIES	
	Car and General (K) Ltd
BANKING	
	Barclays Bank Ltd
	Stanbic Holdings Plc.
	I&M Holdings Ltd
	Diamond Trust Bank Kenya Ltd
	HF Group Ltd
	KCB Group Ltd
	National Bank of Kenya Ltd
	NIC Group Plc
	Standard Chartered Bank Ltd
	Equity Group Holdings
	The Co-operative Bank of Kenya Ltd
COMMERCIAL AND SERVICES	
	Express Ltd
	Sameer Africa Plc
	Kenya Airways Ltd
	Nation Media Group
	Standard Group Ltd
	TPS Eastern Africa (Serena) Ltd

	Scangroup Ltd
	Uchumi Supermarket Ltd
	Longhorn Publishers Ltd
	Atlas Development and Support Services
	Deacons (East Africa) Plc
	Nairobi Business Ventures Ltd
CONSTRUCTION AND ALLIED	
	Athi River Mining
	Bamburi Cement Ltd
	Crown Paints Kenya Plc.
	E.A.Cables Ltd
	E.A.Portland Cement Ltd
ENERGY AND PETROLEUM	
	KenolKobil Ltd
	Total Kenya Ltd
	KenGen Ltd
	Kenya Power & Lighting Co Ltd
	Umeme Ltd
INSURANCE	
	Jubilee Holdings Ltd
	Sanlam Kenya Plc
	Kenya Re-Insurance Corporation Ltd
	Liberty Kenya Holdings Ltd
	Britam Holdings Ltd
	CIC Insurance Group Ltd
INVESTMENT	
	Olympia Capital Holdings ltd
	Centum Investment Co Ltd
	Trans-Century Ltd
	Home Afrika Ltd

	Kurwitu Ventures
INVESTMENT SERVICES	
	Nairobi Securities Exchange Ltd
MANUFACTURING AND ALLIED	
	B.O.C Kenya Ltd
	British American Tobacco Kenya Ltd
	Carbacid Investments Ltd
	East African Breweries Ltd
	Mumias Sugar Co. Ltd
	Unga Group Ltd
	Eveready East Africa Ltd
	Kenya Orchards Ltd
	Flame Tree Group Holdings Ltd
TELECOMMUNICATION AND TECHNOLOGY	
	Safaricom Plc

APPENDIX 3: Companies excluded from the study

Sector	**Company**
BANKING	I&M Holdings Ltd
COMMERCIAL AND SERVICES	Atlas Development and Support Services
	Deacons (East Africa) Plc
	Nairobi Business Ventures Ltd
ENERGY AND PETROLEUM	Umeme Ltd
INVESTMENT	Home Afrika Ltd
	Kurwitu Ventures
INVESTMENT SERVICES	Nairobi Securities Exchange Ltd
MANUFACTURING AND ALLIED	Flame Tree Group Holdings Ltd

APPENDIX 4: Companies that had stock split and bonus issue

Stock Splits		
Company	**Month**	**Ratio**
Carbacid Investment	Oct-13	1: 5
Limuru Tea	May-15	1: 2
Kenya Airways	Nov-17	4: 1

Bonus Issue		
Company	**Month**	**Ratio**
Nation Media Group	Mar-13	1: 5
Carbacid Investment	Oct-13	1:2
CIC Insurance	Jul-14	1:5
Longhorn Publishers	Sep-14	3:2
Sanlam Kenya	Feb-15	1:2
National Bank of Kenya	Mar-15	1:10
Jubilee Holdings	Mar-15	1:10
Crown Paints	May-15	2:1
Williamson Tea	Jun-15	1:1
Kapchorua Tea	Jun-15	1:1
Diamond Trust Bank	Mar-16	1:10
Jubilee Holdings	Mar-17	1:10
Cooperative Bank of Kenya	Mar-17	1:5
National Bank of Kenya	Apr-17	1:10