Available online at http://cusitjournals.com/index.php/CURJ (e-ISSN:2409-0441)
(ISSN-P: 2220-9174)

CITY UNIVERSITY RESEARCH JOURNAL
Vol (14), No. (2), December, 2024

THE SYNERGY OF LIQUIDITY, SOLVENCY, AND PROFITABILITY: ANALYZING INVESTOR BEHAVIOR IN STOCK EXCHANGES

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Abstract

It is essential to use a profitability ratio and a solvency ratio to examine financial statements to ascertain a company's financial performance. The purpose of this study is to assess the financial performance of companies by analyzing key profitability and solvency ratios, specifically to understand their effects on stock return and liquidity. Utilizing secondary data from the financial statements of paper and board companies listed on the Pakistan Stock Exchange (PSX) 100 index between 2018 and 2022, the study employs multiple linear regression and mediation analysis conducted via IBM SPSS Statistic 25. Key variables include Return on Assets (ROA), Debt to Equity Ratio (DER), stock return, and stock liquidity. The findings reveal that while profitability has a significant negative impact on stock liquidity and return, solvency exhibits a positive and considerable influence. The study's contributions are particularly relevant for investors and market participants seeking to understand stock behavior during periods impacted by the pandemic. The research provides valuable insights into the dynamics between financial ratios and stock performance, aiding in more informed decision-making and financial planning.

Keywords: Profitability; Stock Liquidity; Solvency; Stock Return; Debt to Equity Ratio

JEL Codes: G10; G11; G18; G20; G23

1. INTRODUCTION

Capital markets are one of the methods for investing money. Because capital markets serve both an economic and a financial role, they contribute to the economic growth of a country (Erkol & Sherif, 2017). Stock is one of the assets exchanged in capital markets, and investors are one of the market participants. When buying stocks, investors hope for a high rate of return (Sutriani, 2014). The amount of capital gains that investors get when selling shares can be influenced by the state of stock prices (Gursida et al., 2016). Stock returns might fluctuate depending on stock liquidity (Chang et al., 2010). Liquidity in the stock market is an essential feature of the market; its absence causes volatility, while its presence permits the market to operate efficiently. Market liquidity, according to Brennan et al. (2012), is the stock market's capacity to swiftly absorb a large number of securities at cheap execution costs without materially affecting asset values. Amihud et al. (2006) define market liquidity as the willingness of interested parties to exchange a certain number of shares at the stated price without holding out. This study is significant as it provides critical insights into how profitability and solvency ratios influence stock return and liquidity. By examining financial data from companies listed on the Pakistan Stock Exchange, it helps investors and market participants better understand stock behavior, particularly during pandemic-affected periods, aiding informed financial decision-making.

Liquidity and stability are the main traits of financial markets. Liquidity is extensively studied as an essential quality of capital assets and is essential to the operation of financial markets (Ahmed et al., 2020). Markets with high liquidity are more likely to draw investors' attention, claim Tran et al. (2018). Economic theory predicts that the bid-ask gap widens as uncertainty and risk rise; however, the spread is also connected with illiquidity, according to Glosten and Milgrom (1985) and Hasbrouck (1988). Market illiquidity may cause market degradation, claim Amihud et al. (1990). They contend that problems with stock trading and a decrease in liquidity contributed to the 1987 stock market crash, at least in part. Since market circumstances are particularly unpredictable during financial crises, liquidity is essential for investors and becomes even more so (Ben Rephael, 2011). Liquidity is a significant concern during the COVID-19 pandemic, according to Adrian and Natalucci (2020), and we concur that it is now crucial to evaluate and appreciate how COVID-19 has affected stock liquidity. This reflects the ease with which a company's shares can be bought or sold without significantly impacting its price. During the COVID-19 pandemic, liquidity became a crucial factor due to heightened market volatility and uncertainty. Evaluating liquidity as a control variable allows researchers to isolate the effects of other financial metrics, such as profitability and solvency, and better understand how external shocks, like the pandemic, influence stock performance. By controlling for liquidity, it becomes possible to assess the direct and indirect impacts of market disruptions on stock returns, helping investors and stakeholders make informed decisions in turbulent times. This has also been supported by liquidity preference theory by Keynes (1936) and described by Brady (2024), which suggests that during periods of uncertainty, investors prefer liquid assets to manage risk. COVID-19 triggered such uncertainty, making liquidity essential for maintaining market stability. Additionally, Khairajani (2023) explained the efficient market hypothesis of Fama (1970) suggests that liquidity constraints can distort stock prices during crises, meaning that even fundamentally sound stocks may see price declines due to reduced liquidity. Therefore, analyzing liquidity's role during the pandemic is critical to understanding market behavior and financial stability in crisis periods, as highlighted by Adrian and Natalucci (2020).

Market liquidity is necessary for traders since it affects the magnitude of their returns and makes it simpler to develop winning trading methods. Amihud & Mendelson (1986), Lam & Tam (2011), Chang et al. (2010), and Bradrania et al. (2015) have all shown a link between market liquidity and stock returns. Additionally, a number of research (Bradrania & Peat, 2014; K. H. Lee, 2011; Cao & Petrasek, 2014) have looked at the important impact that changes in the liquidity situation have on investment decisions. Furthermore, studies have shown how market liquidity affects corporate governance frameworks and capital costs for commercial enterprises (Li et al., 2012; Nadarajah et al., 2018). The economy is heavily dependent on the liquidity of the stock market, even more than usual. Ellington (2018) emphasized that lower liquidity levels impede economic growth when a crisis is present. Apergis et al. (2015) added that the state of the stock market's liquidity has an impact on investor sentiment, which in turn affects the forecast for the economy. Nneji (2015) also demonstrated how market liquidity demonstrates the market's resilience to shocks and economic crises of any form. Studies (Smimou, 2014; Naes et al., 2011) view it as a significant predictor of the state of the economy going forward.

Despite extensive research on stock market liquidity (Amihud & Mendelson, 1986; Kyle, 1985; Grossman & Miller, 1988; Chordia et al., 2001), its importance for investors, corporate businesses, regulators, and the economy at large was not fully realized until the 2008 financial crisis. Restoring market confidence by retaining appropriate liquidity constituted a key barrier to the recovery from the crisis for many of the world's countries. As a result, studies on stock market liquidity increased during the post-crisis period and found significant regulatory and investment ramifications of market liquidity dynamics. The scope of stock market liquidity was broadened by these studies, which also acknowledged the important contributions of previous research and offered different points of view and better methods for addressing market liquidity across different data sets, market structures, and time periods.

Diverse industries are very valuable, although they are typically field-specific, or their scope might be considered to concentrate around a certain area. But the paper business has a broad scope because it is involved in every aspect of life. The paper industry is a very active sector that also plays an important role in a nation's economy (NPCS Board of Consultants & Engineers, 2017). Paper is employed in practically every aspect of modern life, including the educational, non-educational, formal, and informal spheres, as well as the personal and social spheres. Paper is used for every aspect of our everyday lives, including books, journals, diaries, newspapers, magazines, notepads, various types of cards, tracing papers, binding sheets, envelopes, supermarket bags, etc. Throughout the first COVID-19 phase, which began in Pakistan in February 2020 and lasted until June 2020, all schools were closed, and children were required to live and study at home (Liu et al., 2020). As a result, less paper was utilized than before. All stationary stores kept their inventory and the majority of their books and notebooks in storage areas. In response to this disruption in the supply and demand chain, the paper mills have opted to limit their daily paper production. Over July-March of fiscal year 2022, the output of paper and board climbed by 8.5%, compared to a decrease of 0.6% during the same period in the prior fiscal year (Pakistan Economic Survey, 2021).

Our paper adds a great deal to the existing body of information. First, the literature now in existence shows that, only in typical corporate environments, stock liquidity has a number of advantageous effects on governance procedures and the local community. Enhancing the research on this problem, we use the COVID-19 epidemic as an unexpected event to directly analyze stock liquidity prior to and following the epidemic (Phan and Narayan 2020; Shen et al. 2020).

Furthermore, this research adds to the body of knowledge regarding the effects of an unanticipated calamity on the return and liquidity of firm stocks. We study the impact of profitability and solvency on stock liquidity to better understand the micro-level consequences of comparable catastrophes. The main research objectives of this study are:

1. To analyze the impact of profitability ratios on stock return and liquidity among paper and board companies listed on the Pakistan Stock Exchange.
2. To examine the effect of solvency ratios on stock return and liquidity, particularly during pandemic-affected periods.
3. To investigate the mediation effects between profitability, solvency, and stock performance, providing a comprehensive understanding of their relationships.

The problems identified to be addressed in this study are firstly, the relationship between profitability and solvency ratios with stock return and liquidity is not well-defined, leading to inconsistent results across different industries and markets. Secondly, **t**here is insufficient knowledge regarding how financial performance metrics influence stock market behavior during times of economic disruption, such as the COVID-19 pandemic and thirdly, **e**xisting literature has not adequately explored the financial dynamics within specific sectors, such as paper and board companies, especially in emerging markets like Pakistan. These problems are basically identified to address some potential gaps such as few studies have examined the relationship between financial ratios and stock market behavior in the paper and board industry, leaving a gap in sector-specific financial research. Also, limited research exists on how profitability and solvency ratios affect stock liquidity and return during pandemic-affected periods, which is crucial for understanding market resilience. Moreover, the mediation effects between financial ratios (profitability and solvency) and their influence on stock liquidity and return have not been thoroughly examined, leaving a gap in understanding these interconnections.

This study is contextually important as it provides insights into how key financial performance indicators, particularly in the paper and board industry, affect stock market outcomes in Pakistan. The findings are especially relevant for understanding investor behavior and market stability during periods of economic uncertainty, such as the COVID-19 pandemic. By focusing on a specific sector in an emerging market, the research fills important knowledge gaps and aids in better financial planning and decision-making. The following research questions are identified to be investigates in this study:

1. How do profitability ratios, such as Return on Assets (ROA), impact stock return and liquidity in the paper and board sector listed on the Pakistan Stock Exchange?
2. What is the effect of solvency ratios, such as Debt to Equity Ratio (DER), on stock return and liquidity during the pandemic period?
3. How do profitability and solvency ratios interact to influence stock performance, and what mediation effects are present between these variables?

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

When determining whether to buy shares, prospective stock investors take several factors into account, including the company's financial performance. Sustaining and improving a business's financial performance is critical to its survival and the market demand for its stock. The

financial performance of the corporation is shown in its financial statements (Nuryani & Sunarsi, 2020). A solvency ratio and a profitability ratio must be used to analyze a company's financial statements in order to assess its financial performance (Chang et al., 2010). One metric used to gauge solvency is the Debt-to-Equity Ratio (DER). A company's trading volume will decrease if its DER is high. Another way to gauge profitability is by return on assets, or ROA. A firm's trade volume will rise if its return on assets (ROA) is high.

The effects of solvency and profitability on stock liquidity, stock returns, and stock liquidity on stock returns have all been the subject of contradictory previous study. According to Gopalan et al. (2009), stock liquidity is positively impacted by DERs. However, Lipson and Mortal (2009) assert that DERs have a detrimental impact on stock liquidity. According to Zahoor et al. (2017), stock liquidity is positively impacted by a ROA. Asle et al. (2013) draw attention to the fact that a ROA has a detrimental effect on stock liquidity. According to Sausan et al. (2020), DERs have a positive effect on stock returns. DERs, according to Allozi et al. (2016), have a detrimental impact on stock returns. A ROA is said to have a positive effect on stock returns by Khediri and Daadaa (2011). But according to Lesmond et al. (2008), a ROA has a detrimental impact on stock returns. Baker and Stein (2004) found that stock returns are positively impacted by stock liquidity. On the other hand, Chang et al. (2010) claim that stock liquidity negatively impacts stock returns.

Stock Returns

A return is the advantage that people, businesses, and organizations gain from their investment plan, according to Gardner (1985). To produce a profit (return) is the common objective shared by all prospective investors. There are investors that focus more on short-term gains than long-term gains. Achieving a profit, also known as a return, either directly or indirectly is the primary objective of any investment, regardless of how long-term or short-term. According to Gardiner (1985), a return can be divided into two categories: accomplished return and expected return. (1) Realized returns are also referred to as earned returns; (2) Expected returns are returns that investors believe will occur. Sanim (2017) states that a number of internal and external factors have an impact on the rate of return and stock returns.

Intrinsic variables: (1) Marketing, manufacturing, and sales-related announcements, like contract details, price modifications, product recalls, production updates, product safety updates, and sales reports; (2) Financing announcements, like equity or debt-related announcements; and (3) Management-board of directors announcements, like managing director and organizational structure changes. Announcements pertaining to diversification takeovers, including merger reports, equity investments, takeover reports through acquisitions, divestiture reports, etc.; (5) Investment-related announcements, like factory expansions, R&D, and other business closures; (6) Labor-related announcements, like new contracts, talks, strikes, etc.; (7) Business financial report announcements, like earnings forecasts before and after the fiscal year's end.

External factors include: (1) government announcements regarding economic restrictions and deregulatory acts; (2) legal notices, such as employee claims against managers and businesses retaliating against them; (3) securities notices, such as those concerning annual meetings, theft, trading volume or price, trading restrictions, or trade delays; (4) currency rate fluctuations and foreign policy volatility also have a significant impact on stock price swings on a country's stock exchange. (5) Several national and worldwide issues.

Return on Assets (ROA)

The profitability of a company's assets is gauged by its Return on Assets (ROA). The profitability of the company and its asset management are positively correlated with the ROA (Idawati & Wahyudi, 2015). ROA calculates how well a business uses its assets to generate earnings, or return. Businesses with solid performance are preferred by investors. A company's transaction volume will rise in the event of great performance, which will raise investors' stock returns. As a result, the trade volume increases with increasing ROA. A company generates net revenue from its assets more efficiently the higher its return on assets (ROA). Investors will be encouraged to fund the company as a result. The demand for the company's shares increases with the number of potential investors. It will affect the increasing value of stocks (Idawati & Wahyudi, 2015).

Debt to Equity Ratio (DER)

The Debt-to-Equity Ratio (DER) is a measure of solvency that shows how well a business can pay its debts by using some of its own capital as collateral (Nwude, 2003). A company's financial profitability and health are gauged by DER. Businesses need capital to finance their activities, as is well known. The issue of inadequate cash flow, with the consequences of interest, conditions of payment, etc., may be resolved by external finance. This ratio can also be used to assess how well the business is allocating its capital between its obligations and its own capital. In comparison to debt, less capital is employed the higher the DER ratio (Irman & Purwati, 2020).

Stock Liquidity

Stock liquidity, according to Brennan et al. (2012), is the ease with which an investor can use capital market processes to convert their shares into cash. Stock liquidity, according to Tran et al. (2018), is the ease with which securities can be sold or liquidated without losing value. Liquidity can be described as a stock's ability to be converted into cash without losing value. The volume of stock trades on a capital market in a specific time frame is known as liquidity.

Stock Liquidity and Return: The Impact of a Return on Assets (ROA)

A ROA has a favorable effect on stock liquidity, claim Zahoor, Saeed, and Hashmi (2017). The rate of return on assets (ROA) establishes the return on earnings as a dividend, which shareholders may choose to reinvest in the company or in other ventures. The dividends paid to shareholders increase in proportion to the level of profitability. Profits after taxes and interest are deducted will be distributed to shareholders as reasonable earnings. The percentage of income that a corporation will give as dividends increases with its earnings. As a result, investors will be more interested in buying a company's shares when its profits are higher. The company's trading volume will increase as a result. An increase in trade volume might be an indication of improved stock liquidity.

A ROA has a negative effect on stock liquidity, claim Asle et al. (2013). This happens because investors think that a high return on assets (ROA) could occasionally compromise a company's stability. Relatively high total receivables compared to current cash on hand might contribute to a company's high return on assets (ROA) ratio, but substantial earnings are not always the cause. If the company's cash flow is inadequate in comparison to its receivables, it will not be able to settle overly large debt. A capital owner may be in danger from an excessive debt if the

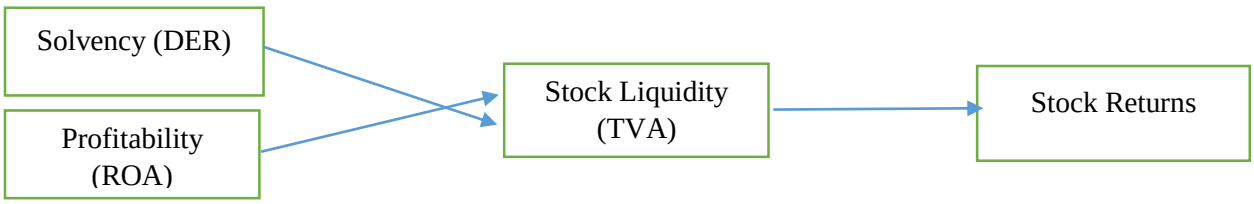
business cannot pay back the principal and interest. This is a situation that investors find objectionable.

Debt to Equity Ratio (DER)'s Impact on Stock Return and Liquidity

A DER has a positive effect on stock liquidity, according to Gopalan et al. (2009). As per the concept of capital structure, a corporation's worth rises when its debt levels surpass a particular level. If a company's management keeps a close eye on debt levels and preserves liquidity to support the expansion of the business's operations in order to increase profits, this will be a signal for the benefit of shareholders. A corporation with more debt is perceived by investors as having more value, which will lead to higher stock turnover and returns as well as higher trading volume. Increased trading volume is a sign of greater stock liquidity.

According to Lipson and Mortal (2009), a DER negatively impacts stock liquidity. The higher the value of a DER, the greater the danger that the company's management will not be able to manage its debt and commitments to its creditors. Consequently, shareholders sometimes disregard a firm with a high DER value. This will impact the liquidity of the stock market. Indicated by a reduction in trading volume, investor indifference in stocks with a high debt ratio will reduce the amount of stock liquidity. The conceptual framework of the study is given below:

Figure 1: Conceptual Model



Based upon our conceptual model above, following are the main research hypothesis:

The profitability of a company, as measured by its Return on Assets (ROA), influences its stock return.

H1: Profitability (ROA) has a significant impact on stock liquidity (TVA).

The solvency of a company, measured by the Debt to Equity Ratio (DER), significantly affects its stock liquidity.

H2: Solvency (DER) has a significant impact on stock returns.

Stock liquidity acts as a mediator in the relationship between profitability, solvency, and stock return, meaning the indirect effects of ROA and DER on stock return are transmitted through stock liquidity.

H3: Stock liquidity (TVA) mediates the relationship between profitability (ROA), solvency (DER), and stock returns.

3. RESEARCH METHODOLOGY

Types of research

This study is causal in nature. This study employs informal research methods (casual associative research). According to Sekaran and Bougie (2016), causal research is research that investigates the links between many factors. The objective of associative research is to identify correlations between variables.

Measures

Independent Variables

1. The ratio used to determine how much of an organization's assets are financed by debt is called solvency (X1). The following formula was used to calculate solvency:

$$\text{DER} = \frac{Total\ Debt}{Equity}$$

2. A company's ability to turn a profit is indicated by the ratio, which measures profitability (X2) (Idawati & Wahyudi, 2015). The following formula was used to calculate the profitability:

$$ROA = \frac{EAT}{Asset}$$

Intervening Variable

The ease with which an investor's shares can be converted into cash through a capital market mechanism is known as stock liquidity (Y) (Brennan et al., 2012). The following formula was used to determine the stock's liquidity:

$$\text{TVA} = \frac{\sum \text{traded stock}}{\sum \text{outstanding stock}}$$ (Ong, 2016)

Dependent Variable

The profit that organizations, individuals, and businesses make from their investing strategies is known as the stock return (Z) (Gardiner, 1985). The following formula was used to calculate the return on stocks:

$$Stock\ return = \frac{Pt - Pt{-}1}{Pt{-}1}$$ (Taslim & Wijayanto, 2016)

Data Types and Sources

The data utilized for this study is secondary data. This study utilized secondary data in the form of financial statements of paper and board companies included in the 100 index of the Pakistan Stock Exchange during 2018-2022. These financial statements were obtained from the Pakistan Stock Exchange website (www.psx.com.pk) and the official websites of each of these companies.

Population and Research Samples

This study's population consists of paper and board firms included in the 100 index and listed on the Pakistan Stock Exchange between 2018 and 2022. The sample represents a portion of the population from which attributes are estimated. Purposive sampling is used for the sampling

process. According to Sekaran and Bougie (2016), the method of purposive sampling is the selection of samples based on the sample's characteristics matching the sample selection criteria.

The sample criteria utilized in this study include:

- Paper and board firms listed on the Pakistan Stock Exchange's 100 index must provide audited financial statements for the period of 2018 to 2022.
- The company's data are complete and consistent with the researched variables.

Based on the aforementioned criteria, this study's sample consisted of seven Pakistan Stock Exchange-listed companies.

Data analysis technique

Using IBM SPSS Statistic 25 software, descriptive analysis, correlation analysis, and multiple linear regression analysis were performed on the data of this study.

4. RESULT AND DISCUSSION

Descriptive Statistics

Table 1 shows descriptive statistics for all variables employed in model. The study sample contains 28 observations that cover 7 paper and board firms throughout the period from 2018-19 to 2021-22.

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
ROA	28	-.15	.18	.0397	.07362	-.401	1.186
DER	28	.02	5.25	.8506	1.20442	2.798	7.943
Liquidity	28	.01	1.61	.3653	.41044	1.978	3.988
Return	28	-.74	.98	-.0250	.51835	.154	-1.357

Pearson Correlation

Table 2 provides Pearson correlation results to identify multicollinearity among all the model's input variables. 28 observations from 7 paper and board companies are included in the sample, which spans the years 2018–19 to 2021–22. The significance levels are shown by the symbols *, **, and ***, which are 10 percent, 5 percent, and 1 percent, respectively. The model's independent variables do not exhibit multicollinearity, according to the conclusion.

Table 2: Pearson Correlation

Variables	ROA	DER	Liquidity	Return
ROA	1			
DER	-.740**	1		
Liquidity	-.658**	.829**	1	
Return	.248*	-.199*	.177*	1

Hypothesis testing

According to H1, stock liquidity is impacted by profitability and solvency. Table 3 shows that, at a significance level of 0.01 for profitability (ROA) and solvency (DER), stock liquidity is significantly impacted positively and negatively, respectively. Maintaining other variables fixed, stock liquidity falls by 66% when ROA increases by 1% and grows by 83% when DER improves by 1%. According to R2, ROA accounts for 43% of the volatility in stock liquidity, whereas DER accounts for 69% of the variation.

Research by Asle et al. (2013) and Gopalan et al. (2009), which found that DERs have a positive influence on stock liquidity and ROA has a negative impact, respectively, corroborates the findings of this study. H1a and H1b are therefore approved.

Table 3: Results of linear regression analysis for H_1.

Model	Standardized Co-efficient of Beta	T	R2	Sig
H_{1a} (ROA)	-.658	-4.456	.433	.000
H_{1b} (DER)	.829	7.570	.688	.000

Testing for Mediation effect

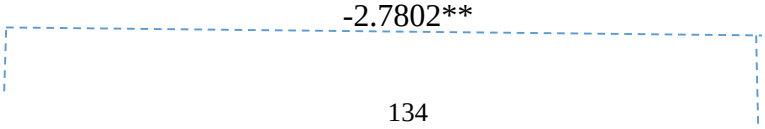
Hypotheses about mediation test was examined through SPSS version 25, by using PROCESS model 4 (Hayes, 2017). This method was increasingly used in studies that postulated and evaluated mediation research theories.

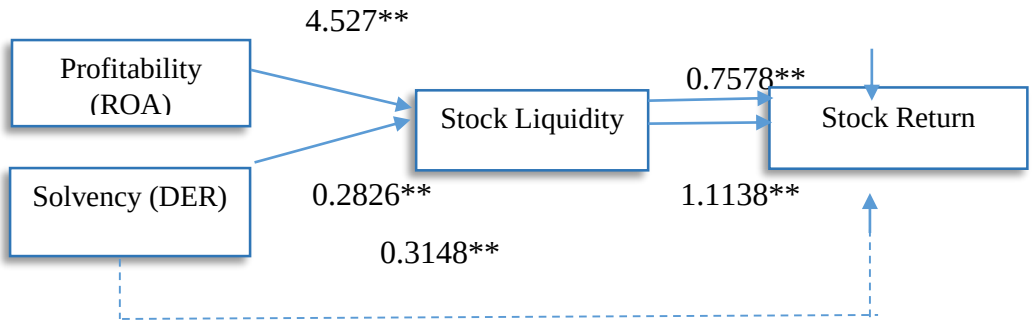
The mediation function of Stock liquidity was supported by bootstrapping based on 5,000 samples. H_2 proposed that DER has indirect effect on Stock return through Stock liquidity. The indirect effect of DER on the Stock return via Stock liquidity was positive and significant, as shown in figure 2 (β: 0.3148, $p < 0.05$, BootLLCI: 0.0642, BootULCI: 0.5219). Accordingly, H_2 is accepted.

A DER has a positive effect on stock liquidity, according to Gopalan et al. (2009). As per the concept of capital structure, a corporation's worth rises when its debt levels surpass a particular level. If a company's management keeps a close eye on debt levels and preserves liquidity to support the expansion of the business's operations in order to increase profits, this will be a signal for the benefit of shareholders. A corporation with more debt is perceived by investors as having more value, which will lead to higher stock turnover and returns as well as higher trading volume.

H_3 proposed that ROA has indirect effect on Stock return through Stock liquidity. The indirect impact of ROA on Stock return, as shown in Figure 2, was negative and significant (β: -2.7802, $p < 0.05$, BootLLCI: -5.6654, BootULCI: -0.3564). Accordingly, H_3 is accepted. A ROA has a negative effect on stock liquidity, claim Asle et al. (2013). This happens because investors think that a high return on assets (ROA) could occasionally compromise a company's stability. Relatively high total receivables compared to current cash on hand might contribute to a company's high return on assets (ROA) ratio, but substantial earnings are not always the cause. If the company's cash flow is inadequate in comparison to its receivables, it will not be able to settle overly large debt.

Figure 2: The result of the mediation effect





The impact of COVID 19 on Paper and Board Industry

The World Health Organization ("WHO") proclaimed the COVID-19 new coronavirus infection to be a global pandemic in March 2020. Governments all over the world have imposed strict measures to try and stop the virus's spread, including travel bans, social disassociation laws, quarantines, "stay-at-home" or "shelter-in-place" orders, closures or reduced operations for businesses, governmental organizations, schools, and other institutions. The outbreak has had a major impact on both the industry and the state of the global economy at the moment. Due to the general slowdown in economic activity and the continuation of commercial activities, the COVID-19 pandemic and its effects on economic activity had some impact on the country's operational and financial condition for the year ending June 30, 2021.

After experiencing a decline in GDP 2020 as a result of several factors, chief among them the Covid-19 pandemic in the latter part of that year, Pakistan's economy rebounded in FY 2021. Pakistan suffered the second and third waves of Covid-19 in FY2021. However, their effect on economic operations was mitigated by enhanced containment methods, such as intelligent lockdowns and the mass vaccination campaign. Moreover, economic stimulus measures, such as the State Bank of Pakistan's (SBP) concessional financing schemes and accommodative monetary policies, have helped businesses demonstrate a V-shaped recovery, resulting in an 8% expansion of Large-Scale Manufacturing (LSM) and a 3.9% expansion of the economy as a whole.

The size of the country's paper & paperboard market shrunk in 2020, and in FY 2021, the overall consumption of paper & paperboard goods improved, but was still marginally lower than the actual total consumption levels of FY 2018-19. As a result of Covid 19-related health concerns, consumer choice has shifted toward packaged products and online shopping, resulting in an increase in demand for packaging board and corrugated boxes. Due to repeated lockdowns, however, use of writing/printing papers decreased significantly.

5. CONCLUSION, IMPLICATIONS, AND LIMITATION

Conclusion

It can be concluded from the data analysis and hypothesis testing results of this study that solvency and profitability both significantly affect stock liquidity. Stock liquidity is favorably impacted by solvency. Profitability has an adverse effect on stock liquidity. Whereas ROA has a negative indirect effect via stock return, DER has a positive indirect influence via stock liquidity.

Managerial Implications

The study's findings have consequences for investors, corporate entities, and market authorities. Because it ensures both the market's stability and the tradability of assets, market liquidity is crucial to the stock market. As such, it is essential to regularly assess market liquidity.

The most current study places a strong emphasis on multidimensional methods for gauging liquidity, which will help investors, firms, and market regulators better monitor liquidity and make decisions. First, politicians and local authorities must proactively implement tight containment measures to boost investor confidence and ensure they are well-prepared for future pandemic waves. Second, investors should be self-informed with the most recent updates on pandemic trends and their potential impact on the economy and the stock market in particular, so that a correct analysis can be conducted for effective and rapid response tactics. In addition, investors must carefully evaluate a company's long-term commercial performance and corporate governance in order to avoid or mitigate the impact of a new epidemic and other unanticipated circumstances. This would also assist investors in capitalizing on investment opportunities that maximize earnings or minimize losses.

Theoretical Contributions

Several important theoretical breakthroughs are made in this study. We start by expanding the scope of our study on stock return and stock liquidity. There is little and inconsistent prior research on the relationship between stock return and stock liquidity, mostly from industrialized nations. Moreover, most of these studies have focused on their direct relationship. Therefore, this study is a significant contribution, especially in light of the way it examines the relationship between stock liquidity, profitability, and solvency in a developing country like Pakistan. Second, current research shows that, but only in typical company environments, stock liquidity has a number of advantageous effects on corporate governance and the information environment. We augment the pertinent research on this topic by explicitly evaluating stock liquidity before and after the COVID-19 pandemic, which we utilize as an external shock. Last but not least, this research advances our understanding of how an unanticipated crisis affects the return and liquidity of business stocks. We study the impact of profitability and solvency on stock liquidity both before and after crises to better understand the micro-level consequences of comparable catastrophes.

Limitation and future research

Our study, like other studies, has some limitations that must be acknowledged in order to interpret the findings correctly; these limitations can be addressed in future investigations. First, this research is limited to the paper and board business. Future researchers should employ comparative analysis by comparing their findings to those of competitors in their business. Future research may contribute to the body of knowledge by investigating the influence of COVID 19 (Before and after) on stock liquidity in industries other than paper and board. Although the current study is only quantitative, future research may also examine the qualitative aspects of the inquiry. Thirdly, because only recently published papers on stock market liquidity are included in the review, the scope of the literature is currently limited. Thus, an extension of the current study might examine studies on liquidity conducted across a broad sample period in other financial markets. Furthermore, further investigation is necessary on the different ratios that impact the paper industry's success in Pakistan. In order to optimize earnings, prudent investors may need to consider the degree of uncertainty around infectious diseases prior to making any judgments about investments in the stock market or other financial markets.

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