A Study on the effect of Stock Liquidity on Stock Return of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50 Indexes of National Stock Exchange (NSE)

A Dissertation for

Course code and Course Title:

Credits: 16

Submitted in partial fulfilment of Masters of Commerce Degree

In Accounting and Finance

By

DIKSHA SANTOSH MANDREKAR
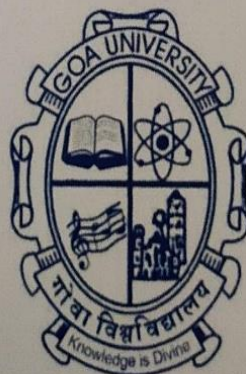
11-2022

302-019-861-366

201905191

Under the Supervision of

PROF. GUNTUR ANJANA RAJU

Goa business school

Masters of commerce

GOA UNIVERSITY

Date: 30 April 2024

DECLARATION BY STUDENT

I hereby declare that the data presented in this Dissertation report entitled, "**A Study on the effect of Stock Liquidity on Stock Return of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50 Indexes of National Stock Exchange (NSE)**" is based on the results of investigations carried out by me in the Discipline of Commerce at the Goa Business School, Goa University under the Supervision of Prof. Guntur Anjana Raju and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations / experimental or other findings given the dissertation.

I hereby authorize the University authorities to upload this dissertation on the dissertation repository or anywhere else as the UGC regulations demand and make it available to any one as needed.
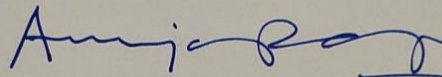
DIKSHA SANTOSH MANDREKAR

11-2022

Date: April 2024

Place: Goa University

COMPLETION CERTIFICATE

This is to certify that the dissertation report "**A Study on the effect of Stock Liquidity on Stock Return of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50 Indexes of National Stock Exchange (NSE)**" is a bonafide work carried out by Ms. Diksha Santosh Mandrekar under my supervision in partial fulfilment of the requirements for the award of the degree of Master of Commerce in the Discipline of Commerce at the Goa Business School, Goa University.

Prof. Guntur Anjana Raju   30/04/2024

Date: April 2024

HOD Signature

Date: April 2024

Place: Goa University

Stamp

ACKNOWLEDGEMENT

CONTENTS

Chapter	Particulars	Page No.

List of Figure

List of Tables

List of Abbreviation

Sr.no	Full Form	Short Form
1	National Stock Exchange	NSE
2	Augmented Dicky Fuller	ADF
3	Centre of Monitoring Indian Economy	CMIE
4	Ordinary Least Square	OLS

Abstract

This paper is an empirical study on the effect of the stock market liquidity on stock return on National Stock Exchange (NSE) of India and considering 3 Index that is Nifty Large Cap 50, Nifty Mid Cap 50 and Nifty Small Cap 50 for the study. By doing the literature here come to identify the proxies for measuring liquidity as mostly use proxies that is Amihud (2002) and Stock Turnover. In this study the dependent variable will be stock return and Amihud (2002), Stock Turnover, Size of the firm, Growth of the firm will be consider as Independent variable where Size, Growth is constant variables. Using daily data over the 10 years that is 1 April 2013 to 31 March 2023 and data will be collected from Centre for monitoring Indian Economic (CMIE) and to test the hypothesis Pooled(OLS) regression analysis is used.

I. CHAPTER 1 : INTRODUCTION

1.1. Introduction to Stock Market Liquidity

The Indian Stock Market where different types of securities are trading like equities, bonds, Exchange traded funds (ETFs), derivatives etc. which is most popular and oldest stock exchange of Asia, which is used as a investment opportunity for the investor with the aim of getting returns, where the liquidity in the stock market is an important feature of financial market where the stocks of the company can be brought off and sell off swiftly and without fluctuating or changing price of the share. Investment is investing money or capital in a company or project that aims to obtain benefits in the future (Bodie et al., 2009). It became very difficult in trading with the stocks when the liquidity of the stock is low. So, it can cause to take a huge loss if the shares cannot be sold as per the wish of the shareholders or traders. It tells, more the liquid stock is easier and more efficient it to convert into cash. It is a gauge (measure) of the market capacity or ability to systematically manage the huge volume of trading activities. Savers are able to acquire assets and sell them quickly and cheaply when they need to access their savings or to alter their portfolios (Demirguc-Kunt and Levine, 1996). It is essential as it act as a provision for cash, helps in making balance between risk and return.

The stock liquidity is essential for the stakeholders as it gives an advice of enter and exit position of the investor without affecting market price and its often cause by the trading

volume, bid ask spread, market participants etc. This can be seen as a form of sacrifice made by an investor with the aim of obtaining greater returns from investments made in the future (Sri Maemunah Soeharto…2019). It is categorized into the liquid due to the high number of buyer and sellers are included. Where they can sell or buy their shares quickly through electronic form. The buyer ask per share that is bid price and also the value a seller is ready to take that is asking price which is going to be very close which result in less fluctuation in price. When the liquidity is high the trading cost is always low and similarly the liquidity of the stock is low leads to higher trading cost.

It is formed because of determining demand and supply for shares in the stock market. The demand and supply for the shares is increase or decrease base on the return which the investor will get over their investment, which attract the investor to invest in the stock. It is a type of profit which is in the form of dividend enjoy by the investor for their investment. Without any returns no one is interested in investing. The returns are calculated by dividing current month's price by previous month's price.

1.2. <u>**Trading Settlement Process**</u>

Choosing a broker or sub-broker is the first step in the trading and settlement process in a secondary market, which concludes with share settlement. Prior to engaging in secondary market trading, you must open a dematerialized (DEMAT) account with a bank or broking firm. In the last stage of settlement, once the buyer receives the securities and the seller receives money, the trade settlement is considered to have taken place. Settlement occurs upon the ultimate transfer of ownership, and the actual agreement is completed on the transaction date.The date of the transaction is indicated or represented as "T." It used to take five business days to settle trades when equities were held physically. At that time, the investor received securities in the form of securities and paid with checks. The settlement

date, which was previously T+5, is now reduced to T+2 due to paperwork. Delays in the settlement procedure also impact prices, raise risk, and result in expensive costs.

Types of settlement in the stock market

•   Spot settlement- Here the settlement is done immediately using following the settlement principle of T + 2.

•   Forward settlement- Here settlement trade is done in future date which could be T+5 or T+7.

The Securities Exchange Board of India, the Indian capital market regulator, announced that as of October 1, 2023, it will switch to a T + 1 settlement cycle. This implies that starting in October 2023, all trades will be settled one day following the trade date rather than using the T + 2 settlement cycle.

The intention is to increase trade volume in the cash segment and reduce the likelihood of fraud because one cannot trade with funds in their demat account and can switch stocks on the same day rather than having to wait for their trade to settle after a day or two. It benefits the brokerage since it limits the chances in their risk management. The world's first jurisdiction to implement a T + 1 (trade plus one day) settlement time is India. Thus, after the T + 1 Settlement, the Securities Exchange Board of India (SEBI) is currently working on a new announcement to settle shares in increments of one hour. As it is put into practice, the stock market will be more transparent and there will be less error or fraud occurring in the capital market.

1.3.   Nifty 50

Figure No. 1
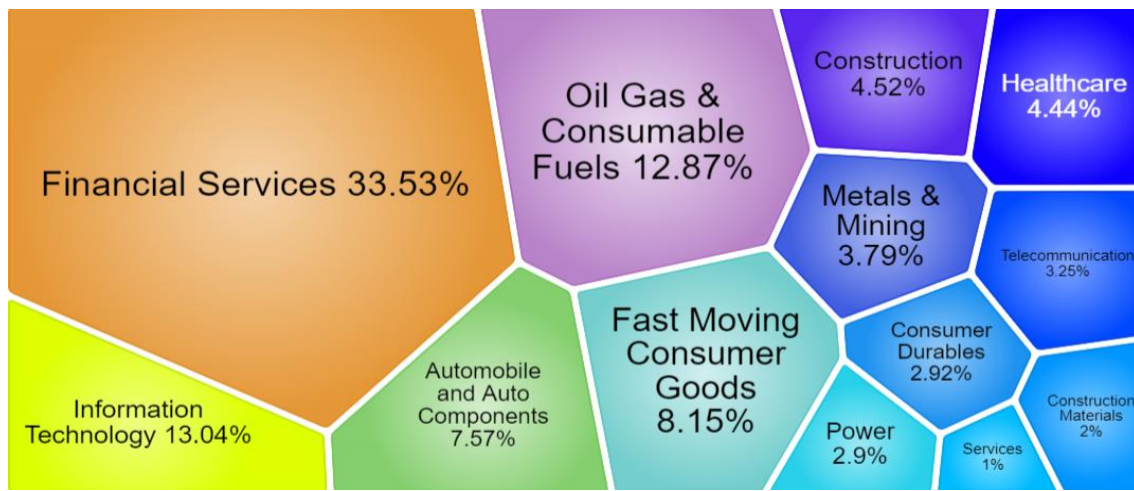
The weighted average of 50 of the biggest Indian firms listed on the National Stock Exchange is represented by the benchmark NIFTY 50 index for the Indian stock market.NSE Indices, formerly India Index Services & Products Limited, is the owner and manager of Nifty 50. It is a fully owned subsidiary of NSE Strategic Investment Corporation Limited. Up until 2013, NSE indexes and Standard & Poor's had a marketing and licensing arrangement for co-branding equity indexes. The Nifty 50 index, one of the numerous stock indices of Nifty, was introduced on April 22, 1996. Investment managers can have exposure to the Indian market in a single portfolio thanks to the NIFTY 50 index, which encompasses 13 sectors of the Indian economy. By March 2024, the NIFTY 50 will have assigned 33.53% of its weight to financial services, which includes banking, 13.04% to IT, 12.87% to energy and gas, 8.15% to consumer goods, and 7.57% to the automobile sector.

1.4.   Nifty mid Cap 50

Figure No. 2
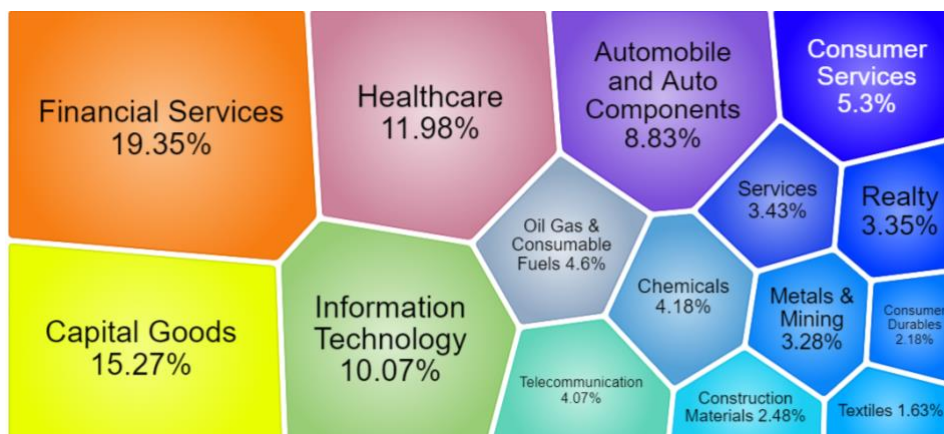
Based on the overall market capitalization of the Nifty Midcap 150 index and the firms for which derivative contracts are offered on the National Stock Exchange (NSE), the Nifty Midcap 50 index represents the top 50 companies. As of September 29, 2023, the market capitalization of the stocks listed on the NSE in free float is represented by the Nifty Midcap 50 Index to the tune of almost 7%.

Roughly 9.6% of the traded value of all NSE equities was made up of the total traded value of all index constituents during the six months that ended in September 2023.

1.5. Nifty Small Cap 50

Figure No. 3
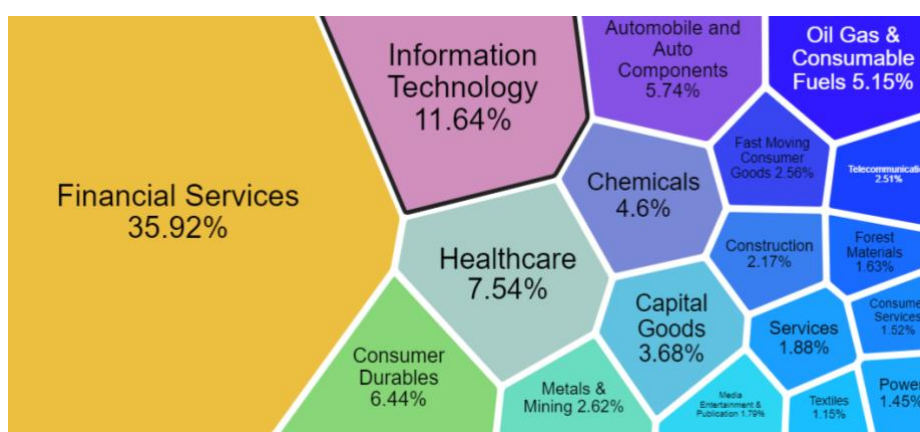
Capturing the movement of the smallcap portion of the market is the Nifty Smallcap 50 Index's main goal. The index comprises the top 50 companies chosen from the top 100

companies chosen based on complete market capitalization in the Nifty Smallcap 250 index, with the average daily turnover used for selection.

As of September 29, 2023, the Nifty Smallcap 50 Index represents roughly 3% of the free float market capitalization of the stocks listed on the NSE. About 5.3% of the traded value of all equities on the NSE is represented by the total traded value of all index constituents for the six months ending in September 2023.

1.6. <u>Importance of the study</u>

Comprehending Market Risk and Return where large, mid, and small market capitalization segments are each represented by a different index. You can assess the risk-return connection throughout the market spectrum by comparing their performance. Small caps have historically carried increased risk in addition to possibly better profits. Investors can diversify of portfolios by evaluate how different firm sizes respond to changes in the market by using these indexes. By diversifying your portfolio across market caps with this knowledge, you may lower overall risk. Finding Investment Possibilities through identify outperformers within each category by comparing the index performance.

This can assist you in locating possible investments in rapidly growing companies (particularly in the mid- and small-cap indices). Recognizing the sentiment of the market Differences in these indexes' performance over time can reveal investor sentiment. For instance, outperforming small caps may indicate a willingness to take risks, but trailing performance may indicate a fear of taking risks. Investor can compare Performance by the success of your investing strategy whether you invest in individual companies or actively managed funds by contrasting their performance. To sum up, examining these indices collectively offers insightful information about market dynamics, risk-return profiles, and possible investment opportunities. It gives you the tools you need to make wise investing choices and maybe increase the risk-adjusted returns on your portfolio.

1.7.   <u>Scope of the study</u>

The scope of the study is where the investor can get an idea about the functioning of the stock market and information regarding liquidity of the index and can take their investment decision accordingly where the investor Monitor each index's past returns to gain insight into how well it has performed throughout time. To evaluate risk-adjusted returns, this may entail computing measures like average returns, standard deviation, and Sharpe Ratio. Examine the relationships between the indexes and the market as a whole (e.g., Nifty 50).

Examine how the market capitalization of the three indices is distributed. This displays each index's risk profile. While Nifty Small cap 50 symbolizes smaller, emerging companies (greater risk), Nifty 50 represents large, established corporations (lower risk). All these are employed by collecting Daily data on Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50. Liquidity measures are used in the study to measure the liquidity and analysing the impact of liquidity on stock return.

1.8.   <u>Objective of the study</u>

The objective of the study is to measure the liquidity by using two measures of liquidity that is Amihud (2002) and Stock Turnover and analysing the impact of liquidity on stock returns. Which liquidity measure is better for measuring liquidity while earlier the researchers have proven that there is impacts of liquidity on stock return but here the study come up with the three indexes as comparative study. The objectives are as follows:-

1. To measure the stock liquidity of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50.

2. To examine the effect of stock liquidity on Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50.

1.9.   <u>Research Question of the study</u>

The research question of the study is "Does the stock market liquidity affect its stock return or not" it is frame through the research hypothesis which is an assumption of the researcher to

analyse and answer the research question. It is a type of quantitative study data is collected from secondary source and by using the analyses techniques the answer for the research question is prove and the assumption which is frame through the literature review.

1.10. <u>Research Hypothesis</u>

The research hypothesis of the study is based on the objectives of the study. It is an assumption that liquidity does not affect stock return. So, to test whether the hypothesis is to accept or reject. Hypotheses are of two types that Null Hypothesis and Alternative Hypothesis, here the null Hypothesis are mention as the liquidity does not affect stock return.

- Ho: - Amihud (2002) does not affect stock return.
- Ho: - Stock Turnover does not affect the stock retur

1.11. <u>Chapterisation Scheme</u>

Chapter 1: Introduction to stock market liquidity

Introduction to Stock Market liquidity, Trading Settlement, Index, Importance of the study, Scope of the study, Objective of the study, Research question, research Hypothesis, Chapterisation Scheme.

Chapter 2:- Literature Review

Introduction, Literature for Objective 1st to measure the liquidity, Literature for Objective 2nd to examine the impact of liquidity on stock return.

Chapter 3:- Research Methodology

Introduction, Problem of the study, research Gap, Period & Source of the study, Sample Size of the study, Methodology, Tools and Technique used for the study.

Chapter 4:- Data Analysis and Conclusions

Introduction, Descriptive Statistics, Unit Root Test, Correlation Test, Pooled(OLS) Regression analysis, Findings, Conclusion, Limitation and Scope of the study, Reference.

II. **Literature Review**

2.1. **Introduction**

A literature review is a critical part of any research project. It's essentially a survey of existing research and scholarship on your specific topic. But it goes beyond just summarizing sources. Literature review is the previous research paper by the researchers in the different area where the researchers published their paper for the future researchers to refer and identify the research gap and help to go ahead with the new topic which will helpful for the next future researchers.

2.1.1. **Objective 1st**:- To measure Stock liquidity of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50 Indexes in an Indian perspective.

The first objective is to measure the liquidity so 30 literature papers have been consider to find out the mostly used measure for liquidity where all the measure have been list out from the literature and identify the mostly used measure by the previous researchers where (Tarun Chordiaa, Richard Rollb , Avanidhar Subrahmanyam, 2001) Quote Spread (Bid-ask Spread). Bid-Ask Spread,Turnover ratio, Price impact (Abdourahmane Sarr & Tony Lybek, 2002). Andrew W. Lo Jiang Wang, 2000), Used Turnover Ratio to measure the liquidity .Turnover ratio and coefficient of elasticity of trading measure use by (M. K. Datar, 2000) Bid-Ask Spread,Turnover ratio, Price impact measure used by (Abdourahmane Sarr & Tony Lybek, (2002).

(Yakov Amihud, 2002) The illiquidity measure employed here, called ILLIQ; is the daily ratio of absolute stock return to its dollar volume, averaged over some period, price impact, the illiquidity measure used in this study is calculated from daily data on returns and volume that are readily available over long periods of time for most markets. (Viral V. Acharyaa & Lasse Heje Pedersen, 2005) use Amihud Illiquidity to   measure the liquidity. Amihud (2002) ,Turnover Ratio ,Q-Spread, E-Spread (Robert A. Korajczyka , Ronnie Sadka, 2008). Impacct Cost, Bid – Ask Spread measure is use by the researcher (Santosh Kumar, 2011). (Ferhat Akbas , Will J. Armstrong , Ralitsa Petkova, 2012) use Amihud (2002) and its volatility is measured using daily data, Turnover, Dollar Volume. (Sisira Mishra, 2012) Turnover Ratio have been used to measure the liquidity gives the result show the positive relationship between the liquidity and stock exchange.

 Spread related measures, volume related measures and mixed measures which contain features of both spread and volume measures (R. Krishnan a, Vinod Mishra, 2013). Trading Volume, turnover, Turnover ratio, Illiquidity Ratio, Spread (Krishna Prasanna1 & Bharat Bansal, 2014). price impact measure of illiquidity (Yakov Amihud a , Allaudeen Hameed b,n ,

Wenjin Kang c , Huiping Zhang, 2015). (Mohsen Saad, Anis Samet, 2017) use Amihud (2002) inroder to measure the liquidity.

Bid –Ask Spread, Simple High-Low Ratio, Turnover (Thomas Leirvika,1, Sondre R. Fiskerstrandb , Anders B. Fjellvikås, 2017). (Mohsen Saad, Anis Samet, 2017) use Amihud (2002) inroder to measure the liquidity. Where (Sharad Nath Bhattacharya, Mousumi Bhattacharya & Sankarshan Basu, 2019) use Amihud ,turnover rate ,Market efficiency coefficient (MEC) ,Trading Volume, Spread measure of liquidity it shows trading volume, market efficiency coefficient and spread are significant at 1% level of significance, the turnover rate is significant at 5%level of significance. The quote-to-trade ratio, which represents the number of quote updates divided by the number of trade(Imen Ben Ammar , Slaheddine Hellara, 2020). The study employed Relative Quoted Spread (RQS),Coefficient of Elasticity of Trading (CET), Amihud Illiquidity Ratio (AR) , and Share Turnover (ST) (Priyanka Naik and Y.V. Reddy, 2021). (Yong Shia,b,c ,Shuyang Penga,b,Anqi Yua , Kun Guo, 2023) Turnover Rate is use as a measure of Liquidity.

Figure No. 4
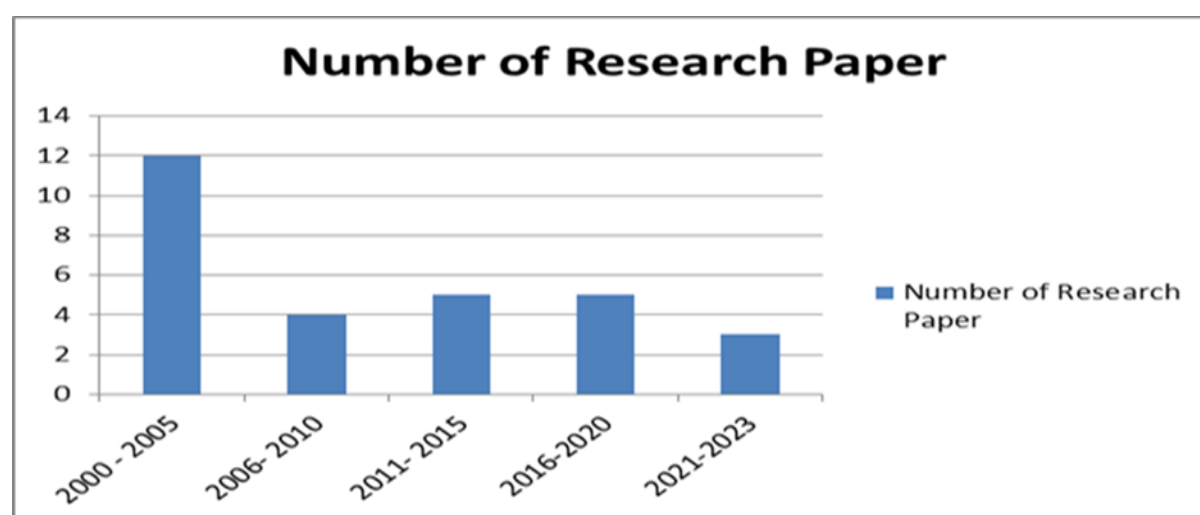
Source, Complied by Author

2.1.2. **2nd Objective**:- To examine the effect of stock market liquidity on the stock returns of Nifty 50 ,Nifty Mid Cap 50 and Nifty Small Cap 50.

To analyse the effect of liquidity on stock returns ten literature papers have been consider which are mostly related to study where Illiquidity is shown to have a positive effect on expected stock return both cross sectionally and over time. In the cross-section estimations, two liquidity variables are strongly priced: ILLIQ has a positive effect and turnover (trading volume divided by shares outstanding) has a negative effect,size (stock capitalization) has the usual negative effect on stock return(Yakov Amihud, 2000). Turnover has an insignificant impact on returns in the presence of the zero measure. Also show that the zero measure significantly predicts returns in emerging markets, and unexpected liquidity shocks are positively correlated with returns and negatively correlated with dividend yields (Geert Bekaert Campbell R. Harvey Christian Lundblad, 2005).

A stock return is the Positive or negative change in value of an investment or asset over time, positive return means a profit has been made on the investment and negative return means that there has been a loss on the investment. Showed that there was a very weak correlation between Liquidity and return in all of the years The nature of the relationship between Liquidity and Return of firms is non-linear (Patrick Koech, 2012).

(Nasir Akram, 2014) study concluded that both liquidity and stock returns have negative relationship. Turnover has an insignificant impact on returns in the presence of the zero measure. There is no indicative relationship between firm size and profitability of listed manufacturing firms, the results showed that firm size has no profound impact on profitability of the listed manufacturing firms in Sri Lanka (J. Aloy Niresh & T. Velnampy, 2014). When earnings per share will increase, than all those investors who wants short term gain and conscious for dividend sell their stock in to the market due to which in near future the stock

returns of the company will be decrease due to excess supply of stocks, while return on equity and quick ratio shows insignificant impact on stock returns (Maryyam Anwaar, 2016). (Hamid Reza Shammakhi, Azita Mehrabi, 2016) Positive relationship between relative price gap of liquidity measures and stock returns means that by increasing the relative price gap, liquidity risk of stock increases and risk increasing follows the expectation of achieving high returns for investors,In the second hypothesis, the relationship between stock turnover rate and stock return was investigated that the results indicated a significant and direct correlation between these two variables.

Stock liquidity has a significant positive effect on stock returns,Company size (SIZE) hasn't significant effect on stock returns,Growth Opportunity has a significant positive effect on stock returns(Sri Maemunah Soeharto, 2019). (Hirdinis M, 2019) capital structure has a significant positive effect on firm value while firm size has a significant negative effect on firm value; Profitability has no significant effect on firm value, whilst company size has a significant positive effect on profitability. However, profitability is not able to mediate the influence of capital structure and firm size on firm value.

Figure No. 5

Source, Complied by Author

III.   <u>Research Methodology</u>

3.1.   <u>Introduction</u>

The foundation of any research project is its research approach. It describes the methodical approach to gathering, evaluating, and interpreting information in order to address your research topic. This plan entails deciding on the general strategy (explanatory, descriptive, or exploratory), picking the data collection instruments (experiments, surveys, etc.), and outlining the steps you'll take to guarantee the validity and generalizability of your

conclusions. A clear technique makes your research credible, focused, and enables others to comprehend and maybe duplicate your work.

3.2.   **Problem of the study**

The problem of the study is to identify whether there is an impact of liquidity on stock return by considering two measures of liquidity and by framing two separate regression equation to be test which is the liquidity measure show the impact of liquidity on stock return. Through the way of panel data and by considering two fixed or constant variables that is Market capitalization means the Size of the firm and Growth opportunity means the growth of the firm while running the test by using analyzing model and concluding that whether there is an effect of liquidity on stock return or not an giving advice to the investor to take their investment decision by considering the liquidity information and return information.

3.3.   **Research Gap**

The literature indicates that no comparison study incorporating three indices in a single study has been conducted. Three indexes—the Nifty Large Cap 50, Nifty Mid Cap 50, and Nifty Small Cap 50—have been included because the majority of academics utilize the major index as a benchmark. Based on their market capitalization, all of the companies that are listed on the stock exchange are rated. Large cap firms often have a stellar performance history and a notably high market capitalization of at least Rs. 20,000 crore. Similar to this, mid-cap firms are those that fall between rankings 101 and 250 in terms of market capitalization, with revenues ranging from Rs. 5000 crore to Rs. 20,000 crore. They may not be included in broad market indices and have a modest to high market presence. In a similar vein, small cap firms have a short track record and are ranked from 251 places. These companies, which are valued at less than Rs. 5000 crore and are not included in broad market indices, may be relatively young start-ups or corporations that are still in the development stage.

Large-cap investors typically look to invest for the long term because there is typically less risk involved, a larger possibility for stable returns, and the stocks are frequently more liquid and less volatile. Every investor wants to increase their profits by making investments, and since most investors use liquid stocks, the impact of liquidity on stock return is also crucial to consider. In the case of mid-cap, investors are moderately risk-tolerant and invest for long-term risk, which is greater than large-cap and has potential for growth. In the case of small-cap, aggressive investors with short-term goals, include risks, highly volatile, and not very liquid. In the study two factors are kept to be constant they are Market capitalisation that is Size of the firm and Growth Opportunity that is growth of the firm. While testing the objective two regression equations has been frame separately for two measures of liquidity that is as follows:

1. $R = C + Amihud + S + G$ (Equation 1)
2. $R = C + Turnover + S + G$ (Equation 2)

Where (Equa.1), Dependent variable is stock return which is denoted as R.

C denoted as Constant.

Amihud is a measure of liquidity.

S & G are Size and Growth Resp. which is fixed variables.

Where (Equa.2), Dependent variable is stock return which is denoted as R.

C denoted as Constant.

Turnover is a measure of liquidity.

S & G are Size and Growth Resp. which is fixed variables.

3.4.   Period and Source of the study

The period of the study is 1st April 2013 to 31st March 2023 is financial year selected for the study. The daily data has been collected for the selected variables from the Centre of Monitoring Indian Economy (CMIE).

3.5.   Sample size of the study

The sample size for the study is total 116 companies has been consider among which 47 companies are from Nifty 50, 39 companies from Nifty Mid Cap 50 and 30 companies from Nifty Small Cap 50. Instead of 150 companies 116 companies has been taken and remaining 34 companies are not consider because these companies are not listed on National Stock Exchange (NSE) since 2013 they are listed on NSE in between for that these companies are not consider.

3.6.   Variables of the study

- **Stock Return**

The change in value of an asset or investment over time, whether positive or negative, is called a stock market return. A profit on the investment is shown by a positive return. An investment has resulted in a loss if the return is negative. Dividends and interest payments are included in total stock market returns, along with changes in stock price. A nominal return is the change in the stock price alone. The primary aspect to take into account when calculating a favourable return is the degree of risk involved.

For instance, purchasing penny stocks has a significant danger of losing money, but there is also a chance that the investment may yield a return of more than 100%, which is an unlikely scenario. with less risky, steady, high-value stocks. Generally speaking, you can assess the success of your stocks by comparing their return to the returns of other stocks in the same industry. From there, you can adjust your stock selection.

$$\text{Stock Return} = \frac{\text{Today's Price}}{\text{Yesterday's Price}}$$

- **Amihud(2002)**

In the financial literature, the most widely used proxy for stock liquidity is the Amihud illiquidity measure. This metric is mostly used to determine how illiquid stocks are. Yakov Amihud put out the proposal for the measure in 2002. A common illiquidity metric is the Amihud metric. The following explains why equities with a high Amihud measure yield higher returns. Due to the increased illiquidity of these funds, investors purchasing these stocks may anticipate more transaction fees and market impact upon selling the assets. They are thus more vulnerable to the risk of illiquidity. It is crucial to emphasize that a stock's illiquidity is captured by the Amihud measure. Consequently, in order to quantify the Therefore, the reciprocal of the Amihud measure is what we should actually take in order to measure the liquidity. By doing this, the Amihud liquidity ratio is obtained.

$$\text{Amihud (2002)} = \frac{\text{Price per Share}}{\text{Volume of the shares}}$$

- **<u>Stock Turnover</u>**

Share turnover ratio indicates how easy or difficult it is to sell shares of a particular stock on the market. It compares the number of shares that change hands during a particular period with the total number of shares that could have been traded during that same period. While investors may be reluctant to take a chance by purchasing the shares of a company with low share turnover, share turnover is an interesting metric because the correlations don't always hold true.

Since smaller companies are theoretically less liquid than larger organizations, investors frequently expect that smaller companies will have lower share turnover. In contrast to large organizations, these businesses frequently experience a higher share turnover rate.

$$\text{Stock Return} = \frac{\text{Number of shares traded}}{\text{Number of shares Outstanding}}$$

- **Size of the Firm**

It refers to the amount of work produced by a single company. The efficiency and profitability of a business are greatly impacted by its size, making it an essential subject of research. Acknowledging a firm's "size" and how it impacts the company and profitability of business ventures is one of the most crucial entrepreneurial decisions in business organization.

The scope of an enterprise's operations and organizational structure is referred to as its "business size." Understanding the meaning of the phrases "plant size," "firm size," and "industry size" is crucial in this context. A "plant" is a location where products are manufactured. It stands for a production unit where all actions are provided on time. Supporting the made-to-order production process. A "firm" is defined as an entity that owns, operates, and maintains one or more factories in addition to setting up product marketing, financing, and other organizational support systems.

$$\text{Size of the Firm} = \boxed{\text{Market Capitalisation of the Firm}}$$

- **Growth of the Firm**

To put it simply, business growth is the extension of an organization through one or more channels. This can entail expanding the workforce or exploring untapped markets. There are several techniques to measure the growth of a business. Growth in Sales, Net Profit, Lead,

conversion rate, free cash flow, Cost per customer. To determine whether your company is expanding, you must examine your existing KPIs. Your firm is growing, possibly in multiple directions, if you start to notice increases in some of this data.

Growth of the Firm = $\dfrac{\text{Market Price per Share}}{\text{Book Value per share}}$

3.7. Methodology for the Study

3.7.1. Objective 1:- Measurement of Stock Liquidity of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50.

The study employed daily data over 10 years, the data of three indexes namely Nifty Cap 50, Nifty Mid Cap50 and Nifty Small Cap 50 of the National Stock Exchange. The data related to the considered variables has been collected on the particular date 20th March 2024. In the study measure the liquidity of the stock market by considering the Amihud (2002) and stock Turnover. The volume and price of the companies has taken to measure the liquidity. First, downloaded the volume and price data of each company of above mention indexes, each index separately and by applying Stock Turnover measure the liquidity of each index has derive and Likewise the Daily return and dollar Volume data has been derive or downloaded for each company from index separately and by applying Amihud (2002) Measure the liquidity has measure. By using low frequency data the liquidity can be derive accurately. The data on Share Volume, Price of the share, Daily Return of the share, dollar Volume (the number of share traded multiply by the price) will be extract from the Centre for monitoring Indian Economy (CMIE) prowess database on daily basis. Each of the liquidity measure was calculated on a daily basis for every stocks containing in the sample over the entire period. From these objective get to know about the liquidity level of all three indexes and gives a clear picture to the investor to make their investment decision and also help to provide

information regarding the contribution of these indexes liquidity towards overall Indian Economy.

3.7.2. Objective 2:- To examine the effect Stock Liquidity on stock return of Nifty 50, Nifty Mid Cap 50 and Nifty Small Cap 50.

Here the study considers daily data over 10 years from 1st April 2013 to 31st March 2023. The data is collected on a particular date on 20th March 2024, To examine the effect of stock liquidity on stock return, the Amihud (2002) and Turnover Ratio has been used to measure the liquidity of the stock market and the sample size is 47, 39 & 30 companies from Nifty Large Cap 50, Nifty Mid Cap 50 and Nifty small Cap 50 resp. Where the stock return is dependent variable and selected liquidity measure will be an Independent Variables and also included two control variables like Size of the firm and Growth of the firm. The study used the Multiple Regression Model as independent variables are more than one variable through panel data regression.

3.8.   Tool and Techniques

1. Descriptive Statistics

A subfield of statistics known as descriptive statistics is concerned with condensing, arranging, and presenting data in an understandable and efficient manner. Without drawing any conclusions or generalizations to a wider population, it concentrates on summarizing and evaluating the key traits and aspects of a dataset. Descriptive statistics' main objective is to give readers a clear and succinct overview of the data so that analysts and researchers may learn more and recognize trends, patterns, and distributions in the dataset. Measures including central tendency (mean, median, mode), dispersion (range, variance, standard deviation), and distribution shape (skewness, kurtosis) are commonly included in this summary.

2. Unit Root Test (augmented Dickey-Fuller test)

An augmented Dickey–Fuller test (ADF) in statistics verifies the absence of a unit root in a sample of time series data. Depending on the test version being used, the alternative hypothesis varies, but it is typically either trend-stationarity or stationarity. It is an improved Dickey–Fuller test for a more extensive and intricate collection of time series models.The test's augmented Dickey-Fuller (ADF) statistic has a negative value. At a certain degree of confidence, the hypothesis that there are unit a root is strongly rejected the more negative it is.

3. Correlation Test

Correlation tests are similar to assessing pals. They evaluate how two items change in tandem to show the direction and strength of that relationship. Consider researching the temperature and sales of ice cream. If you ran a correlation test, you could find out if sales increase or decrease with temperature. The outcome of the test would be a number ranging from -1 to 1. When the temperature rises, sales decrease; conversely, when the temperature rises, sales increase. Correlation does not imply causation, though; perhaps a bigger number of people outside during the summer contribute to both higher temperatures and an increase in ice cream purchases. Correlation tests are useful instruments for identifying possible correlations and directing additional research, albeit this drawback.

4. Pooled OLS regression model

Assume the data that spans years and tracks numerous companies. This panel data can be analysed by treating it like a single, big dataset using a technique called pooled OLS regression. It looks for links between your variables, assuming there are no underlying differences between the companies themselves. It's an excellent place to start when trying to

figure out how one variable (like advertising spend) could influence another (like sales) over the whole dataset. One drawback, though, is that it could overlook crucial elements that are unique to every business. Other panel data models that take into consideration these possible company-level impacts are frequently used by academics for more in-depth analyses.

IV. Data Analysis and Conclusion

4.1. Introduction :

The narrative emerges during the data analysis stage, which comes after the calculations and relevant tests are completed. In this case, you would look for significant links, patterns, or trends in the data. This could entail doing hypothesis testing, producing visuals, or summarizing statistics. Ultimately, the conclusion is the pinnacle of your analysis. In this section, the results are interpreted and their relevance to your research issue is highlighted. The results should not only be restated in the conclusion; instead, their relevance and their ramifications should be discussed. This is the section in which you respond to your research question and clarify what the data actually indicates.

4.1.1. <u>Descriptive Statistics</u>

Table No.: 1 Descriptive Statistics of Nifty 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

	RETURNS	AMIHUD_LIQUIDITY	TURNOVER	MARKET_CAPITALISATION__S	GROWTH_OPPORTUNITY
Mean	0.000284	0.483340	5.091946	11.50269	1.301265
Median	0.000312	0.464982	4.951353	11.43125	1.256686
Maximum	0.001359	0.813278	6.544920	13.40790	1.968238
Minimum	-0.000674	0.323104	3.784790	9.824218	0.962718
Std. Dev.	0.000439	0.119034	0.699417	0.821895	0.209028
Skewness	0.106827	0.842260	0.275432	0.302269	0.916551
Kurtosis	2.669836	3.241505	2.336851	2.705287	3.855807
Jarque-Bera	0.302868	5.671198	1.455469	0.885797	8.014803
Probability	0.859475	0.058683	0.483002	0.642172	0.018181

A table with descriptive statistics for the following five variables: market capitalization, growth opportunity, turnover, return, and Amihud LI. The Nifty 50 index, a stock market index that monitors the performance of the top 50 firms listed on the National Stock Exchange of India, is the subject of the data. The average of every value in a data set is called the mean. For instance, the Nifty 50 index has a mean return of 0.000284. This indicates that for the course of the ten years, the index's average daily return was 0.0284%. When data is arranged in ascending order, the middle value is known as the median. For the Nifty 50 index, the median return is 0.000312.

This indicates that half of the index's daily returns were more than 0.0312% and the other half were lower. The standard deviation, often known as the standard deviation of deviance, expresses how dispersed the data are from the mean. Data that is more dispersed can be indicated by a greater standard deviation, while the data that is more concentrated around the mean can be shown by a smaller standard deviation. For the Nifty 50 index, the standard deviation of returns is 0.000439. Skewness quantifies a distribution's asymmetry. A distribution that has a longer tail on the right side and is skewed to the right is said to have a positive skew. A distribution that is left-skewed and has a longer tail on the left side is said to have a negative skew. The Nifty 50 index has a somewhat positive skewness of 0.106827 for its returns. A distribution's peakedness or flatness in relation to a normal distribution is measured by its kurtosis. A normal distribution is indicated by a kurtosis value of 3. A peaked distribution is indicated by a kurtosis value larger than three, and a flat distribution is indicated by a kurtosis value less than three.

The Nifty 50 index's kurtosis of returns is 2.669836, which is marginally smaller than 3, suggesting a distribution that is flatter than a normal distribution. The Jarque-Bera test, often known as Jarque Bera, is a normality test that determines if a set of data is normally distributed or not. If the probability value is less than 0.05, it suggests that the data is not

distributed regularly. Since 0.859475, the Jarque-Bera probability value for returns, is greater than 0.05, the null hypothesis that the data is normally distributed cannot be rejected.

Table No.: 2 Descriptive Statistics of Nifty Mid Cap 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

	RETURNS	AMIHUD_LIQUIDITY	TURNOVER	MARKETCAPITALISATION	GROWTH_OPPORTUNITY
Mean	0.000679	0.559515	3.498725	9.844517	1.408071
Median	0.000501	0.498772	3.668709	9.938770	1.257047
Maximum	0.002635	1.269770	4.830314	10.90437	4.467709
Minimum	-0.0006	0.284802	1.134165	8.679272	0.956797
Std. Dev.	0.000818	0.245690	0.832224	0.509749	0.630323
Skewness	0.501889	1.607358	-0.88928	-0.34974	3.890651
Kurtosis	2.402312	4.746347	3.551447	3.059570	17.99867
Jarque-Bera	2.104068	20.63387	5.345547	0.759774	440.1591
Probability	0.349227	0.000033	0.069060	0.683939	0.000000

The information pertains to the Nifty Mid Cap 50 index, a stock market metric that monitors the operational outcomes of the fifty mid-sized enterprises registered on the National Stock Exchange of India. The average of every value in a data set is called the mean. For instance, the Nifty Mid Cap 50 index has a mean return of 0.000679. This indicates that for the course of the ten years, the index's average daily return was 0.0679%.

The intermediate value in a data set, obtained by sorting the data from lowest to highest. Measures of Dispersion Standard Deviation (Std. Dev.): The standard deviation is a measure

of how spread out the data is from the mean; a higher standard deviation indicates that the data is more spread out, while a lower standard deviation indicates that the data is more clustered around the mean. The standard deviation of returns for the Nifty Mid Cap 50 index is 0.000818. Skewness: Skewness is a measure of the asymmetry of a distribution; a positive skew denotes that the distribution is skewed to the right, with a longer tail on the right. Skewness: Skewness quantifies a distribution's asymmetry. A distribution that has a longer tail on the right side and is skewed to the right is said to have a positive skew. A distribution that is left-skewed and has a longer tail on the left side is said to have a negative skew. The skewness of returns for the Nifty Mid Cap 50 index is 0.501889, which is slightly positively skewed.

A distribution's peakedness or flatness in relation to a normal distribution is measured by its kurtosis. A normal distribution is indicated by a kurtosis value of 3. A peaked distribution is indicated by a kurtosis value larger than three, and a flat distribution is indicated by a kurtosis value less than three. The Nifty Mid Cap 50 index's returns have a kurtosis of 2.402312, which is marginally less than 3, suggesting a flatter distribution than a normal distribution. The Jarque-Bera test, often known as Jarque Bera, is a normality test that determines if a set of data is normally distributed or not. If the probability value is less than 0.05, it suggests that the data is not distributed regularly. Since 0.349227, the Jarque-Bera probability value for returns, is greater than 0.05, the null hypothesis that the data is normally distributed cannot be rejected.

Table No.: 3 Descriptive Statistics of Nifty Small Cap 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

	RETURNS	AMIHUD_LIQUIDITY	TURNOVER	MARKET_CAPITALISATION	GROWTH_OPPORTUNITY
Mean	0.000463	0.381210	2.230314	8.655492	1.160995
Median	0.000372	0.364494	1.997773	8.709685	1.176038
Maximum	0.002026	0.574114	3.931967	9.731132	1.610051
Minimum	-0.00061	0.204200	0.418258	7.416507	0.895700
Std. Dev.	0.000684	0.102758	0.932724	0.535044	0.161527
Skewness	0.534802	0.046577	0.105695	-0.29446	0.496545
Kurtosis	2.911369	2.003549	1.799315	2.702600	3.477575
Jarque-Bera	1.439885	1.251992	1.857912	0.544092	1.517882
Probability	0.486780	0.534729	0.394966	0.761819	0.468162

The Nifty Small Cap 50 index is a stock market index that monitors the performance of the fifty smallest companies that are listed on the National Stock Exchange of India. The data pertains to this index. The average of every value in a data set is called the mean. The Nifty Small Cap 50 index, for instance, has a mean return of 0.000463. This means that the average daily return for the index over the 10-year period was 0.0463%. When data is arranged in ascending order, the middle value is known as the median. The For the Nifty Small Cap 50 index, the median return is 0.000372. This indicates that half of the index's daily returns were more than 0.0372% and the other half were lower. The standard deviation, often known as the standard deviation of deviance, expresses how dispersed the data are from the mean. Data that is more dispersed can be indicated by a greater standard deviation, whilst data that is more concentrated around the mean can be shown by a smaller standard deviation. For the Nifty Small Cap 50 index, the standard deviation of returns is 0.000684. Skewness quantifies a distribution's asymmetry. The Nifty Small Cap 50 index's skewness of returns is 0.534802, which is slightly positively skewed. Kurtosis measures how peaked or flat a distribution is in

relation to a normal distribution; a kurtosis value of 3 indicates a normal distribution, a kurtosis value greater than 3 indicates a peaked distribution, and a kurtosis value less than 3 indicates a flat distribution. The Nifty Small Cap 50 index's kurtosis of returns is 2.911369, which is slightly greater than 3, indicating a slightly peaked distribution. The Jarque-Bera test, often known as Jarque Bera, is a normality test that determines if a set of data is normally distributed or not. If the probability value is less than 0.05, it suggests that the data is not distributed regularly. Since the return Jarque-Bera probability value is 0.486780, which is higher than 0.05, the null hypothesis that the data is normally distributed cannot be rejected.

4.1.2. <u>Unit Root Test</u>

Table No.: 4 Unit Root Test of Nifty, 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

| Variables | t - statistics | Test critical values: | | | probability | decision |
		1% level	5% level	10% level		
Returns	-5.333286	-3.581152	-2.926622	-2.601424	0.0001	Reject
Amihud	-6.799422	-3.581152	-2.926622	-2.601424	0.0001	Reject
Turnover	-5.65996	-3.581152	-2.926622	-2.601424	0.0001	Reject
Size	-6.623395	-3.581152	-2.926622	-2.601424	0.0001	Reject
Growth	-8.933511	-3.581152	-2.926622	-2.601424	0.0001	Reject

The above table shows the unit root test for various variables including return, turnover, market capitalisation, and growth opportunity. It is a test used to determine whether a data is stationary or not. The table also shows the statistic critical value at1%, 5% and 10%

significance level and also the probability value. In this all the p- value of the variable is less than 0.01 which means that we can reject the null hypothesis for the entire variable at 1% significance level. T-Statistics of return is -5.333286 which is lower than the critical value at all significance level and P-Value is 0.0001, which is low, Amihud (2002) with the statistic of -6.799422 is lower than the critical values and P- value is 0.0001 which is less than 0.05, as well as the statistics of Turnover is -5.65996 which is lower than the negative critical value and P-Value is 0.0001 which is less than 0.05. Also the market capitalisation and growth opportunity with the T-Statistics is -6.623395 and -8.933511 resp. which is much lower than the critical value at all significance level and P-Value is 0.0001 and 0.0001 which is very low.

Table No.: 5 Unit Root Test of Nifty Mid Cap 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

Variables	t - statistics	Test critical values:			probability	Decision
		1% level	5% level	10% level		
Returns	-8.184155	-3.62678	-2.94584	-2.61153	0.0001	Reject
Amihud	-7.230029	-3.61559	-2.94115	-2.60907	0.0001	Reject
Turnover	-7.499651	-3.61559	-2.94115	-2.60907	0.0001	Reject
Size	-7.584065	-3.61559	-2.94115	-2.60907	0.0001	Reject
Growth	-2.965964	-3.62102	-2.94343	-2.61026	0.0476	Reject

T-Statistics of return is -8.184155 which is lower than the critical value at all significance level and P-Value is 0.0001, which is low, Amihud (2002) with the statistic of is -7.230029 lower than the critical values and P- value is 0.0001 which is less than 0.05, as

well as the statistics of Turnover is -7.499651 which is lower than the negative critical value and P-Value is 0.0001 which is less than 0.05. Also the market capitalisation and growth opportunity with the T-Statistics is -7.584065 and -2.965964 resp. which is much lower than the critical value at all significance level and P-Value is 0.0001 and 0.0001 which is very low.

Table No.: 6 Unit Root Test of Nifty Small Cap 50 index selected variables – Return, Amihud (2002), Turnover, Size, Growth of the companies for the period of 1st April 2013 to 31st March 2023 where it is consider daily data.

Variable	t - statistics	Test critical values:			probability	Decision
		1% level	5% level	10% level		
Returns	-4.142827	-3.67932	-2.96777	-2.62299	0.0032	Reject
Amihud(2002)	-4.686711	-3.67932	-2.96777	-2.62299	0.0008	Reject
Turnover	-4.929007	-3.67932	-2.96777	-2.62299	0.0004	Reject
Size	-3.719873	-3.67932	-2.96777	-2.62299	0.0091	Reject
Growth	-5.915891	-3.68919	-2.97185	-2.62512	0.0001	Reject

T-Statistics of return is -4.142827 which is lower than the critical value at all significance level and P-Value is 0.0032, which is low, Amihud (2002) with the statistic of is -4.686711 lower than the critical values and P- value is 0.0008 which is less than 0.05, as well as the statistics of Turnover is -4.929007 which is lower than the negative critical value and P-Value is 0.0004 which is less than 0.05. Also the market capitalisation and growth opportunity with

the T-Statistics is -3.719873 and -5.915891 resp. which is much lower than the critical value at all significance level and P-Value is 0.0091 and 0.0001 which is very low.

4.1.3. <u>Correlation Test</u>

Table No.: 7 Unit Root test for the Nifty 50 index for the variables like Return, Amihud (2002), Turnover, Market capitalization and Growth opportunity for the period of 1st April 2013 to 31st March 2023 with daily data.

	RETURNS	**AMIHUD**	**TURNOVER**	**SIZE**	**GROWTH**
RETURNS	1				
AMIHUD	0.294910754	1			
TURNOVER	-0.35598447	-0.37752782	1		
SIZE	-0.31460108	-0.15405445	0.714796839	1	
GROWTH	0.365326267	0.324476594	-0.30216772	0.043259469	1

The above correlation table shows the correlation between return, Amihud (2002), Turnover, Market capitalisation and growth opportunity. The correlation coefficient between return and Amihud is 0.294910754 which is very strong correlation means a strong chances for return to increase due to increase or decrease in liquidity. The range between the return and turnover is - 0.35598447 which is a negative correlation and have little tendency to decrease in return as the turnover decrease. 0.365326267 is the coefficient between return and growth of the firm is a positive correlation means slight tendency for return to increase as the growth of the firm increase, similarly the coefficient between market capitalisation and the size of the firm is - 0.31460108 which is very weak negative correlation where there is little chances for the return to decrease as the size of the firm decreases.

Table No.: 8 Correlation for the Nifty Mid Cap 50 index for the variables like Return, Amihud (2002), Turnover, Market capitalization and Growth opportunity for the period of 1st April 2013 to 31st March 2023 with daily data.

	RETURNS	AMIHUD_LIQUIDITY	TURNOVER	SIZE	GROWTH
RETURNS	1				
AMIHUD	0.038269021	1			
TURNOVER	-0.33969135	-0.24003011	1		
SIZE	-0.58005989	0.01931393	0.49642811	1	
GROWTH	-0.08426104	0.636833128	0.116714943	0.123955571	1

The above correlation table shows the correlation between return, Amihud (2002), Turnover, Market capitalisation and growth opportunity. The correlation coefficient between return and Amihud is 0.038269021 which is very strong correlation means a strong chances for return to increase due to increase or decrease in liquidity. The range between the return and turnover is - 0.33969135 which is a negative correlation and have little tendency to decrease in return as the turnover decrease. - 0.08426104 is the coefficient between return and growth of the firm is a weak positive correlation means slight tendency for return to increase as the growth of the firm increase, similarly the coefficient of between market capitalisation that is size of the firm is -0.58005989 which is very weak negative correlation where there is little chances for the return to decrease as the size of the firm decreases.

Table No.: 9 Unit Root test for the Nifty Small Cap 50 index for the variables like Return, Amihud (2002), Turnover, Market capitalization and Growth opportunity for the period of 1st April 2013 to 31st March 2023 with daily data.

	RETURNS	AMIHUD	TURNOVER	SIZE	GROWTH
RETURNS	1				
AMIHUD	0.3828334	1			
TURNOVER	-0.54930806	0.004634365	1		
SIZE	-0.60502633	-0.03366596	0.555105323	1	
GROWTH	0.243254581	0.309895145	-0.09507743	-0.246743536	1

The above correlation table shows the correlation between return, Amihud (2002), Turnover, Market capitalisation and growth opportunity. The correlation coefficient between return and Amihud is 0.3828334 which is very strong correlation means a strong chances for return to increase due to increase or decrease in liquidity. The range between the return and turnover is - 0.54930806 which is a negative correlation and have little tendency to decrease in return as the turnover decrease. 0.243254581 is the coefficient between return and growth of the firm is a weak positive correlation means slight tendency for return to increase as the growth of the firm increase, similarly the coefficient of between market capitalization that is size of the firm is -0.60502633 which is very weak negative correlation where there is little chances for the return to decrease as the size of the firm decreases.

4.1.4. <u>Pooled Regression Analysis test</u>

Table No.: 10 Regression Analysis for the Nifty 50 index for the period of 1st April 2013 to 31st March 2023 with daily data .

 1 equation: **(Return = Constant + Amihud + Market Capitalization + Growth opportunity)**

Model 1: Pooled OLS, using 47 observations

Included 6 cross-sectional units

Time-series length: minimum 7, maximum 8

Dependent variable: Returns

	Coefficient	Std. Error	t-ratio	p-value	
const	0.00101383	0.000911557	1.112	0.2722	
AmihudLiquidity	0.000513978	0.000519969	0.9885	0.3284	
Size	−0.000164300	7.12985e-05	−2.304	0.0261	**
Growth	0.000700343	0.000292843	2.392	0.0212	**

Mean dependent var	0.000284	S.D. dependent var	0.000439
Sum squared resid	6.57e-06	S.E. of regression	0.000391
R-squared	0.259658	Adjusted R-squared	0.208006
F(3, 43)	5.027093	P-value(F)	0.004482
Log-likelihood	304.2312	Akaike criterion	−600.4624
Schwarz criterion	−593.0618	Hannan-Quinn	−597.6775
rho	0.270407	Durbin-Watson	1.301809

The Coefficient is keeping all other independent variables fixed; this shows the estimated effect of a one-unit change in the independent variable on the dependent variable. Standard Error is the coefficient's standard error, a measurement of the sampling variability of the coefficient. The coefficient divided by the standard error is known as the t-ratio. It is employed to determine if the coefficient deviates statistically from zero. The probability of seeing a t-statistic as extreme as the one that was calculated, assuming that the real coefficient

is zero, is known as the p-value. A statistically significant coefficient is indicated by a low p-value (usually less than 0.05), which indicates that it is unlikely to be the result of chance. R-squared shows how much of the variance in the dependent variable can be accounted for by the model's independent variables. With an R-squared of 0.2596, it appears that 26% of the variation in returns can be explained by the model.R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared. This metric provides a more dependable assessment of the model's fit when contrasting models with varying quantities of independent variables. After taking into consideration the number of independent variables, an adjusted R-squared of 0.2080 indicates that the model accounts for around 21% of the variation in returns. $F_{(3,43)}$ an ANOVA test's F-statistic is used to determine if the model as a whole is statistically significant. At least one of the independent variables appears to have a statistically significant impact on returns, as indicated by the p-value of 0.0044, which indicates that the model is statistically significant.

Table No.: 11 Regression Analysis for the Nifty 50 index for the period of 1st April 2013 to 31st March 2023 with daily data.

2 equation: **(Return =Constant+Turnover+MarketCapitalization+Growth opportunity)**

Model 1: Pooled OLS, using 47 observations Included 6 cross-sectional units

Time-series length: minimum 7, maximum 8

Dependent variable: Returns

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.00127551	0.000884314	1.442	0.1564	
Turnover	−7.72835e-06	0.000135501	−0.05704	0.9548	
Size	−0.000172040	0.000110021	−1.564	0.1252	
Growth	0.000788817	0.000317369	2.485	0.0169	**

Mean dependent var	0.000284	S.D. dependent var	0.000439
Sum squared resid	6.71e-06	S.E. of regression	0.000395
R-squared	0.242893	Adjusted R-squared	0.190071
F(3, 43)	4.598372	P-value(F)	0.007051
Log-likelihood	303.7050	Akaike criterion	−599.4099
Schwarz criterion	−592.0093	Hannan-Quinn	−596.6250
rho	0.249109	Durbin-Watson	1.359511

R-squared shows how much of the variance in the dependent variable can be accounted for by the model's independent variables. With an R-squared of 0.2596, it appears that 26% of the variation in returns can be explained by the model.R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared. This metric provides a more dependable assessment of the model's fit when contrasting models with varying quantities of independent variables. After taking into consideration the number of independent variables, an adjusted R-squared of 0.1900 indicates that the model accounts for around 20% of the variation in returns. F (3, 43): An ANOVA test's F-statistic is used to determine if the model as a whole is statistically significant. At least one of the independent variables appears to have a statistically significant impact on returns, as indicated by the p-value of 0.007, which indicates that the model is statistically significant.

Table No.: 12 Regression Analysis for the Nifty Mid Cap 50 index for the period of 1st April 2013 to 31st March 2023 with daily data.

1 equation: **(Return=Constant + Amihud + Market Capitalization + Growthopportunity)**

Model 1: Pooled OLS, using 37 observations Included 5 cross-sectional units

Time-series length: minimum 5, maximum 8

Dependent variable: Returns

	Coefficient	Std. Error	t-ratio	p-value	
const	0.00967663	0.00225244	4.296	0.0001	***
AmihudLiquidity	0.000323485	0.000611210	0.5293	0.6002	
Size	−0.000918399	0.000228897	−4.012	0.0003	***
Growth	−9.75254e-05	0.000240047	−0.4063	0.6872	

Mean dependent var	0.000679	S.D. dependent var	0.000818
Sum squared resid	0.000016	S.E. of regression	0.000693
R-squared	0.342208	Adjusted R-squared	0.282409
F(3, 33)	5.722613	P-value(F)	0.002875
Log-likelihood	218.7948	Akaike criterion	−429.5896
Schwarz criterion	−423.1459	Hannan-Quinn	−427.3179
rho	−0.436836	Durbin-Watson	2.632216

Coefficient means keeping all other independent variables fixed, this shows the estimated effect of a one-unit change in the independent variable on the dependent variable. For instance, the Amihud Liquidity coefficient in this table is 0.000323485. This indicates that, assuming all other variables remain fixed, the expected return on investments increases by 0.000323485 for every unit increase in Amihud Liquidity. Standard Error is the coefficient's standard error, a measurement of the sampling variability of the coefficient. The coefficient divided by the standard error is known as the t-ratio. It is employed to determine if the coefficient deviates statistically from zero. In general, a low p-value (less than 0.05) and a high t-ratio (positive or negative) suggest that the coefficient is statistically significant. The

probability of seeing a t-statistic as extreme as the one that was calculated, assuming that the real coefficient is zero, is known as the p-value. A statistically significant coefficient is indicated by a low p-value (usually less than 0.05), which indicates that it is unlikely to be the result of chance.

Growth Opportunity (p-value = 0.6872) and Amihud Liquidity (p-value = 0.6002) do not exhibit statistical significance. Our suggests that their association with Return on Investments is not statistically significant in our model, and we cannot reject the null hypothesis that their coefficients are zero. Market Capitalization and Return on Investments have a statistically significant negative association (p-value = 0.0003). A negative coefficient indicates a decline in the expected return on investments with increasing market capitalization.

This may be due to the fact that larger businesses—those with higher market capitalization—generally have slower rates of investment returns and growth potential. The expected value of the dependent variable (Returns) when all of the independent variables are zero is represented by the constant term (0.00967663). R-squared this shows how much of the variance in the dependent variable (Returns) can be accounted for by the model's independent variables. With an R-squared of 0.3422, the model appears to account for almost 34% of the variation in returns. For a good model fit, a larger R-squared is often preferred. R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared. This metric provides a more dependable assessment of the model's fit when contrasting models with varying quantities of independent variables. After adjusting for the number of independent variables, the model's modified R-squared of 0.2824 indicates that it explains roughly 28% of the variation in returns.

The p-value and F-statistic The overall statistical significance of the model is tested using the F-statistic (F (3,43) = 5.722613) and its p-value (p-value(F) = 0.002875) from an ANOVA

test for the model. At least one of the independent variables appears to have a statistically significant impact on returns, as indicated by the p-value of 0.0028, which indicates that the model is statistically significant.

Table No.: 13 Regression Analysis for the Nifty Mid Cap 50 index for the period of 1st April 2013 to 31st March 2023 with daily data.

2 equation: **(Return = Constant + Turnover+ Market Capitalization + Growth opportunity)**

Model 1: Pooled OLS, using 37 observations

Included 5 cross-sectional units

Time-series length: minimum 5, maximum 8

Dependent variable: Returns

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.00953734	0.00234799	4.062	0.0003	***
Turnover	−6.68140e−05	0.000160362	−0.4166	0.6796	
Size	−0.000874447	0.000262041	−3.337	0.0021	***
Growth	−1.13373e−05	0.000185225	−0.06121	0.9516	

Mean dependent var	0.000679	S.D. dependent var	0.000818
Sum squared resid	0.000016	S.E. of regression	0.000694
R-squared	0.340096	Adjusted R-squared	0.280105
F(3, 33)	5.669091	P-value(F)	0.003023
Log-likelihood	218.7355	Akaike criterion	−429.4710
Schwarz criterion	−423.0273	Hannan-Quinn	−427.1993

rho	−0.451877	Durbin-Watson	2.662937

Coefficient: Keeping all other independent variables fixed, this shows the estimated effect of a one-unit change in the independent variable on the dependent variable. For instance, the Amihud Liquidity coefficient in this table is 0.000323485. This indicates that, assuming all other variables remain fixed, the expected return on investments increases by 0.000323485 for every unit increase in Amihud Liquidity.

Standard Error is the coefficient's standard error, a measurement of the sampling variability of the coefficient. The coefficient divided by the standard error is known as the t-ratio. It is employed to determine if the coefficient deviates statistically from zero. In general, a low p-value (less than 0.05) and a high t-ratio (positive or negative) suggest that the coefficient is statistically significant. The probability of seeing a t-statistic as extreme as the one that was calculated, assuming that the real coefficient is zero, is known as the p-value. A statistically significant coefficient is indicated by a low p-value (usually less than 0.05), which indicates that it is unlikely to be the result of chance. Growth Opportunity (p-value = 0.6872) and Amihud Liquidity (p-value = 0.6002) do not exhibit statistical significance. our suggests that their association with Return on Investments is not statistically significant in our model, and we cannot reject the null hypothesis that their coefficients are zero. Market Capitalization and Return on Investments have a statistically significant negative association (p-value = 0.0003). A negative coefficient indicates a decline in the expected return on investments with increasing market capitalization. This may be due to the fact that larger businesses—those with higher market capitalization—generally have slower rates of investment returns and growth potential.

The expected value of the dependent variable (Returns) when all of the independent variables are zero is represented by the constant term (0.00967663).R-squared is this shows how much of the variance in the dependent variable (Returns) can be accounted for by the model's independent variables. With an R-squared of 0.3422, the model appears to account for almost 34% of the variation in returns. For a good model fit, a larger R-squared is often preferred. R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared. This metric provides a more dependable assessment of the model's fit when contrasting models with varying quantities of independent variables. After adjusting for the number of independent variables, the model's modified R-squared of 0.2824 indicates that it explains roughly 28% of the variation in returns. The p-value and F-statistic The overall statistical significance of the model is tested using the F-statistic ($F_{(3,43)}$ = 5.722613) and its p-value (p-value(F) = 0.002875) from an ANOVA test for the model. At least one of the independent variables appears to have a statistically significant impact on returns, as indicated by the p-value of 0.0028, which indicates that the model is statistically significant.

Table No.: 14 Regression Analysis for the Nifty Small Cap 50 index for the period of 1st April 2013 to 31st March 2023 with daily data.

1 equation: (Return = Constant + Amihud + Market Capitalization + Growth opportunity)

Model 1: Pooled OLS, using 30 observations

Included 5 cross-sectional units

Time-series length = 6

Dependent variable: Returns

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.00622815	0.00189322	3.290	0.0029	***
AmihudLiquidity	0.00245352	0.000974552	2.518	0.0183	**
Size	−0.000763799	0.000183630	−4.159	0.0003	***
Growth	−7.72942e-05	0.000639392	−0.1209	0.9047	

Mean dependent var	0.000463	S.D. dependent var	0.000684
Sum squared resid	6.82e-06	S.E. of regression	0.000512
R-squared	0.497869	Adjusted R-squared	0.439931
F(3, 26)	8.593097	P-value(F)	0.000394
Log-likelihood	186.8833	Akaike criterion	−365.7666
Schwarz criterion	−360.1618	Hannan-Quinn	−363.9735
rho	−0.149661	Durbin-Watson	1.824058

Coefficient is keeping all other independent variables fixed, this shows the estimated effect of a one-unit change in the independent variable on the dependent variable. For instance, the Amihud Liquidity coefficient in this table is 0.000323485. This indicates that, assuming all other variables remain fixed, the expected return on investments increases by 0.000323485 for every unit increase in Amihud Liquidity. Standard Error is the coefficient's standard error, a measurement of the sampling variability of the coefficient. The coefficient divided by the standard error is known as the t-ratio. It is employed to determine if the coefficient deviates statistically from zero. In general, a low p-value (less than 0.05) and a high t-ratio (positive or negative) suggest that the coefficient is statistically significant. The probability of seeing a t-statistic as extreme as the one that was calculated, assuming that the real coefficient is zero, is known as the p-value. A statistically significant coefficient is indicated by a low p-value

(usually less than 0.05), which indicates that it is unlikely to be the result of chance. Growth Opportunity (p-value = 0.6872) and Amihud Liquidity (p-value = 0.6002) do not exhibit statistical significance. our suggests that their association with Return on Investments is not statistically significant in our model, and we cannot reject the null hypothesis that their coefficients are zero. Market Capitalization and Return on Investments have a statistically significant negative association (p-value = 0.0003). A negative coefficient indicates a decline in the expected return on investments with increasing market capitalization.

This may be due to the fact that larger businesses those with higher market capitalization generally have slower rates of investment returns and growth potential. The expected value of the dependent variable (Returns) when all of the independent variables are zero is represented by the constant term (0.00967663). R-squared is shows how much of the variance in the dependent variable (Returns) can be accounted for by the model's independent variables. With an R-squared of 0.3422, the model appears to account for almost 34% of the variation in returns. For a good model fit, a larger R-squared is often preferred. R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared.

This metric provides a more dependable assessment of the model's fit when contrasting models with varying quantities of independent variables. After adjusting for the number of independent variables, the model's modified R-squared of 0.2824 indicates that it explains roughly 28% of the variation in returns. The p-value and F-statistic is overall statistical significance of the model is tested using the F-statistic $F_{(3, 43)} = 5.722613$) and its p-value (p-value (F) = 0.002875) from an ANOVA test for the model. At least one of the independent variables appears to have a statistically significant impact on returns, as indicated by the p-value of 0.0028, which indicates that the model is statistically significant.

Table No.: 15 Regression Analysis for the Nifty Small Cap 50 index for the period of 1st April 2013 to 31st March 2023 with daily data.

2 equation: **(Return = Constant + Turnover + Market Capitalization + Growth opportunity)**

Model 1: Pooled OLS, using 30 observations

Included 5 cross-sectional units

Time-series length = 6

Dependent variable: Returns

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.00486558	0.00216614	2.246	0.0334	**
Turnover	−0.000231451	0.000129162	−1.792	0.0848	*
Size	−0.000513910	0.000231296	−2.222	0.0352	**
Growth	0.000483571	0.000640165	0.7554	0.4568	

Mean dependent var	0.000463	S.D. dependent var	0.000684
Sum squared resid	7.55e-06	S.E. of regression	0.000539
R-squared	0.444112	Adjusted R-squared	0.379972
F(3, 26)	6.924017	P-value(F)	0.001408
Log-likelihood	185.3577	Akaike criterion	−362.7154
Schwarz criterion	−357.1106	Hannan-Quinn	−360.9224
rho	−0.026456	Durbin-Watson	1.435977

Coefficient is keeping all other independent variables fixed; this shows the estimated effect of a one-unit change in the independent variable on the dependent variable. For instance, the

Amihud Liquidity coefficient in this table is 0.000323485. This indicates that, assuming all other variables remain fixed, the expected return on investments increases by 0.000323485 for every unit increase in Amihud Liquidity. Standard Error is the coefficient's standard error, a measurement of the sampling variability of the coefficient.The coefficient divided by the standard error is known as the t-ratio. It is employed to determine if the coefficient deviates statistically from zero. In general, a low p-value (less than 0.05) and a high t-ratio (positive or negative) suggest that the coefficient is statistically significant.The probability of seeing a t-statistic as extreme as the one that was calculated, assuming that the real coefficient is zero, is known as the p-value. A statistically significant coefficient is indicated by a low p-value (usually less than 0.05), which indicates that it is unlikely to be the result of chance.Growth Opportunity (p-value = 0.6872) and Amihud Liquidity (p-value = 0.6002) do not exhibit statistical significance. Suggests that their association with Return on Investments is not statistically significant in our model, and we cannot reject the null hypothesis that their coefficients are zero. Market Capitalization and Return on Investments have a statistically significant negative association (p-value = 0.0003). A negative coefficient indicates a decline in the expected return on investments with increasing market capitalization.

This may be due to the fact that larger businesses those with higher market capitalization generally have slower rates of investment returns and growth potential. The expected value of the dependent variable (Returns) when all of the independent variables are zero is represented by the constant term (0.00967663). R-squared is shows how much of the variance in the dependent variable (Returns) can be accounted for by the model's independent variables. With an R-squared of 0.3422, the model appears to account for almost 34% of the variation in returns. For a good model fit, a larger R-squared is often preferred.R-squared with an adjustment for the number of independent variables in the model is called adjusted R-squared. This metric provides a more dependable assessment of the model's fit when

contrasting models with varying quantities of independent variables. After adjusting for the number of independent variables, the model's modified R-squared of 0.2824 indicates that it explains roughly 28% of the variation in returns. The p-value and F-statistic is the overall statistical significance of the model is tested using the F-statistic ($F(3,43) = 5.722613$) and its p-value (p-value(F) = 0.002875) from an ANOVA test for the model. The model is statistically significant, according to a p-value of 0.0028, which indicates that at least one of the independent variables has a statistically significant impact on return.

4.2.   <u>**Finding**</u>

The analysis has been conducted to test the hypothesis as there is no impact or effect of stock liquidity on stock return where the test like Descriptive statistics, Unit Root Test, Correlation test and Pooled (OLS) regression analysis is employed where Nifty 50 with the mean value for return is 0.000284 which indicate the average daily return was 0.0284%. Median is 0.00312 it shows the half of the index's daily return were more than 0.0312% and other half were lower. The standard deviation of return is 0.000439 and also having positive skewness of 0.106827 for return. The kurtosis of return is 2.6698 which is smaller than 3 suggesting a distribution that is flatter than a normal distribution. The probability value is 0.8584, the Jargue Bera probability value is greater than 0.05. The data is normally distributed, likewise for the entire variables.

The Unit Root Test is conducted to see whether the data of variable are stationary or not. Where the T-statistics of return is -5.3332 which is lower than the critical value at all significant level and p-value is 0.0001, which is low. Amihud(2002) with the statistics of -6.7994 is lower than the critical value and p-value is 0.0001, less than 0.05, as well as the statistics of turnover is -5.6599 which is lower than the negative critical value and p-value is 0.0001. The t-statistics of size and growth is -6.6233 and -8.9335 resp. which is lower than the critical value at all significance level and p-value is 0.0001, which is very low.

Correlation test has been conducted to check the relationship between variables. The correlation between the return and Amihud is 0.2949 which is very strong correlation means a strong chances for return to increase due to increase or decrease in liquidity. The range between the return and turnover is -0.3559 which is a negative correlation and have little tendency to decrease in return as the turnover decreases. 0.3653 is the coefficient between return an growth of the company and the coefficient of return and market capitalisation is -0.3146 which is very weak negative correlation where little chances for return to increase or decrease as the size of the company increases or decrease.

The Pooled (OLS) regression analysis is conducted to see the relationship between dependent variable and independent variable. Where the R-squared 0.2596 it appears that 26% of variation is explained by the model. R-squared with an adjusted for the number of independent variable in the model is called adjusted R-squared. The 0.2080 indicated the model accounts for around 21% of variation in return. $F_{(3,43)}$ an ANOVA test's F-statistics is used to determine if the model as a whole is statistically significant. At least one of the independent variable appears to have a statistically significant impact on return, as indicated by p-value of 0.0044, which indicates that the model is statistically significant. When the regression take place with the turnover liquidity measure is considered where the R-squared value is 0.2428, it appears 25% of the variation in the dependent variable due to because of independent variable. Adjusted R-squared is 0.1900 which indicate 20% of variation in the return. $F_{(3,43)}$ an ANOVA test's F-statistics is used to determine if the model as a whole is statistically significant impact on return, as indicated by the p-value of 0.007 which indicates that the model is statistically significant.

4.3. <u>Conclusion</u>

The statistical technique employed to evaluate the link between a dependent variable (returns) and one or more independent variables (firm size, Amihud liquidity, and growth potential)

appears to be pooled OLS regression, which is what the analysis is based on. The findings demonstrate that, at the 5% level, the market capitalization coefficient a proxy for firm size is statistically significant and negative. According to this, larger companies in the Nifty 50 typically have lower returns, indicating a negative link between business size and returns. It is crucial to remember that the model's R-squared is at 0.2596, indicating that it only partially explains the difference in returns. This implies that other variables may have a greater bearing on how well Nifty 50 equities perform.

All things considered, the data points to a negative correlation between Nifty 50 returns and firm size. Nevertheless, as the model only accounts for a small fraction of the return fluctuation, other factors are probably more crucial in guiding investment decisions.

When the Nifty mid cap 50 is considered R-squared 0.3422 and Adjusted R-squared 0.2824 which indicate 35% of variation in return and only 28% model is fit for the data. Similarly, the Nifty small cap 50 is considered where R-squared 0.4978 and Adjusted R-squared is 0.4399 which indicate 50% of variation in in return and only 44% mode is fit for the data.

4.4. <u>Scope and limitation of the study</u>

The limitation of the study is only two fixed variables are included in the study and regression model is used in the study and four of the companies are excluded due to because of these companies are having negative value for the Book Value variable. So, the scope for the future researcher is to take more fixed variables and use different analysis tools by doing more literature review.

Reference

- Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. Journal of Financial Markets, 5(1), 31–56. https://doi.org/10.1016/S1386-4181(01)00024-6

- Amihud, Y., Hameed, A., Kang, W., & Zhang, H. (2015). The illiquidity premium: International evidence. Journal of Financial Economics, 117(2), 350–368. https://doi.org/10.1016/j.jfineco.2015.04.005

- Acharya, V. V., & Pedersen, L. H. (2005). Asset pricing with liquidity risk. Journal of Financial Economics, 77(2), 375–410. https://doi.org/10.1016/j.jfineco.2004.06.007

- Amihud, Y. (2000). Cross-Section and Time-Series Effects Cross-Section and Time-Series Effects. August.

- Anwaar, M. (2016). Impact of Firms' Performance on Stock Returns (Evidence from Listed Companies of Ftse-100 Index London, UK). 16(1).

- Akram, N. (2014). The Effect of Liquidity on Stock Returns : An Evidence From Pakistan. 16(2), 66–69.

- Ben Ammar, I., & Hellara, S. (2021). Intraday interactions between high-frequency trading and price efficiency. Finance Research Letters, 41(January 2020), 101862. https://doi.org/10.1016/j.frl.2020.101862

- Bhattacharya, S. N., Bhattacharya, M., & Basu, S. (2019). Stock market and its liquidity: Evidence from ARDL bound testing approach in the Indian context. Cogent Economics and Finance, 7(1). https://doi.org/10.1080/23322039.2019.1586297

- Banerjee, A., & Ghosh, A. (2011). The Measures of the Quality of Trading in a Stock: Empirical Evidence from the National Stock Exchange (INDIA). SSRN Electronic Journal, 1–15. https://doi.org/10.2139/ssrn.570546

- Chordia, T., Roll, R., & Subrahmanyam, A. S. (2001). Market Liquidity and Trading Activity Author (s): Tarun Chordia, Richard Roll and Avanidhar Subrahmanyam Source: The Journal of Finance, Apr., 2001, Vol. 56, No. 2 (Apr., 2001), pp. 501-530 Published by: Wiley for the American Finance Assoc. The Journal of Finance, 56(2), 501–530.

- Chordia, T., Roll, R. W., & Subrahmanyam, A. (2005). Market Liquidity and Trading Activity. In SSRN Electronic Journal. https://doi.org/10.2139/ssrn.237674

- Chordia, T., Roll, R., & Subrahmanyam, A. (2002). Order imbalance, liquidity, and market returns. Journal of Financial Economics, 65(1), 111–130. https://doi.org/10.1016/S0304-405X(02)00136-8

- Chang, Y. Y., Faff, R., & Hwang, C. Y. (2010). Liquidity and stock returns in Japan: New evidence. Pacific Basin Finance Journal, 18(1), 90–115. https://doi.org/10.1016/j.pacfin.2009.09.001

- Dey, M. K. (2005). Turnover and return in global stock markets. Emerging Markets Review, 6(1), 45–67. https://doi.org/10.1016/j.ememar.2004.09.003

- Datar, M. K. (2000). Stock Market Liquidity: Measurement and Implications Stock Market Liquidity: Measurement and Implications. The Fouth Capital Market Conference, 2189111(December)

- Datar, V. T., Y. Naik, N., & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. Journal of Financial Markets, 1(2), 203–219. https://doi.org/10.1016/S1386-4181(97)00004-9

- Foucault, T., Pagano, M., & Röell, A. (2013). Liquidity and Asset Prices. Market Liquidity, 1(4), 307–349. https://doi.org/10.1093/acprof:oso/9780199936243.003.0010

- Goyenko, R. Y., Holden, C. W., & Trzcinka, C. A. (2009). Do liquidity measures measure liquidity? Journal of Financial Economics, 92(2), 153–181. https://doi.org/10.1016/j.jfineco.2008.06.002

- Jun, S. G., Marathe, A., & Shawky, H. A. (2003). Liquidity and stock returns in emerging equity markets. Emerging Markets Review, 4(1), 1–24. https://doi.org/10.1016/S1566-0141(02)00060-2

- Journal, I., & This, X. (2019). Capital Structure and Firm Size on Firm Value Moderated by Profitability. VII(1), 174–191.

- Krishnan, R., & Mishra, V. (2013). Intraday liquidity patterns in Indian stock market. Journal of Asian Economics, 28, 99–114. https://doi.org/10.1016/j.asieco.2013.05.005

- Karkowska, R., & Palczewski, A. (2023). Does high-frequency trading actually improve market liquidity? A comparative study for selected models and measures. Research in International Business and Finance,64(September 2022), 101872. https://doi.org/10.1016/j.ribaf.2022.101872

- Kumar, S. (2011). Determinants of Liquidity in Open Electronic Limit Order Book Market. SSRN Electronic Journal, 1–37. https://doi.org/10.2139/ssrn.623183

- Korajczyk, R. A., & Sadka, R. (2008). Pricing the commonality across alternative measures of liquidity. Journal of Financial Economics, 87(1), 45–72. https://doi.org/10.1016/j.jfineco.2006.12.003

- Koech, P. (2012). RELATIONSHIP BETWEEN LIQUIDITY AND RETURN OF STOCK AT. November.

- Kingdom, U., Shammakhi, H. R., Branch, I., Mehrabi, A., & Faculty, E. (2016). STUDY THE EFFECT OF LIQUIDITY OF STOCK ON STOCK RETURNS IN THE COMPANIES LISTED IN TEHRAN STOCK EXCHANGE. IV(12), 423–434.

- Leirvik, T., Fiskerstrand, S. R., & Fjellvikås, A. B. (2017). Market liquidity and stock returns in the Norwegian stock market. Finance Research Letters, 21, 272–276. https://doi.org/10.1016/j.frl.2016.12.033

- Large, J. (2007). Measuring the resiliency of an electronic limit order book. Journal of Financial Markets, 10(1), 1–25. https://doi.org/10.1016/j.finmar.2006.09.001

- Lo, A. W., & Wang, J. (2000). Trading volume: Definitions, data analysis, and implications of portfolio theory. Review of Financial Studies, 13(2), 257–300. https://doi.org/10.1093/rfs/13.2.257

- Mishra, D. S. K. (2012). Stock Market Liquidity: Indian Experience. SSRN Electronic Journal, March 2011. https://doi.org/10.2139/ssrn.1791312

- Marozva, G. (2019). Liquidity and Stock Returns : New Evidence From Johannesburg Stock Exchange LIQUIDITY AND STOCK RETURNS : NEW EVIDENCE FROM JOHANNESBURG STOCK EXCHANGE. 53(2).

- Narayan, P. K., & Zheng, X. (2011). The relationship between liquidity and returns on the Chinese stock market. Journal of Asian Economics, 22(3), 259–266. https://doi.org/10.1016/j.asieco.2011.02.005

- Naik, P., & Reddy, Y. V. (2021). Stock Market Liquidity: A Literature Review. SAGE Open, 11(1). https://doi.org/10.1177/2158244020985529

- Niresh, J. A., & Velnampy, T. (2014). Firm Size and Profitability : A Study of Listed Manufacturing Firms in Sri Lanka. 9(4), 57–64. https://doi.org/10.5539/ijbm.v9n4p57

- Petkova, R., Akbas, F., & Armstrong, W. J. (2012). The Volatility of Liquidity and Expected Stock Returns. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1786991

- Sarr, A., & Lybek, T. (2002). SSRN-id880932 (1).pdf. Available at SSRN 880932

- Shi, Y., Peng, S., Yu, A., & Guo, K. (2023). Research on Liquidity Measurement and Influencing Factors of China Carbon Emission Allocation Trading Market. Procedia Computer Science, 221, 1448–1457. https://doi.org/10.1016/j.procs.2023.08.137

- Saad, M., & Samet, A. (2017). Liquidity and the implied cost of equity capital. Journal of International Financial Markets, Institutions and Money, 51, 15–38. https://doi.org/10.1016/j.intfin.2017.08.007

- Violita, C. E. (2019). Stock Liquidity And Stock Return. 3, 111–122.

The List of the companies which are not considered in the study

Nifty 50

Sr.No.	Company Name	Date
1	HDFC life insurance	17 November 2017
2	SBI life insurance	3 October 2017
3	Ltimindtree Ltd.	21 July 2016

Nifty mid Cap 50

Sr. No.	Company Name	Date
1	AU Small finance bank lt.	10 July 2017
2	Aditya Birla Capital Ltd.	1 September 207
3	Alkem Laboratory Ltd.	23 December 2015
4	Bandhan Bank ltd	27 March 2018
5	Dalmia Bharat ltd	26 December 2018
6	Gujarat Gas ltd	15 September 2015
7	HDFC Asset Mgnt. Co. ltd.	6 August 2018
8	IDFC first Bank ltd.	6 November 2018
9	L & T Technology service ltd.	23September 2016
10	Poly cab India ltd.	16 April 2019

11	Vodaphone ltd.	BV Value was Negative

Nifty Small Cap 50

Sr No.	Company Names	Date
1	Angel one ltd.	5 October 2020
2	Anupam Rasayan India ltd.	24 March 2021
3	Bikaji Foods ltd.	16 November2022
4	Campus Active wear ltd.	9 May 2022
5	Central Depository services	30 June 2017
6	Computer Age. Mgnt. Service ltd	5 October 2020
7	Global health ltd.	16 November 2022
8	India Mart intermesh ltd.	4 July 2019
9	Indian energy exchange ltd.	23 October 2017
10	Kalayan jewellers India ltd.	26 March 2021
11	Mahanagar Gas ltd.	1 July 2016
12	PNB housing finance	7 November 2016
13	Piramal Pharma ltd.	19 October 2022
14	RBL Bank ltd.	31 August 2016
15	Route Mobile ltd	21 September 2020

16	Shree renuka ltd.	BV Value is negative
17	Suzlon energy ltd	BV Value is negative
18	JBM ltd	BV Value is negative
19	Tejas network ltd	27 June 2017
20	UTI Asset Mgnt. Co. ltd.	12 October 2020