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Dividends announcements, stock liquidity, and firm value: Does capital structure matter?

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ABSTRACT

This study examines the joint effects of dividend announcements on firm value and stock liquidity, using capital structure as a moderating factor in these relationships. A Difference-in-Differences approach combined with Ordinary Least Squares regression was applied as a panel data analysis on a sample of 54 firms listed on both the Saudi Exchange (Tadawul) and Egyptian Exchange (EGX) from 2020 to 2023. Few firms were chosen because financial institutions were excluded from the research sample in both markets. Additionally, this period was selected to account for the effects of COVID-19 while excluding market performance data before the pandemic. Most actively traded firms from the main indices in both markets were selected. Daily abnormal return and abnormal volume were calculated over the entire 41-day event window. Furthermore, a Difference-in-Differences test was conducted for abnormal volumes. The impact of dividend announcements on both stock liquidity and firm value yields diverse conclusions. Findings reveal that dividend announcements significantly and positively affect stock prices and, consequently, firm value in the Saudi market, but have no significant impact on trading volume in the Egyptian market. Market efficiency substantially affects abnormal returns and firm value. According to the regression analysis, dividends did not significantly impact firm value as measured by Tobin's Q but were found to negatively affect stock liquidity. However, the interaction between dividends and capital structure significantly and positively affects both stock liquidity and firm value in both markets.

Contribution/ Originality: Results of this study help managers, stockholders, investors, and decision-makers better understand the impact of dividends on stock prices, stock liquidity, and firm value. This study demonstrates that dividend announcements and a firm's capital structure do not operate in isolation; these factors are interdependent and collectively influence firm performance.

1. INTRODUCTION

According to signaling theory, the information disclosed in financial statements serves as guidance from a firm's management regarding its current and future performance. This enables investors and other stakeholders to assess a firm's financial health, thus forming the basis for informed investment decisions (Goddard, McMillan, & Wilson, 2006). One of the key signal management strategies is the announcement of dividend distributions, which

aims to attract external investors and boost liquidity by increasing trading activity in a firm's shares (Al-Shattarat, Al-Shattarat, & Hamed, 2018).

In the same context, an increase in the trading level of a firm's shares resulting from a dividend announcement leads to an increase in the demand for the firm's shares, which indicates the possibility of an increase in the market value of the share price and, thus, the value of the entire firm (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). Therefore, dividend announcements become one of the most important factors that a firm's management can exploit within the framework of signaling theory to control stock price movements in the stock market and the consequent expected changes in the level of stock liquidity and firm value (Mazouz, Wu, Ebrahim, & Sharma, 2023).

From the perspective of cost-benefit analysis, the trade-off between using different financing tools appears as the firm's management tries to trade off between issuing new shares and resorting to borrowing. If it becomes clear that the benefit achieved by issuing new shares is higher than that achieved by borrowing, issuing shares will be chosen, and vice versa (Fama & French, 2002, 2015; Koch & Shenoy, 1999). Accordingly, the capital structure varies among companies due to differences in the benefits obtained from each financing source at the company (Titman & Wessels, 1988). According to agency theory's requirements, the agent seeks to achieve targeted profit levels from the perspective of external parties, which prompts the manager to make a trade-off between making a decision to distribute profits (dividends). In this case, the company's management either seeks to make a decision to distribute profits (dividends) in order to maintain liquidity levels in the capital markets or to make a decision not to distribute profits in order to re-invest generated profits into investments aimed at achieving wealth maximization by maximizing the company's future investment value through investing in projects with a positive net present value (Haryono, Worokinasih, & Darmawan, 2024). This decision depends on the future needs of the company's management regarding different sources of financing, which affects the future capital structure of the company. Therefore, the relationship between dividend distribution decisions and each of the liquidity levels and the company's value is influenced by the company's management's decision regarding its capital structure (DeAngelo, DeAngelo, & Stulz, 2006). However, the difference in the stability of capital markets significantly affects a company's management decisions regarding its capital structure. More stable financial markets reduce confusion in the company's management when choosing between different financing options due to higher levels of control and the reduced ability of management to pursue its ambitious future investment plans at the expense of the owners (Titman & Wessels, 1988).

From this perspective, as noted by Hokroh (2013), Khoj and Akeel (2020), Lamouchi (2020), Al-Faryan and Dockery (2021) and Al-Wazier (2024) the Egyptian economic environment has faced multiple financial crises, leading to increased investment pressures and financing constraints on firms listed on the Egyptian Stock Exchange. By contrast, the Saudi financial market (Tadawul) enjoys greater stability, resulting in a higher level of capital market efficiency. This disparity in capital market efficiency affects managerial behavior and decision-making in both markets, leading to differences in dividend distribution decisions and their impacts on stock liquidity and firm value. Moreover, variations in the capital structures of listed firms in these markets may further influence the relationships between these variables (Aldaarmi, Abbod, & Salameh, 2015; Alsaadi, 2024; Rabab'ah, 2022).

Considering the growing academic interest in exploring the relationship between research variables through the lenses of signaling and agency theories, as well as the pressures exerted by current economic developments on management decisions, particularly the trade-off between financing options and dividend distribution, the motivation for this study is evident. This study makes three key contributions to the literature: First, it differentiates between stable and unstable capital markets by examining how these environments affect the relationships between research variables. Second, it investigates the role of capital structure in shaping managerial decisions related to dividend distributions and their resulting implications. Finally, the study provides professional insights aimed at guiding various stakeholders, including regulatory bodies, professionals, and investors, toward a more comprehensive understanding of dividend policies employed by companies across different markets.

This study draws upon financial data from both the Egyptian capital market (EGX) and the Saudi capital market (Tadawul), sourced from the official websites of these exchanges. Additionally, supplementary financial data were retrieved from Refinitiv Eikon DataStream and the official websites of companies listed in both markets. The comprehensive dataset allows for an empirical investigation of how varying capital structures in each market influence the relationship between dividend announcements, stock liquidity, and firm value. By focusing on these two distinct markets, this study examines how differences in economic conditions, market stability, and capital structures shape these relationships. The main reason for considering both Egyptian and Saudi financial markets exclusively is (1) the availability and accessibility of financial data, (2) both markets are considered critical players in the MENA region, (3) both economies began implementing expansion and growth strategies in terms of Saudi Vision 2030 and Egypt Vision 2030 nearly simultaneously, (4) the Saudi market is one of the largest stock markets in emerging markets in terms of market capitalization, while the Egyptian market is regarded as the oldest market in the MENA region.

The novelty of this research stems from applying relationships between research variables examined in prior studies within the context of developing countries, specifically analyzing the relationships between dividend announcements, stock liquidity, and firm value in both Egyptian and Saudi financial markets. The study considers capital structure as a moderating variable. The findings suggest that the relationship between dividend announcements, stock liquidity, and firm value can be strengthened, particularly in Arab emerging stock markets. The analysis focuses on three core research questions. First, does the announcement of dividends affect stock liquidity, thereby impacting market activity? Second, do dividend announcements influence firm value, as reflected in market valuations and financial metrics? Third, does capital structure act as a moderating factor altering the effects of dividend announcements on both stock liquidity and firm value? By addressing these questions, the study aims to provide deeper insights into how market-specific factors such as capital structure and economic stability interact with managerial decisions regarding dividend distributions, ultimately shaping corporate performance in liquid and illiquid markets.

The remainder of this paper is organized as follows. Section 2 provides a detailed review of the relevant literature, drawing on both agency theory and signaling theory to establish a foundation for the development of the research hypotheses. Section 3 outlines the study's research methodology, including the empirical models used to test the hypotheses. Section 4 presents and discusses the empirical results and offers insights into the findings. Section 5 concludes the paper by summarizing the key outcomes and their implications. Finally, Section 6 offers suggestions for future research and highlights potential areas for further exploration.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Theoretical Background and Previous Studies

Signaling theory describes how firms communicate with interested parties to understand their financial reports. In general, a signal is defined as the information provided by a firm to current or potential investors. Signals can take many forms, both visible and hidden. According to signaling theory, dividend announcements might provide a positive signal regarding management's confidence in the firm's ability to generate future cash flows, thereby reducing information asymmetry, improving liquidity, and increasing the firm's stock price, and vice versa.

These signals may be positive or negative based on dividend policies followed by different firms; dividend announcements provide many indicators to outsiders about the corresponding financial performance. Thus, investors can assess the probability of purchasing firm shares (Koonce, McAnally, & Mercer, 2020; Koonce, Seybert, & Smith, 2016). Accordingly, dividend payouts can determine outsiders' behavior and the tendency to buy firms' shares (Fauziah, 2017). Investors who prefer to retain short-term liquidity from their investments almost prefer to receive regular dividend payments rather than acquiring capital gains; trading volumes and bid-ask prices are totally affected by the dividend policy followed by the firm. Liquid stocks have lower returns compared to illiquid

stocks, which suffer from a high cost of equity. On the other hand, and according to trade-off theory, a well-managed capital structure can positively influence firm value by reducing the firm's weighted average cost of capital. As a result, dividend payment decisions might influence a firm's future capital structure by exposing needs for external financing.

Prihanta, Hapsari, Santoso, and Wibowo (2023) considered the impact of profitability, liquidity, and leverage on firm value through dividend policy as a moderating variable. By examining IDX High Dividend firms in the Indonesian stock exchange, the findings indicate a positive impact of profitability, leverage, and dividend policy on firm value, proxied by price-to-book value (PBV). After analyzing non-financial listed firms in TADAWUL, the results show a significant positive impact of dividend policy, profitability, and leverage on company value. Accordingly, increasing dividend payments might signal promising future earnings potential for Saudi firms.

Kusuma (2024) found that dividend payouts have a significant positive effect on stock liquidity, supporting signaling theory's premise that dividend announcements can motivate external investors to purchase stocks. This finding aligns with the broader literature, where numerous studies (Al-Shattarat, Al-Khasawneh, & Al-Shattarat, 2012; Al-Shattarat et al., 2018; Anwar, Singh, & Jain, 2016) confirm this positive relationship, emphasizing the signaling effect of dividends and their influence on investor behavior. Additionally, several studies (Banerjee, Gatchev, & Spindt, 2007; Jiang, Ma, & Shi, 2017; Stereńczak & Kubiak, 2022) suggest that stock dividend announcements can trigger rapid movements in share prices, often leading to fluctuations in trading volume. These fluctuations, driven by the varying supply and demand levels for the corresponding shares, ultimately result in increased liquidity.

Rehman (2016) attempts to explain the impact of dividend policy and different capital structure formats on firm value by examining the number of non-financial listed firms in Pakistan from 2006 to 2013. By utilizing the fixed effect model, the findings indicate a significant impact of both capital structure and dividend policies on firm value measured by Tobin's Q. Accordingly, the research findings support the hypotheses of both pecking order theory and trade-off theory in the case of capital structure and also support the hypotheses of signaling theory in the case of dividend policy. Dewiningrat and Baskara (2020) examined the impact of profitability, investment opportunity set, liquidity, and dividend policy on company value by analyzing real estate and construction companies listed on the Indonesian Stock Exchange from 2015 to 2017. Profitability was found to have a significant negative impact on company value, whereas the investment opportunity set has a positive and significant impact on company value. Moreover, dividend policy strengthens (moderates) the impact of profitability on company value; however, dividend policy was unable to moderate the relationship between liquidity and company value.

In another vein, many previous studies (Anderson, Chi, Ing-Aram, & Liang, 2011; Berezinets, Ilina, Smirnov, & Bulatova, 2017; Bessler & Nohel, 2000; Rajverma, 2024) ensure that dividend announcements contribute to creating a state of anticipation among outsiders in general, which prompts them to make one of two decisions: the first is related to selling (for the owners of these shares) in order to benefit from extraordinary returns resulting from the price difference; the second is related to the decision to buy from non-owners in order to obtain expected dividends. The emergence of supply and demand gaps that result in the implementation of buying and selling decisions, in general, depends on the separate analysis of the benefits and costs at the level of each external investor separately (Astuti, Nurkhalifa, & Bakri, 2024).

2.2. Hypothesis Development

Additionally, several studies Banerjee et al. (2007) and Jiang et al. (2017), explore the relationship between dividend announcements and stock liquidity, highlighting the impact of the sector in which the announcing company operates. Sectoral differences inevitably shape investors' perceptions of the company, as the reputation and characteristics of each sector within the same financial market can vary significantly. Goddard et al. (2006) and Astuti et al. (2024) find that companies in the service sector tend to respond more rapidly to dividend

announcements than those in the industrial sector. This quick response leads to higher levels of market liquidity in the service sector than in the industrial sector.

Given the potential of dividend announcements to significantly influence stock liquidity in financial markets by altering trading activity, it is essential to empirically test this relationship. The relationship between dividend announcements and stock liquidity can be examined using the following statistical hypotheses.

H_1: Dividend announcements have a significant positive effect on stock liquidity.

Furthermore, signaling theory suggests that dividend announcements convey important information to external stakeholders about a company's ability to generate earnings, which is a crucial factor for motivating external investors to purchase shares. Numerous studies Miller and Modigliani (1961), Amihud (2002), Dyussembina and Park (2024) and Lubis, Khaddafi, and Satriawan (2024) have found that such announcements tend to increase demand for shares, often exceeding supply, which in turn leads to a rise in share prices. Dividend declarations almost express valuable information about a firm's future performance from the investor's perspective. Signaling theory argues that shareholders may perceive dividend payments as a positive signal for future profitability, and as a result, share prices might increase. Signaling theory insists that it is necessary to signal to market participants (investors) how they perceive a firm's affairs. Dividend announcements might provide such signals to different stakeholders and might signal investors to make rational investment decisions. This increase is positively reflected in the company's market value, as measured by the Tobin's Q index. Therefore, we can test the relationship between dividend announcements and firm value using the following statistical hypothesis.

H_2: Dividend announcements have a significant positive effect on firm value.

Finally, within the framework of agency theory, which posits that company managers may prefer to withhold dividend distributions in favor of reinvesting in future projects, financial constraints and crises may force managers to abandon these ambitions and seek alternative sources of financing. Agency theory suggests that outsiders (investors) almost prefer dividends to retained earnings. In such cases, managers may announce dividends as a strategy to attract external funds, thereby altering the company's capital structure (Rajverma, 2024). As a result, the capital structure can influence the relationship between dividend announcements, stock liquidity, and firm value. This relationship was examined using the third statistical hypothesis.

H_3: Capital structure has a significant moderating effect on the relationship between dividends and both stock liquidity and firm value.

Research hypotheses formulated earlier can be summarized in the following Table 1.

Table 1. Research hypotheses.

H_1	Dividend announcements have a significant positive effect on stock liquidity.
H_2	Dividend announcements have a significant positive effect on firm value.
H_3	Capital structure has a significant moderating effect on the relationship between dividends and both stock liquidity and firm value.

3. RESEARCH METHODOLOGY AND EMPIRICAL MODELS

The primary aim of our study is to examine the impact of dividend announcements on both stock liquidity and firm value. To achieve this, we employ two integrated methodologies. The first involves the Difference-in-Differences (DiD) approach, following the methodology established by Fama and French (2002) in the relevant literature. The second involves designing regression models to assess the true effects of various variables within the research framework. These results were then compared with findings from the existing literature, as outlined below.

3.1. Sample Selection

In recent years, there has been a notable shift in foreign direct investment (FDI) flows from developed economies to emerging markets (Haider, Khan, & Abdulahi, 2016; Sharif, 2019). Building on prior comparative studies (Abdalla & Idris, 2013; Al Nasser & Hajilee, 2016; Kapalu & Kodongo, 2022) and informed by recent reports from the World Federation of Exchanges and the Arab Monetary Fund, this study conducts a comparative analysis of the Saudi stock market (Tadawul) and the Egyptian stock market (EGX).

According to the World Federation of Exchanges and reports issued by the Arab Monetary Fund, the Saudi Exchange (Tadawul) is the largest and most liquid stock market in Arab countries and the MENA region, with a large array of local and foreign investment opportunities. At the end of 2023, the Saudi exchange (Tadawul) appeared among the top ten stock exchanges in the world, with a market value of $3 trillion. By the end of 2023, the market value of Arab stock exchanges increased by 12.1%, reaching about $4.574 trillion compared to $4.080 trillion in 2022; this increase was supported by a boom in the Saudi capital market (Tadawul), which alone acquired about $3.002 trillion, representing more than 65% of the Arab world stock exchanges. On the other hand, the Egyptian Stock Exchange is considered one of the oldest stock markets established in the Middle East. It dates back to 1883, when both the Alexandria and Cairo stock exchanges merged. In the same vein, by the end of 2023, the Egyptian Exchange (EGX) achieved a gain of 70.5% (700 billion EGP, more than two-thirds of the market values of listed companies), a figure of gains and profits that exceeds all gains realized in previous years.

In 2025, both GDP per capita and GDP in Saudi Arabia are forecasted to reach €29,960 and €1.04 trillion, respectively, and the consumer price index (CPI) in Saudi Arabia is expected to be 116.30. The general government's gross debt in Saudi Arabia is projected to be €316.60 billion in 2025, representing 29.15% of GDP. The gross revenue of the general government is expected to be €301.90 billion in 2025, accounting for 32.59% of GDP. Conversely, Egypt's economic outlook remains positive; recently, Egypt signed a $35 billion deal with the United Arab Emirates (UAE) to develop the North Coast region (Ras El Hekma), which is anticipated to be completed by 2025. Additionally, GDP growth is expected to reach 4.5% by 2025 within a more favorable economic context.

This comparison is based on the understanding that the Saudi market is more efficient than the Egyptian market. The Egyptian market has faced numerous political and economic crises in recent years, significantly affecting trading volumes and influencing overall trading decisions. By contrast, the Saudi market has experienced greater stability and economic growth. By comparing these two markets, this study seeks to identify how market efficiency influences the variables under investigation.

Accordingly, all firms listed in the Egyptian and Saudi capital markets constitute the study population. For sampling purposes, we employed a purposive approach based on two specific criteria. The first criterion pertains to the timeframe, with the study covering a four-year period from 2020 to 2023. This period was chosen to account for the effects of COVID-19 while excluding market performance data from before the pandemic. The second criterion involves selecting the most actively traded firms (excluding banks and financial institutions) from the main indices of both markets (EGX 30 for Egypt and TASI 50 for Saudi Arabia), based on financial data from the latest available year (2023).

That is to say, most actively traded firms in all sectors in both markets were selected to account for the research population; consequently, few firms were chosen because financial institutions such as banks and insurance companies were excluded from the research sample in both markets due to their unique nature and characteristics. Also, this period was chosen to account for the effects of COVID-19 while excluding market performance data before the pandemic. We tracked these firms across the study's time series. Based on these conditions, the research sample consisted of 54 firms, with 36 from the Saudi capital market (Tadawul) and 18 from the Egyptian capital market (EGX). In total, these 54 firms will provide 172 firm-year observations over the study period from 2020 to 2023 as shown in Table 2. The distribution of these observations is outlined as follows:

Table 2. Sample distribution.

Market	2020	2021	2022	2023	Total
Egyptian Market (EGX)	14	14	16	13	57
Saudi Market (Tadawul)	23	28	32	32	115
Total	37	42	48	45	172

Source: EGX & TADAWUL data.

3.2. Fama and Fisher Methodology and Testing Differences

Fama and French (2002) methodology relies on event studies to identify trends or patterns in data movements and to perform comparative analyses using appropriate statistical methods. In this context, multiple events can influence data patterns. The first is related to the differing levels of market efficiency between the Egyptian and Saudi markets, whereas the second is tied to the timing of dividend announcements. Accordingly, the first step is to define the computational methodology for the research variables, focusing on abnormal returns and trading volumes. This is followed by analyzing the relationship between dividend announcements and both stock prices as the primary determinants of firm value and stock liquidity. The analysis of this relationship is as follows:

3.2.1. Computation Methodology of Research Variables

Analysis & examination in this research rely on the standard event study methodology, which goes back to Fama, Fisher, Jensen, and Roll (1969). The rationale behind DID was based on a number of previous research in emerging markets that address different windows of dividend announcements; after analyzing these different windows, researchers argue that the most commonly acceptable suitable window for Arab world emerging markets is a 41-day window.

This study depends on the day of the final dividend announcement as the event day, so the estimation period for the event window can be considered the surrounding 41 days of the event window, that is, considering 20 days before the event day and 20 days after the event day to analyze the trends or patterns of our data series. The computational methodology for the daily abnormal return (AR) and abnormal volume (AV) is detailed as follows:

- Abnormal returns can be calculated over the 41 days surrounding the event by calculating the difference between the expected return by the analysts and the actual return, then computing the average for them (AAR) and the cumulative average (CAAR) to account for the overall effects caused by the event day.
- In the same way, abnormal trading volume can be calculated over the 41 days surrounding the event by calculating the difference between the expected volume by analysts and the actual volume, then calculating the average for them (AAV) and the cumulative average (CAAV) to consider the overall effects caused by the event day.

Table 3. Market efficiency differences and their effects.

Variables	F-Value	Sig.
AAR	4.952	0.016
CAAR	5.112	0.013
AAV	4.839	0.018
CAAV	5.105	0.014

Source: Statistical analysis results.

3.2.2. Difference in Difference Test for Market Efficiency

The main scope of this research is to analyze the relationships within the research model by comparing the results to explain the role of market efficiency in demonstrating such relationships; thus, a one-way ANOVA test can be utilized to analyze the effect of market differences (efficiency) on research variables related to abnormal returns and abnormal volume. The differences in the results can be summarized in Table 3 as follows:

Daily abnormal return (AR) and abnormal volume (AV) were calculated over the entire 41-day event window. Daily abnormal returns and abnormal volume computed in the event window across all event announcements were averaged on a daily basis. Additionally, daily average abnormal return and average abnormal volume were cumulated to facilitate overall interpretations regarding the impact of the event on stock returns and trading volume. According to Naik, Parab, and Reddy (2016), equations employed in calculations are presented as follows:

$$AR_{it} = R_{it} - E(R_{it}) \qquad AV_{it} = V_{it} - E(V_{it})$$

According to the above results, there are significant differences between the Egyptian and Saudi markets; the F-values are significant and positive for all variables. This result indicates that the means for all the variables in the Saudi market are significantly different from those in the Egyptian market. Therefore, it is important to perform separate statistical analyses for each market individually for comparison purposes.

3.2.3. Difference in Difference Test for the Abnormal Returns

It is assumed that average abnormal returns still decline if they move in the direction of the event day because this indicates that investors seek to gain more; consequently, dividends will have a positive impact on the stock price. Results for the full sample can be summarized as shown in Table 4.

Table 5 shows that the daily Average Abnormal Returns (AAR) exhibit significant positive impacts on days -8 and -4 relative to the event date. Furthermore, AARs decline in days approaching the event window, suggesting that investors capitalize on stock gains by purchasing additional shares. This behavior results in abnormal returns and an increase in stock prices. However, after the event day, AARs declined, as investors had already captured their gains and opted to sell off their investments. These findings suggest that dividend announcements significantly and positively affect stock prices and, by extension, firm value. Additionally, the analysis highlights that the level of market efficiency plays a crucial role in influencing abnormal returns and firm value, necessitating a separate examination, as presented in Table 4.

Table 4 reveals clear evidence of financial challenges within the Egyptian market, where AARs show no significant effects, either before or after the event window. This finding suggests that dividend announcements do not affect stock prices in the Egyptian stock market, likely because of the severe economic and financial crises that the country has faced in recent years. By contrast, the Saudi market mirrors the full sample results, where dividend announcements significantly and positively affect stock prices. This disparity highlights that the relationship between dividend announcements and stock prices is more pronounced in the Saudi market than in the Egyptian market because of its higher level of economic stability and market efficiency.

Table 4. Difference in difference test results for the full sample.

Pre announcement					Post announcement				
Window	AAR	T-Test	CAAR	T-Test	Window	AAR	T-Test	CAAR	T-Test
-20	-0.104	-1.094	1.459	1.622	0	0.025	0.415	1.925	4.255***
-19	-0.027	-0.382	1.382	1.535	1	-0.074	-0.725	1.428	3.172***
-18	0.058	0.574	1.296	1.508	2	-0.169	-2.001***	1.185	2.812***
-17	0.161	1.406	1.194	1.340	3	-0.008	-0.064	1.363	3.117***
-16	0.181	1.177	1.174	1.453	4	-0.264	-1.838	1.618	3.184***
-15	-0.105	-1.068	1.460	1.639	5	-0.045	-0.519	1.400	3.062***
-14	-0.123	-0.982	1.478	1.555	6	-0.074	-1.079	1.428	3.123***
-13	0.002	0.019	1.353	1.456	7	-0.054	-0.669	1.409	3.152***
-12	0.001	0.025	1.243	1.472	8	-0.096	-1.062	1.450	3.111***
-11	0.145	1.274	1.210	1.398	9	0.071	0.899	1.284	2.978***
-10	0.031	0.241	1.324	1.564	10	-0.051	-0.768	1.406	3.068***
-9	0.059	0.511	1.296	1.552	11	-0.060	-0.857	1.414	3.108***
-8	0.036	1.959***	1.570	3.117***	12	-0.075	-1.026	1.429	3.070***
-7	0.032	0.463	1.318	2.987***	13	0.052	0.633	1.303	2.988***
-6	-0.104	0.515	1.302	2.944***	14	0.172	0.843	1.182	3.026***
-5	-0.158	-0.962	1.459	3.078***	15	-0.154	-1.721	1.508	3.140***
-4	0.215	1.918***	1.513	3.192***	16	0.066	0.655	1.288	2.968***
-3	0.029	0.452	1.325	3.010***	17	0.154	1.395	1.201	2.947***
-2	0.026	-0.073	1.360	3.067***	18	-0.054	-0.268	1.409	3.061***
-1	0.023	0.230	1.378	3.021***	19	0.179	1.089	1.175	2.975***
0	0.015	0.415	1.925	4.255***	20	0.149	1.231	1.206	2.896***

Note: *** indicate statistical significance at the 1% levels, respectively.
Source: DID analysis results.

Table 5. Difference in difference test results for separated samples.

Egyptian Market (EGX)										Saudi Market (Tadawul)									
Pre Announcement					Post Announcement					Pre Announcement					Post Announcement				
W	AAR	T-Test	CAAR	T-Test	W	AAR	T-Test	CAAR	T-Test	W	AAR	T-Test	CAAR	T-Test	W	AAR	T-Test	CAAR	T-Test
-20	-0.08	-0.82	1.09	1.22	0	-0.01	-0.31	1.44	1.19	-20	-0.12	-1.26	1.68	1.87	0	-0.03	-0.96	4.46	3.68***
-19	-0.02	-0.29	1.04	1.15	1	-0.03	-0.25	0.50	1.11	-19	-0.03	-0.44	1.59	1.77	1	-0.08	-0.78	1.54	3.03***
-18	0.04	0.43	0.97	1.13	2	0.06	0.70	0.41	0.98	-18	0.07	0.66	1.49	1.73	2	0.18	-2.161***	1.28	2.64***
-17	0.12	1.05	0.90	1.01	3	0.00	-0.02	0.48	1.09	-17	0.18	1.62	1.37	1.54	3	-0.01	-0.07	1.47	2.97***
-16	0.14	0.88	0.88	1.09	4	-0.09	-0.64	0.57	1.11	-16	0.21	1.35	1.35	1.67	4	-0.29	-1.98	1.75	3.04***
-15	-0.08	-0.80	1.09	1.23	5	-0.02	-0.18	0.49	1.07	-15	-0.12	-1.23	1.68	1.88	5	-0.05	-0.56	1.51	2.91***
-14	-0.09	-0.74	1.11	1.17	6	-0.03	-0.38	0.50	1.09	-14	-0.14	-1.13	1.70	1.79	6	-0.08	-1.17	1.54	2.97***
-13	0.00	0.01	1.01	1.09	7	-0.02	-0.23	0.49	1.10	-13	0.00	0.02	1.56	1.67	7	-0.06	-0.72	1.52	3.00***
-12	0.00	0.02	0.93	1.10	8	-0.03	-0.37	0.51	1.09	-12	0.00	0.03	1.43	1.69	8	-0.10	-1.15	1.57	2.96***
-11	0.11	0.96	0.91	1.05	9	0.02	0.31	0.45	1.04	-11	0.17	1.47	1.39	1.61	9	0.08	0.97	1.39	2.82***
-10	0.02	0.18	0.99	1.17	10	-0.02	-0.27	0.49	1.07	-10	0.04	0.28	1.52	1.80	10	-0.06	-0.83	1.52	2.91***
-9	0.04	0.38	0.97	1.16	11	-0.02	-0.30	0.50	1.09	-9	0.07	0.59	1.49	1.78	11	-0.06	-0.93	1.53	2.96***
-8	0.03	-1.47	1.18	1.34	12	-0.03	-0.36	0.50	1.07	-8	0.04	2.253***	1.81	2.05***	12	-0.08	-1.11	1.54	2.92***
-7	0.02	0.35	0.99	1.24	13	0.02	0.22	0.46	1.05	-7	0.04	0.53	1.52	1.90	13	0.06	0.68	1.41	2.83***
-6	-0.08	0.39	0.98	1.21	14	0.06	0.30	0.41	1.06	-6	0.12	0.59	1.50	1.85	14	0.19	0.91	1.28	2.87***
-5	-0.12	-0.72	1.09	1.31	15	-0.05	-0.60	0.53	1.10	-5	0.18	1.11	1.68	2.01***	15	-0.17	-1.86	1.63	2.99***
-4	-0.16	-1.44	1.13	1.39	16	0.02	0.23	0.45	1.04	-4	0.25	2.21***	1.74	2.14***	16	0.07	0.71	1.39	2.81***
-3	0.02	0.34	0.99	1.26	17	0.05	0.49	0.42	1.03	-3	0.03	0.52	1.52	1.93	17	0.17	1.51	1.30	2.78***
-2	0.00	-0.05	1.02	1.30	18	-0.02	-0.09	0.49	1.07	-2	0.01	0.08	1.56	1.99	18	-0.06	-0.29	1.52	2.91***
-1	-0.02	-0.17	1.03	1.27	19	0.06	0.38	0.41	1.04	-1	0.03	0.26	1.58	1.94	19	0.19	1.18	1.27	2.81***
0	-0.01	-0.31	1.44	**1.19**	20	0.05	0.43	0.42	1.01	0	-0.03	-0.96	4.46	3.68***	20	0.16	1.33	1.30	2.73**

Note: ** and *** indicate statistical significance at the 5% and 1% levels, respectively.
Source: DID analysis results for Separated Samples.

Table 6. Difference in difference test results for the full sample.

Pre Announcement					Post Announcement				
Window	**AAV**	**T-Test**	**CAAV**	**T-Test**	**Window**	**AAV**	**T-Test**	**CAAV**	**T-Test**
-20	-0.31	-1.09	-4.39	-3.57***	0	0.99	4.53***	4.25	5.41***
-19	-0.08	-0.38	-4.16	-3.49***	1	-0.26	-0.64	-4.34	-3.67***
-18	0.17	0.57	-3.90	-3.46***	2	0.51	2.01***	-3.57	-3.28***
-17	0.48	1.39	-3.59	-3.29***	3	-0.03	-0.06	-4.10	-3.55***
-16	0.54	1.17	-3.53	-3.39***	4	-0.79	-1.85	-4.87	-3.65***
-15	-0.32	-1.08	-4.39	-3.60***	5	-0.14	-0.52	-4.21	-3.52***
-14	-0.37	-0.99	-4.45	-3.52***	6	-0.22	-1.07	-4.30	-3.57***
-13	0.01	0.02	-4.07	-3.42***	7	-0.16	-0.66	-4.24	-3.59***
-12	0.34	1.03	-3.74	-3.42***	8	-0.29	-1.05	-4.36	-3.56***
-11	0.43	1.27	-3.64	-3.36***	9	0.21	0.90	-3.86	-3.43***
-10	0.09	0.24	-3.98	-3.51***	10	-0.15	-0.76	-4.23	-3.52***
-9	0.18	0.51	-3.90	-3.49***	11	-0.18	-0.87	-4.26	-3.56***
-8	-0.65	-1.47	-4.72	-3.58***	12	-0.22	-1.02	-4.30	-3.53***
-7	0.11	0.46	-3.97	-3.44***	13	0.15	0.63	-3.92	-3.44***
-6	0.16	0.52	-3.92	-3.41***	14	0.52	0.84	-3.56	-3.46***
-5	0.09	1.97	-4.39	-3.54***	15	-0.46	-1.72	-4.54	-3.59***
-4	0.01	2.74***	-4.55	-3.65***	16	0.20	0.65	-3.88	-3.42***
-3	0.05	2.45***	-3.99	-3.47***	17	0.46	1.40	-3.61	-3.40***
-2	0.31	2.53***	-4.06	-3.53***	18	-0.16	-0.27	-4.24	-3.54***
-1	0.48	2.70***	-4.12	-3.47***	19	0.54	1.09	-3.54	-3.42***
0	0.99	4.53***	4.25	5.41***	20	0.45	1.24	-3.63	-3.36***

Note: *** indicate statistical significance at the 1% level, respectively.
Source: DID analysis results for the full sample.

Table 7. Difference in difference test results for the separated sample.

Egyptian Market (EGX)										Saudi Market (Tadawul)									
Pre Announcement					Post Announcement					Pre Announcement					Post Announcement				
W	AAV	T-Test	CAAV	T-Test	W	AAV	T-Test	CAAV	T-Test	W	AAV	T-Test	CAAV	T-Test	W	AAV	T-Test	CAAV	T-Test
-20	-0.11	-0.38	-1.54	-1.25	**0**	**0.35**	**1.58**	**1.49**	**1.89**	-20	-0.37	-1.28	-5.18	-4.22***	0	1.16	5.34***	5.02	6.38***
-19	-0.03	-0.13	-1.45	-1.22	1	-0.09	-0.22	-1.52	-1.29	-19	-0.10	-0.45	-4.90	-4.12***	1	-0.31	-0.75	-5.12	-4.34***
-18	0.06	0.20	-1.37	-1.21	2	0.18	0.70	-1.25	-1.15	-18	0.20	0.67	-4.60	-4.08***	2	0.60	2.37***	-4.21	-3.87***
-17	0.17	0.49	-1.26	-1.15	3	-0.01	-0.02	-1.44	-1.24	-17	0.57	1.64	-4.24	-3.89***	3	-0.03	-0.08	-4.84	-4.19***
-16	0.19	0.41	-1.24	-1.19	4	-0.28	-0.65	-1.70	-1.28	-16	0.64	1.38	-4.17	-4.00***	4	-0.94	-2.18***	-5.74	-4.30***
-15	-0.11	-0.38	-1.54	-1.26	5	-0.05	-0.18	-1.47	-1.23	-15	-0.37	-1.27	-5.18	-4.24***	5	-0.16	-0.61	-4.97	-4.15***
-14	-0.13	-0.35	-1.56	-1.23	6	-0.08	-0.37	-1.50	-1.25	-14	-0.44	-1.17	-5.25	-4.15***	6	-0.26	-1.26	-5.07	-4.21***
-13	0.00	0.01	-1.42	-1.20	7	-0.06	-0.23	-1.48	-1.26	-13	0.01	0.02	-4.80	-4.04***	7	-0.19	-0.78	-5.00	-4.24***
-12	0.12	0.36	-1.31	-1.20	8	-0.10	-0.37	-1.53	-1.25	-12	0.40	1.22	-4.41	-4.04***	8	-0.34	-1.24	-5.15	-4.20***
-11	0.15	0.45	-1.27	-1.18	9	0.07	0.31	-1.35	-1.20	-11	0.51	1.50	-4.30	-3.96***	9	0.25	1.06	-4.56	-4.05***
-10	0.03	0.08	-1.39	-1.23	10	-0.05	-0.27	-1.48	-1.23	-10	0.11	0.28	-4.70	-4.14***	10	-0.18	-0.90	-4.99	-4.16***
-9	0.06	0.18	-1.36	-1.22	11	-0.06	-0.30	-1.49	-1.25	-9	0.21	0.60	-4.60	-4.12***	11	-0.21	-1.02	-5.02	-4.21***
-8	-0.23	-0.51	-1.65	-1.25	12	-0.08	-0.36	-1.50	-1.23	-8	-0.76	-1.73	-5.57	-4.23***	12	-0.26	-1.21	-5.07	-4.16***
-7	0.04	0.16	-1.39	-1.20	13	0.05	0.22	-1.37	-1.20	-7	0.13	0.54	-4.68	-4.06***	13	0.18	0.74	-4.63	-4.06***
-6	0.05	0.18	-1.37	-1.19	14	0.18	0.29	-1.25	-1.21	-6	0.19	0.61	-4.62	-4.02***	14	0.61	0.99	-4.20	-4.08***
-5	0.03	0.69	-1.54	-1.24	15	-0.16	-0.60	-1.59	-1.26	-5	0.10	2.32	-5.18	-4.18***	15	-0.54	-2.03***	-5.35	-4.24***
-4	0.00	0.96	-1.59	-1.28	16	0.07	0.23	-1.36	-1.20	-4	0.01	3.23	-5.37	-4.31***	16	0.23	0.76	-4.57	-4.03***
-3	0.02	0.86	-1.40	-1.21	17	0.16	0.49	-1.27	-1.19	-3	0.06	2.89	-4.71	-4.09***	17	0.54	1.65	-4.27	-4.01***
-2	0.11	0.89	-1.42	-1.24	18	-0.06	-0.09	-1.48	-1.24	-2	0.37	2.99	-4.80	-4.17***	18	-0.19	-0.32	-5.00	-4.18***
-1	0.17	0.94	-1.44	-1.22	19	0.19	0.38	-1.24	-1.20	-1	0.56	3.18	-4.87	-4.10***	19	0.63	1.28	-4.17	-4.04***
0	**0.35**	**1.58**	**1.49**	**1.89**	20	0.16	0.43	-1.27	-1.18	0	**1.16**	***5.34*****	**5.02**	**6.38*****	20	0.53	1.46	-4.28	-3.97***

Note: *** indicate statistical significance at the 1% level, respectively.
Source: DID analysis results for separated samples.

3.2.4. Difference in Difference Test for Abnormal Volumes

It is expected that the Average Abnormal Volume (AAV) will continue to decrease as it approaches the event day. This trend suggests that investors anticipating dividends hold onto their investments rather than reselling, aiming to maximize their gains. Consequently, dividend announcements are likely to have a negative impact on trading volume and, thus, on market liquidity during the period leading up to the event day. This reflects investors' tendency to delay selling until they receive dividends. The results for the full sample are presented in the following table:

As presented in Table 6, the results indicate that trading volume experiences significant positive impacts between days -4 and 0, whereas the earlier periods show no significant effects. This suggests that dividend announcements generate increased demand for stocks, as investors are reluctant to sell, aiming instead to capitalize on potential capital gains.

Consequently, heightened volatility in trading volume is observed. Moreover, dividend announcements are found to have a significant negative impact on cumulative trading volume, reinforcing the notion that these announcements reduce market liquidity, as major investors tend to hold their shares until they receive dividends. Based on these findings, it can be argued that dividend announcements have a significant negative effect on market liquidity using trading volume as a proxy.

At the same time, the analysis shows that market efficiency has a considerable influence on trading volume, necessitating separate examination, as shown in Table 6.

The results in Table 7 reveal weaknesses in the Egyptian market, as the trading volume was not significant during the entire 41-day event window. This implies that dividend announcements have no significant effect on trading volume and that the volatility observed in the Egyptian market can be attributed to its inefficient economic environment, which is burdened by persistent barriers and challenges.

By contrast, the Saudi market, characterized by higher efficiency, exhibits less volatility and a significant impact of dividend announcements on trading volume.

The rationale behind DID was based on a number of previous research studies in emerging markets that address different windows of dividend announcements; after analyzing these different windows, researchers argue that the most commonly acceptable suitable window for Arab world emerging markets is a 41-day window. Novel propositions were tested according to research findings relative to the findings of previous research in the discussion and conclusion sections.

Also, the economic environment in both Egypt and Saudi markets is totally different, especially in recent years after the COVID-19 pandemic and unstable political conditions in the MENA region. Accordingly, differences in both markets and their subsequent impact on research results were addressed in the discussion and conclusion sections as one of the research limitations.

3.3. Research Model

This study examines the moderating impact of capital structure on the relationship between dividends, stock liquidity, and firm value.

Accordingly, this study will use multiple linear regression analyses to determine whether there is a significant relationship between the independent variable and two or more dependent variables.

Figure 1 shows research variables and the corresponding relationships under examination, as shown in the following research model.

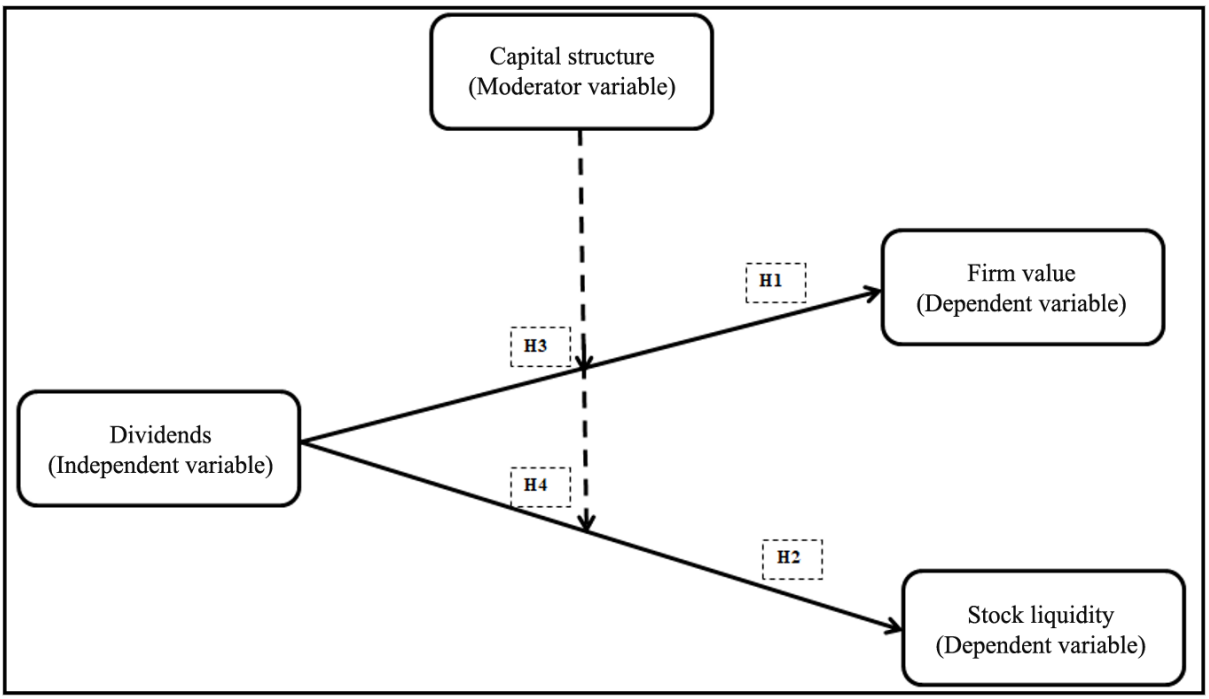

Figure 1. Research model.

Source: Research hypotheses.

3.4. Empirical Model and Variables Measurement

Existing literature confirms that the dividends policy followed by different firms can significantly affect the volume of stock trading as well as the degree of investors' responses to changes in share prices, and consequently, the level of stock liquidity. Following prior research (Ali Taher & Al-Shboul, 2023; Stereńczak & Kubiak, 2022; Xuan, 2022), The Ordinary Least Squares (OLS) regression method was used in our analysis. The hypothesis of this research predicts the impact of dividends on firm value. This can be represented by the following regression model.

$$Tobin's\ Q\ =\ \alpha\ +\ \beta 1\ Div.+\beta 2\ Size\ +\ \beta 3\ Lev\ +\ \beta 4\ ROA\ +\ \beta 5\ ROE\ +\ \varepsilon \quad (1)$$

Hypothesis of this research predicts the impact of dividends on stock liquidity. This can be represented by the following regression model.

$$SLIQ\ =\ \alpha\ +\ \beta 1\ Div.+\beta 2\ Size\ +\ \beta 3\ Lev\ +\ \beta 4\ ROA\ +\ \beta 5\ ROE\ +\ \varepsilon \quad (2)$$

Finally, the hypothesis of this research predicts the impact of the interaction between dividends and capital structure on both stock liquidity and firm value. This can be represented by the following regression model.

$$Tobin's\ Q\ =\ \alpha\ +\ \beta 1\ Div.\times\ Cap.+\beta 2\ Size\ +\ \beta 3\ Lev\ +\ \beta 4\ ROA\ +\ \beta 5\ ROE\ +\ \varepsilon \quad (3)$$

$$SLIQ\ =\ \alpha\ +\ \beta 1\ Div.\times\ Cap.+\beta 2\ Size\ +\ \beta 3\ Lev\ +\ \beta 4\ ROA\ +\ \beta 5\ ROE\ +\ \varepsilon \quad (4)$$

A detailed description of each variable in our proposed research model is presented in Table 8 as follows:

Table 8. Variables definition.

Type	Variables	Code	Definition	Data Source	Citation
Independent variable	Dividends	Div.	Total dividends paid (cash and stock) / No. of shares outstanding	Financial Reports (DataStream)	Salsabila, Sirat, and Hadady (2024) and Naik et al. (2016)
Dependent Variables	Firm Value	Tobin's Q	Market capitalization plus long-term debt plus short-term debt divided by total assets.	Stock Markets Reports (DataStream)	Martini (2024); Gharaibeh and Qader (2017)

Type	Variables	Code	Definition	Data Source	Citation
	Stock Liquidity	SLIQ	The turnover ratio is calculated by dividing the total trading volume by the average number of shares outstanding.	& Financial Reports	Stereńczak and Kubiak (2022); Shamsi, Quader, and Abdullah (2022); Xuan (2022) and Bakri, Nordin, Tunde, and Theng (2020)
Moderator Variable	Capital Structure	Cap.	Debt - Equity Ratio		Sinebe (2024); El-Masry, Salah, and Abdel-Karim (2024) and Ghardallou (2022)
Control Variables	Firm Size	Size	Natural log of total assets	Financial Reports (DataStream)	Arifin (2024); Xuan (2022) and Al-Matari, Al-Swidi, and Fadzil (2014)
	Return on Assets	ROA	Ratio of Net income to total asset		
	Leverage	Lev	Ratio of Total liabilities to total assets		
	Return on Equity	ROE	Ratio of Net income to total equity		

Table 9. Correlation matrix.

Panel A: Pairwise correlations for the full sample.									
Variables		**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**VIF**
(1)	Tobin's Q	1							--
(2)	SLIQ	0.312**	1						--
(3)	Div.	0.165*	-0.212**	1					1.054
(4)	Size	-0.463**	0.029	-0.194**	1				2.381
(5)	Lev	0.064	0.200**	-0.093	0.115	1			2.904
(6)	ROA	0.006	-0.101	0.014	-0.087	0.023	1		4.081
(7)	ROE	0.053	0.073	-0.023	-0.003	0.585**	0.671**	1	1.062
Panel B: Pairwise correlations for Egyptian sample.									
Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1)	Tobin's Q	1							--
(2)	SLIQ	0.467**	1						--
(3)	Div.	-0.214*	-0.296**	1					1.023
(4)	Size	-.218*	0.139	0.092	1				1.078
(5)	Lev	0.103	0.160	-0.094	0.222*	1			2.499
(6)	ROA	0.014	-0.150	-0.015	-0.114	-0.037	1		2.994
(7)	ROE	0.085	0.000	-0.067	0.068	0.562**	0.654**	1	4.196
Panel C: Pairwise correlations for Saudi sample.									
Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1)	Tobin's Q	1							--
(2)	SLIQ	0.521**	1						--
(3)	Div.	0.332**	-0.092	1					1.437
(4)	Size	-0.771**	-0.498**	-0.214*	1				1.266
(5)	Lev	0.118	0.427**	-0.154	-0.147	1			1.424
(6)	ROA	0.513**	0.065	0.355**	-0.407**	0.534**	1		3.187
(7)	ROE	0.490**	0.271**	0.236**	-0.437**	0.654**	0.883**	1	3.251

Note: *, ** indicate statistical significance at the 10, 5 levels, respectively
Source: Correlation Matrix results.

4. RESULTS

4.1. Correlation Matrix

The results of the correlation analysis provided insights into the nature of the relationships among the research variables. The Pearson correlation coefficient ranges between +1 and -1, indicating either a positive or negative relationship, depending on the sign. The sign of the coefficient reflects the direction of the relationship between the variables. In this context, we present the Pearson correlation matrix for the full sample as well as separate matrices for the Egyptian and Saudi markets, as shown in Table 9.

Based on the results presented in Table 8, Panel A demonstrates the relationships among variables for all sample observations. These results indicate a significantly positive relationship between firm value, as measured by Tobin's Q, and stock liquidity, with a correlation coefficient of 0.312, significant at the 1% level. This finding suggests that an increase in firm value is associated with higher stock market liquidity. Furthermore, the variable associated with stock dividends shows a positive and significant relationship with firm value (R = 0.165), while it exhibits a negative and significant relationship with stock liquidity (R = -0.212). These findings imply that increasing dividends enhances firm value but reduces stock liquidity. In this scenario, investors tend to retain their shares to capture dividends, which increases demand and decreases supply, leading to increases in share prices and firm value. Additionally, both Egyptian and Saudi markets exhibit similar patterns, although the relationships in the Egyptian market are weaker than those in the Saudi market. Moreover, the results for the full sample are weaker than those observed specifically for the Saudi market. It is important to note that these results should be interpreted with caution until the main regression models are executed. Nevertheless, no multicollinearity issues were detected in the regression models, as indicated by the Variance Inflation Factor (VIF) values (VIF_MAX = 4.081, 4.196, and 3.251 for the full sample, Egyptian sample, and Saudi sample, respectively), which were all below the threshold of 10.

4.2. Regression Analysis Results

While descriptive statistics and correlation analyses provide valuable insights, more conclusive evidence can be derived from multivariate regression analysis, which controls for a range of firm-specific variables that may influence the dependent variable. (Regression analysis was performed using SPSS version 30.0.0.)

4.2.1. The Effect of Dividends on Firm Value (H_1)

The first hypothesis examines the relationship between dividends and firm value, as tested using the first model (Model 1). The results for Model 1 are listed in Table 10. According to these results, the adjusted R^2 values for the model are 10.50% and 63.30% for the Egyptian and Saudi markets, respectively. This indicates that the independent variable (dividends) explains approximately 10.50% and 63.30% of the variation in firm value in each sample, as measured by Tobin's Q. Additionally, the F-values for the model are 11.728, 4.946, and 17.925, respectively, all significant at the 1% level, suggesting that the model effectively explains the relationships in each sample.

Panel A shows that dividends have no statistically significant effect on firm value, as measured by Tobin's Q, with a coefficient of $\beta = 0.014$ (T-Stat. = 1.221 < 2; P-Value = 0.224 > 0.05). This result indicates that dividends do not significantly influence firm value in this context, meaning that an increase in dividends does not lead to an increase in firm value or generate additional demand for the company's stocks. Therefore, we reject the first sub-hypothesis, as dividends have no significant effect on firm value, measured by Tobin's Q, for the full sample.

Table 10. Effect of dividends on firm value measured by Tobin's Q.

Variables	Panel A: Full Sample			Panel B: Egyptian Sample			Panel C: Saudi Sample		
	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value
Cons.	2.640	15.162	0.000	2.272	5.614	0.000	2.516	20.903	0.000
Div.	0.014	1.221	0.224	-0.066	-1.712	0.091	0.005	0.724	0.471
Size	0.006	1.057	0.292	-0.200	-2.173	0.033	-0.246	-10.096	0.000
Lev	-0.001	-0.452	0.651	0.005	0.573	0.568	0.002	0.194	0.847
ROA	0.000	0.269	0.789	-0.001	-0.318	0.752	0.012	2.036	0.044
ROE	-0.278	-7.081	0.000	0.001	0.349	0.728	0.000	0.185	0.854
N	172			57			115		
F-value	11.728***			4.946***			17.925		
Adj. R2	21.50%			10.50%			63.30%		

Note: *** indicate statistical significance at the 1% level, respectively
Source: Statistical analysis results.

Similarly, results from Panels B indicate that the dividends variable is significant at the 10 percent level; that is, dividends have a significant effect on firm value as measured by Tobin's Q in the Egyptian market. Conversely, results from Panels C indicate that dividends have no significant effect on firm value, as measured by Tobin's Q in the Saudi market. Coefficient values were (β = -0.066; T-Stat. = -1.712 < 2; P-Value = 0.091 > 0.05) for the Egyptian market and (β = 0.005; T-Stat. = 0.724 < 2; P-Value = 0.471 > 0.05) for the Saudi market. These findings suggest that dividends have a significantly different impact on firm value in both markets. As a result, we accept the second sub-hypothesis and reject the third sub-hypothesis, as there is a significant effect of dividends on firm value in the Egyptian market compared with the Saudi market.

These results can be explained from two perspectives: First, market efficiency plays a role in that abnormal returns are initially influenced by dividend announcements, which have a considerable impact on trading volume. However, stock prices tend to revert to their true values after the announcement, making the yearly effect less evident in the regression results (Al-Yahyaee, Pham, & Walter, 2011; S. Kumar, 2017; Syed & Bajwa, 2018). The second explanation pertains to investors' awareness. Investors are well-informed about stock price movements following announcements and tend to hold onto their shares until the price wave stabilizes. Afterward, they strategically avoid participating in this movement, as the fiscal year concludes (Han & Li, 2017; Karavias, Spilioti, & Tzavalis, 2021; Wu & Yang, 2022).

Table 11. The effect of dividends on stock liquidity.

Variables	Panel A: Full Sample			Panel B: Egyptian Sample			Panel C: Saudi Sample		
	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value
Cons.	0.003	2.482	0.014	0.000	-0.022	0.983	0.004	7.494	0.000
Div.	-0.204	-3.013	0.003	-0.302	-2.939	0.004	-0.315	-2.503	0.005
Size	0.106	1.040	0.300	0.132	1.250	0.215	-0.499	-6.274	0.000
Lev	-0.180	-1.597	0.112	0.074	0.461	0.646	0.281	3.356	0.001
ROA	0.126	0.951	0.343	-0.155	-0.882	0.380	-0.221	-1.714	0.089
ROE	-0.037	-0.543	0.588	0.025	0.119	0.905	0.165	1.231	0.221
N	172			57			115		
F-value	4.136***			4.777***			16.487***		
Adj. R2	9.00%			14.30%			40.90%		

Note: *** Indicate statistical significance at the 1% level, respectively.
Source: Statistical analysis results.

4.2.2. The Effect of Dividends on Stock Liquidity (H_2)

The second hypothesis tests the relationship between dividends and stock liquidity using Model 2. The results of Model 2 are presented in Table 11. Based on these results, the R^2 values for the model were 9.00%, 14.30%, and 40.90% for the full sample, the Egyptian market, and the Saudi market, respectively. This indicates that the independent variable (dividends) explains approximately 9.00%, 14.30%, and 40.90% of the variation in stock liquidity in each sample, respectively. Furthermore, the F-values for the model are 4.136, 4.777, and 16.487, respectively, all significant at the 1% level, indicating that the model efficiently explains the relationship between dividends and stock liquidity.

Panel A shows that dividends have a significant negative effect on stock liquidity, with the coefficient being both significant and negative (β = -0.204; T-Stat. = -3.013 > 2; P-Value = 0.003 < 0.05). This result indicates that increasing dividends leads to a decrease in stock liquidity as investors retain more shares in anticipation of earning higher returns. Consequently, market demand cannot be sufficiently met. Based on these findings, we reject the first sub-hypothesis, confirming that dividends have a significant negative effect on stock liquidity for the full sample.

Panels B and C similarly reveal that dividends have a significant negative impact on stock liquidity in both the Egyptian and Saudi markets, with coefficients of (β = -0.302; T-Stat. = -2.939 > 2; P-Value = 0.004 < 0.05) for the Egyptian market, and (β = -0.315; T-Stat. = -2.503 > 2; P-Value = 0.005 < 0.05) for the Saudi market. These results indicate that increasing dividends reduces stock liquidity in both markets. Therefore, we reject the second

and third sub-hypotheses, confirming that dividends have a significant negative effect on stock liquidity in both the Egyptian and Saudi samples. These results can be explained by investor behavior, in which investors seeking greater capital gains tend to hold their stocks until they achieve their intended returns (Ali Taher & Al-Shboul, 2023; Lee & Yoon, 2017; Mujilan, 2022; Nguyen, 2020).

4.2.3. The Effect of Interaction between Dividends and Capital Structure on both Firm Value and Stock Liquidity (H_3)

The third hypothesis tests the effect of the interaction between dividends and capital structure on both firm value and stock liquidity using Models 3 and 4. The results of running these models are presented in Table 12 and 13, respectively. Specifically, in Table 11, the R^2 values for the models are 12.8%, 15.60%, and 19.80% for the full sample, the Egyptian market, and the Saudi market, respectively. This indicates that the interaction between dividends and capital structure explains approximately 12.8%, 15.60%, and 19.80% of the variation in firm value, respectively. Additionally, the F-values for the models are 5.138, 6.271, and 5.122, respectively, all significant at the 1% level, indicating that the models effectively explain the proposed relationships.

Table 12. Impact of interaction between dividends & capital structure on firm value.

Variables	Panel (A): Full Sample			Panel (B): Egyptian Sample			Panel (C): Saudi Sample		
	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value
Cons.	3.116	17.892	0.000	2.682	6.625	0.000	2.969	24.665	0.000
Div. × *CAP.*	0.254	3.695	0.000	0.250	4.156	0.000	0.247	3.871	0.000
Size	0.007	1.247	0.344	-0.236	-2.564	0.039	-0.290	-11.913	0.000
Lev	-0.001	-0.534	0.769	0.005	0.677	0.670	0.002	0.228	0.999
ROA	0.000	0.317	0.930	-0.001	-0.375	0.887	0.014	2.402	0.052
ROE	-0.328	-8.355	0.000	0.001	0.412	0.859	0.000	0.218	1.007
N	172			57			115		
F-value	5.138***			6.271***			5.122***		
Adj. R2	12.80%			15.60%			19.80%		

Note: *** indicate statistical significance at the 1% level, respectively
Source: Statistical analysis results.

Panel A shows that the interaction between dividends and capital structure has a significant positive effect on firm value, with a coefficient of $\beta = 0.254$ (T-Stat. = 3.695 > 2; P-Value = 0.000 < 0.05). This indicates that the interaction between dividends and capital structure contributes to an increase in firm value, thereby enhancing a firm's ability to secure additional financing sources. Consequently, capital structure serves as a moderating variable, transforming the previously insignificant relationship into a significant and positive one. This interaction enhances a firm's attractiveness when issuing new shares to potential investors, leading to increased trading activity and additional capital gains reflected in firm value (Aggarwal & Padhan, 2017; Doorasamy, 2021; Hirdinis, 2019). Therefore, we can accept the first sub-hypothesis, confirming the significant positive effect of the interaction between dividends and capital structure on firm value for the full sample.

The results in Panels B and C demonstrate that the interaction between dividends and capital structure has a significant positive effect on firm value in both the Egyptian and Saudi markets. The coefficients are significant and positive ($\beta = 0.250$; T-Stat. = 4.156 > 2; P-Value = 0.000 < 0.05 for the Egyptian market and $\beta = 0.247$; T-Stat. = 3.871 > 2; P-Value = 0.000 < 0.05 for the Saudi market). These findings suggest that the interaction between dividends and capital structure contributes to an increase in firm value in both markets, thus enabling firms to access additional financing sources. Consequently, we accept the second and third sub-hypotheses, confirming that the interaction between dividends and capital structure has a significant positive effect on firm value in both the Egyptian and Saudi markets. Based on the results in Panels A, B, and C, it is evident that this interaction consistently leads to an increase in firm value.

On the other hand, regarding stock liquidity and focusing on the results presented in Table 12, the R^2 values for the models are 13.7%, 14.20%, and 18.60% for the full sample, the Egyptian market, and the Saudi market,

respectively. This indicates that the interaction between dividends and capital structure explains approximately 13.7%, 14.20%, and 18.60% of the variation in stock liquidity, respectively. Furthermore, the F-values for the models are 5.238, 5.226, and 6.481, which are all significant at the 1% level, indicating that the models effectively explain the proposed relationships.

Table 13. Impact of the interaction between dividends and capital structure on stock liquidity.

Variables	Panel A: Full sample			Panel B: Egyptian sample			Panel C: Saudi sample		
	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value	β Coef.	t-stat.	P-Value
Cons.	0.004	3.376	0.019	0.000	-0.029	1.337	0.006	10.192	0.000
Div. × *CAP.*	0.252	3.558	0.000	0.235	3.473	0.000	0.250	3.811	0.000
Size	0.144	1.414	0.408	0.179	1.699	0.292	-0.679	-8.533	0.000
Lev	-0.244	-2.171	0.152	0.101	0.627	0.879	0.382	4.564	0.001
ROA	0.172	1.293	0.466	-0.211	-1.200	0.517	-0.301	-2.332	0.121
ROE	-0.050	-0.738	0.800	0.034	0.162	1.231	0.224	1.674	0.300
N	172			57			115		
F-value	5.238***			5.226***			6.481***		
Adj. R2	13.70%			14.20%			18.60%		

Note: *** indicate statistical significance at the 1% level, respectively
Source: Statistical analysis results.

Based on Table 13, panel A shows that the interaction between dividends and capital structure has a significant positive effect on stock liquidity, with the coefficient being both significant and positive (β = 0.252; T-Stat. = 3.558 > 2; P-Value = 0.000 < 0.05). This finding indicates that the interaction between dividends and capital structure contributes to an increase in stock liquidity. Consequently, capital structure serves as a moderating factor, transforming the previously insignificant relationship into a significant and positive one. This interaction enhances trading activity, creating greater buying potential among investors in the market (Alwan & Risman, 2023; Bui, Nguyen, & Pham, 2023; Natsir & Yusbardini, 2020). Consequently, we can accept the first sub-hypothesis, confirming the significant positive effect of the interaction between dividends and capital structure on stock liquidity for the full sample.

The results in Panels B and C show that the interaction between dividends and capital structure has a similarly significant positive effect on stock liquidity in both the Egyptian and Saudi markets. The coefficients are significant and positive (β = 0.235; T-Stat. = 3.473 > 2; P-Value = 0.000 < 0.05 for the Egyptian market and β = 0.250; T-Stat. = 3.811 > 2; P-Value = 0.000 < 0.05 for the Saudi market).

This finding suggests that the interaction between dividends and capital structure increases stock liquidity in both markets, providing more funding sources for firms in Egypt and Saudi Arabia. Therefore, we accept the second and third sub-hypotheses, as the interaction between dividends and capital structure has a significant positive impact on stock liquidity in both markets.

In summary, based on the results presented in Table 12 and 13, we accept the third hypothesis in its alternative form, confirming that the interaction between dividends and capital structure has a significant positive effect on both firm value and stock liquidity.

5. ROBUSTNESS TESTS

Additionally, the regression was re-run, taking into consideration the time fixed effects for all samples of the research, and more robustness tests were performed using an alternative measure of stock liquidity based on transaction cost measures, which depend on the absolute difference between the bid and ask prices.

Table 14. Robustness tests using year and industry fixed effects.

Variables	Full Sample			
	Model (1)	Model (2)	Model (3)	Model (4)
Cons.	2.695***	0.003***	2.587***	0.003***
	(15.900)	(2.490)	(15.200)	(2.360)
Size	-0.285***	0.000	-0.265***	0.000
	(-7.470)	(-0.650)	(-6.910)	(-0.670)
Lev	0.006	0.000	0.007	0.000
	(1.080)	(0.880)	(1.180)	(1.000)
ROA	-0.092	-0.002	-0.081	-0.002
	(-0.650)	(-1.580)	(-0.580)	(-1.520)
ROE	0.013	0.001	0.011	0.001
	(0.120)	(0.940)	(0.100)	(0.860)
Div.	-0.001	0.000***		
	(-0.090)	(-3.020)		
Div. × CAP.			0.021***	0.000***
			(2.810)	(2.410)
Year and industry fixed effects	Yes			
Observations	172			
F-value	11.82***	3.88**	12.68***	3.18*
Adj. R2	22.66%	9.13%	25.60%	7.73%

Note: *, ** and *** indicate statistical significance at the 10, 5 and 1% levels, respectively
Source: Robustness tests results.

According to Table 14, robustness test results indicate that dividends have no effect on firm value as measured by Tobin's Q; however, dividends have a significant negative effect on stock liquidity, which means that dividends can decrease stock liquidity. In addition, the results reveal that the interaction effect between dividends and capital structure can increase both firm values (See Figure 1).

Similarly, the interaction effect between dividends and capital structure can increase stock liquidity, which agrees with the original result. Consequently, the robustness tests ensured the main results, which reflected the model's power (See Figure 2 & Figure 3).

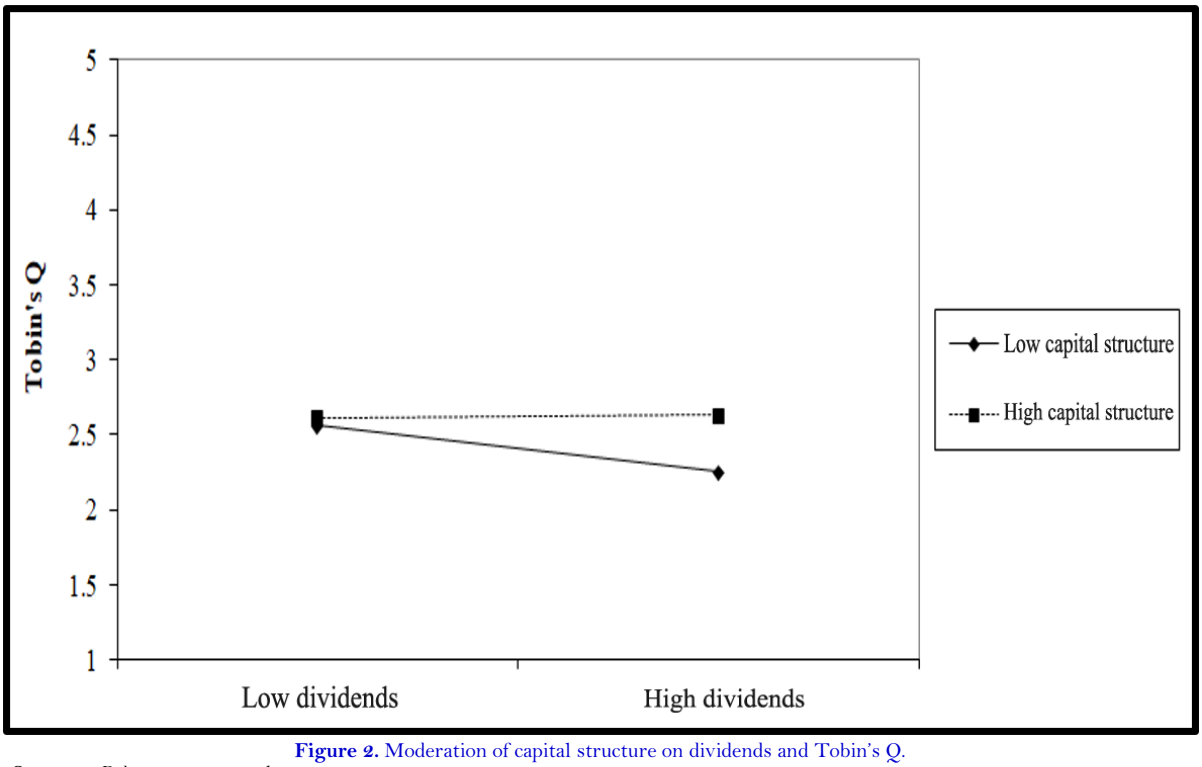

Figure 2. Moderation of capital structure on dividends and Tobin's Q.
Source: Robustness tests results.

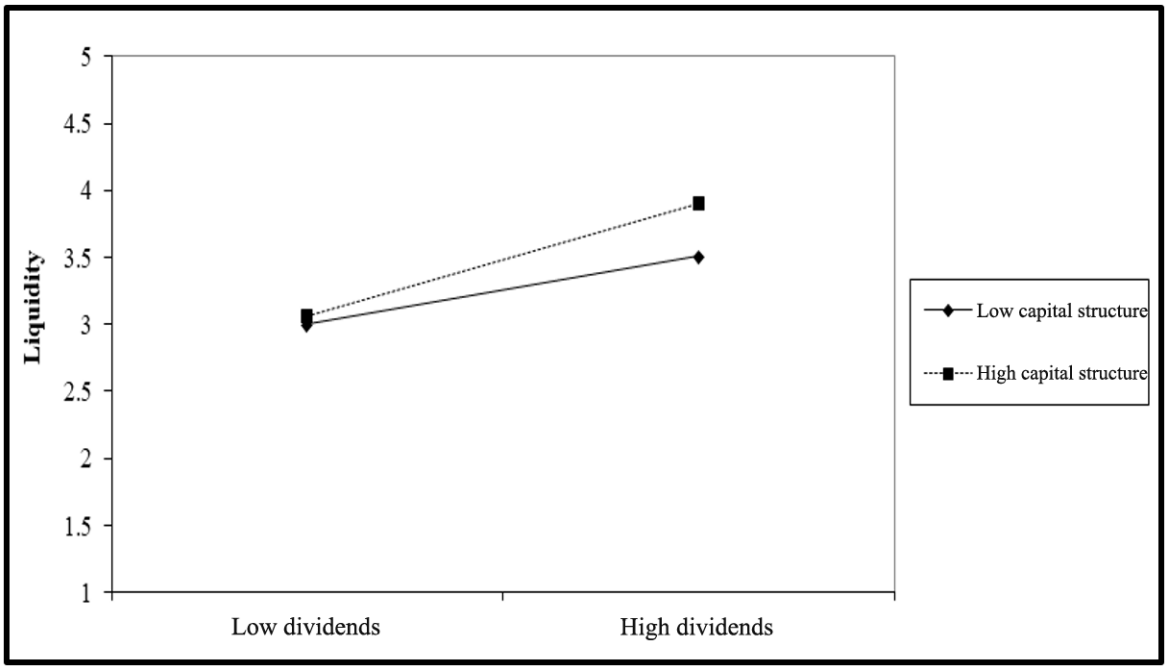

Figure 3. Moderation of capital structure on dividends & stock liquidity.
Source: Robustness tests results.

Table 15. Robustness tests using alternative measure of stock liquidity.

Variables	Full sample	
	Model (2)	Model (4)
Cons.	0.004	0.004
	(3.386)	(3.210)
Size	0.000	0.000
	(-0.884)	(-0.911)
Lev	0.000	0.000
	(1.197)	(1.360)
ROA	-0.002	-0.002
	(-2.149)	(-2.067)
ROE	0.001	0.001
	(1.278)	(1.170)
Div.	0.000	
	(-4.107)	
Div. × CAP.		0.000
		(3.278)
Year and industry fixed effects	Yes	
Observations	172	
F-value	6.87**	7.85***
Adj. R2	10.15%	9.85%

Note: *** indicate statistical significance at the 1% levels, respectively.
Source: Robustness tests using alternative measure of Stock Liquidity.

Additionally, according to Table 15, and after rerunning the model using alternative measures of stock liquidity by the cost of transactions, which is based on the difference between bid and ask prices; results showed that dividends also have the ability to decrease stock liquidity and that the interaction can still increase stock liquidity. Consequently, the model's power can explain the relationships among the variables efficiently.

6. DISCUSSION AND CONCLUSION

6.1. Discussion of Results

Examining the impact of dividend announcements on both stock liquidity and firm value yields diverse conclusions. Unfortunately, much of the literature has primarily focused on developed and efficient markets, with

limited attention given to the interrelationship between dividend announcements and firm performance in emerging markets (Amin & Hamdan, 2018; Manurung, Machdar, FoEh, & Sinaga, 2024). Dividends policy almost reflects management's commitment to delivering shareholders' value. In contrast to prior research, this study suggests that the relationship between dividend announcements and both stock liquidity and firm value is likely to be moderated by capital structure. Panel data analysis, applied to a sample of 54 listed corporations on both the Saudi Exchange (Tadawul) and the Egyptian Exchange (EGX), provides strong evidence to support the research hypotheses. However, because the economic environments in both markets are different, the results might be theoretically unexpected.

The hypothesis-testing results reveal substantial differences between the two markets. Dividend announcements were found to have a significant positive impact on stock prices and consequently on firm value, particularly in the Saudi market. However, in the Egyptian market, the daily average abnormal returns showed no significant impact before or after the event window. Similarly, dividend announcements in Egypt had no significant effect on trading volumes, whereas a significant impact was observed in Saudi Arabia. This suggests that, while increasing dividends boosts firm value, it decreases stock liquidity. Contrary to prior research, dividends were found to have no significant effect on firm value in either market, as measured by Tobin's Q. There is a great homogeneity between results of DID and Regression models; dividends don't significantly influence firm value, meaning that an increase in dividends doesn't lead to an increase in firm value or generate additional demand for the company's stocks. Therefore, no significant effect was found for dividends on firm value, measured by Tobin's Q, for the full sample. A fully transparent dividend policy might have a direct positive impact on the firm's value.

Moreover, the interaction between dividends and capital structure has a positive and significant impact on firm value and stock liquidity in both markets (Boshnak, 2023). These conclusions are robust and supported by regression models, control variables, and various statistical and econometric indicators (Kalyanaraman, 2024). However, these findings should be cautiously interpreted. Researchers generally ignore differences between various sectors within both Egyptian and Saudi markets due to the limited number of observations, which might adversely affect the validity and reliability of the statistical results. Additionally, the negative effects of dividends on stock liquidity are expected to reduce trading levels in the stock market following dividend announcements, indicating a decrease in supply relative to demand for the stock. This reflects a high level of investor rationality but simultaneously suggests a substantial increase in stock prices, which is not supported by our statistical results when testing the first hypothesis. This outcome can be explained by the finance literature, which highlights that external investors often avoid buying stocks during dividend announcements because of perceived artificial demand movements and unrealistic market profits.

6.2. Conclusion, Implications, and Recommendations

6.2.1. Conclusion

This study demonstrates that dividend announcements and a firm's capital structure do not operate in isolation; these factors are interdependent and collectively influence firm performance. Therefore, market participants must carefully analyze dividend announcement mechanisms to fully understand their implications. Second, a failure to recognize the interplay between dividends and capital structure and their subsequent effects on stock liquidity and firm value could lead to negative consequences for firms, investors, and the broader market. Misaligned strategies can erode market confidence and lead to suboptimal investment decisions. Third, this research highlights that there is no one-size-fits-all model for dividend policies that firms should follow. Each company must strike the right balance between its dividend policy, capital structure, and the unique characteristics of its market environment. What works for one firm or market may not be suitable for the other.

To maximize shareholder value, ensure sufficient liquidity, and promote long-term growth, firms must tailor their dividend and financing decisions according to their specific needs, goals, and market conditions. This tailored

approach ensures that factors such as market efficiency, investor behavior, and economic stability are appropriately considered. Dividend payment behavior varies from one company to another, from one sector to another, and from one market to another. Investors, especially in emerging markets, prefer the "bird-in-hand" form of dividends over "two in the bush"; that is, investors almost prefer to gain on-the-spot cash dividends instead of accumulating future capital gains (Wealth maximization).

Accordingly, firms that ignore dividend payments are exposed to higher levels of market risk. Moreover, the findings of this study open avenues for future research. To validate the results further, future studies should replicate and test the hypotheses explored in this study in different market contexts. Future research may address the differences between the impact of different types of dividends on stock liquidity and firm value, and the relationships between different research variables can be further examined in different emerging markets to ensure research findings and discriminate between developing and developed markets. In addition, examining the potential differences that might exist between different economic sectors can provide insights for further research.

Interestingly, this study found no significant impact of dividend distributions on firm value, a result that aligns with and differs from previous studies Prianda, Sari, and Rambe (2022). This highlights a potential gap in understanding the relationship between the period in which external investors respond to dividend distributions and corresponding share price movements.

Farooq, Khan, and Malik (2024) and Ismail and El-Deeb (2022) propose a significant positive relationship between corporate governance quality and firm value; CEO duality has a positive significant impact on company value; however, many obstacles might face Egyptian listed firms in applying corporate governance standards and codes, which are issues that significantly affect firm value in the market. These results point to a research gap regarding the level of corporate governance and investor rationality (or maturity) and their role in neutralizing the impact of dividends on stock market value in the context of supply and demand factors related to dividend announcements and distributions.

6.2.2. Recommendations

Despite the differences in market characteristics and challenges, this gap suggests that future research should explore the moderating role of individual investor awareness in influencing the relationship between dividend distributions and share price movements and their subsequent effects on firm value. Addressing this research gap could provide valuable insights into how investor behavior shapes the impact of dividend announcements on firm performance (Hasan, 2022). Findings of this study agree and contradict previous research in the academic literature (Al Qudah & Badawi, 2015; Archana, 2019; Arsal, 2021; Ziram, 2022) as no significant impact was found of stock prices on dividend announcements in the Saudi Exchange (TADAWUL). However, a significant impact was observed for dividend announcements on stock prices.

In practical terms, the implications of this research indicate that the management of listed firms, in cooperation with policymakers, must formulate and follow effective dividend policies aimed at supporting and increasing stock liquidity and firm value. Low stock liquidity can increase trading and transaction costs, making it difficult for shareholders to sell their shares when needed. As a result, investors prefer transparent dividend policies to reduce agency costs.

In accordance with what Kumar and Kadam (2024) have achieved, this study strives to establish a direct connection between stock liquidity and firm value in taking different dividend decisions, shedding light on the targeted equilibrium that listed firms in emerging markets must consider to reward owners and ensure continuous financial growth. Additionally, future research could consider the role of signalling theory in shaping corporate governance, investor awareness, and satisfaction as financiers of the firm's capital, potentially leading to a positive impact on both firm value and stock liquidity.

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