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The moderating effects of the industry competition level and industry diversification on the relationship between the transaction price of mergers and acquisitions and corporate value

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Abstract

This study delved into the moderating impact of industry diversification and competition intensity on the relationship between merger and acquisition transaction prices and enterprise value. Using panel data on corporate mergers and acquisitions in Jordan between 2017 and 2022, this study applied a fixed effect model and performed robust regression to test hypotheses. A total of 402 observations for 108 companies were included in the estimation, and year dummies were incorporated into the model to control for year-specific effects. The findings revealed that transaction prices had a significantly negative impact on the firm's future value. However, this negative effect was mitigated in the opposite direction if the acquirer faced highly competitive intensity. Moreover, in the case of mergers and acquisitions between companies in different industries, this mitigating effect became even more pronounced. The study carries several theoretical implications. It quantitatively demonstrated that the effects of corporate mergers and acquisitions, particularly the effects of transaction prices, influence the corporation's value. These effects are moderated by the corporation's competitive environment and the characteristics of the merger and acquisition, including whether it involves companies in different industries. The research also has significant implications for practical corporate merger and acquisition applications. Practitioners should analyse synergies and fair values with target companies and comprehensively consider the competitive intensity of the company's markets that can be effectively accessed through mergers and acquisitions when anticipating the effects of mergers and acquisitions.

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1. Introduction

The strategic use of mergers and acquisitions (M&A) has significantly impacted the transformation of several organizations throughout history. Various studies have been conducted to understand why firms seek M&A strategies. Theories of Industrial Organization suggest that the two most common reasons for M&A activities are efficiency gains and strategic rationality (Dua, 2023).

Mergers and acquisitions are increasingly being viewed as a strategic response to the intensification of competition from globalization and the high degree of market uncertainty. According to Batista, Lamounier, and Mário (2023), an M&A process can result in visible outcomes, such as an increase in the company's size and revenue. Other positive impacts are evident, including increased market share, profitability, productivity, flexibility, and cost reduction. These tangible benefits make M&A an attractive strategy in the business world. Additionally, M&A helps distribute risks from a managerial perspective and enhances operational efficiency, ultimately benefiting long-term corporate performance (Chu, Chu, & Liu, 2021). It can be a core driver of inorganic growth, actively harnessing external capabilities and experiences (Ying-Yen & Studio, 2023). Companies acquire complementary businesses or those operating in different industries to diversify their revenue sources and mitigate risks, including market fluctuations (Kibunja, Matanda, & Roche, 2023). Furthermore, due to COVID-19's impact, recent circumstances have made corporate restructuring and expanding revenue areas inevitable. As a result, M&A is being considered as a key strategy for achieving these goals (Tarighi, Hosseiny, Akbari, & Mohammadhosseini, 2023). This perspective is being advocated, and the importance of M&A is being emphasized even more (Suryaningrum, Abdul Rahman, Meero, & Cakranegara, 2023).

Research indicates that an M&A transaction price should be balanced considering the proportion of corporate assets (Mun, Koh, & Jang, 2022). The effect on the valuation of the corporate value could be different if the cost of the acquisition is either too high or too low based on the corporate assets (Kwilinski, Drobyazko, & Derevyanko, 2019). Evidence suggests that M&A deal prices can exceed the true value of the target company (Haapa, 2023). Also, certain economic situations, such as high market uncertainty or inflation, can lead to higher acquisition costs compared to corporate assets (Arroyabe & Hussinger, 2023). As a result, the impact of M&A transaction prices on the value of the company remains complex (Umashankar, Bahadir, & Bharadwaj, 2022), and the results of high-frequency empirical research on the relationship between M&A transaction prices and corporate value remain controversial; some suggest its positive effect (Gupta, Raman, & Tripathy, 2023; William, 2023), while others suggest the opposite or a mix of the two (Chen & Young, 2010; Rahim & Ching Pok, 2013). In addition, contemporary studies imply that the relationship between M&A prices and corporations' value could not be decided by traditional factors but by the environmental variables around the firm (Giannopoulos, Lianou, & Elmarzouky, 2023; Li, Redding, & Xie, 2021). The M&As have an impact on market stakeholders that is either good or bad in terms of reforms, positive on resource allocation or negative on competition increases, mainly for aggressive industries (Ljubownikow & Ang, 2020). Furthermore, competition continuously motivates firms to find new combination facets and leans firms to enter other businesses in other industries, resulting in firms developing their innovation paradigms as well as capabilities to leverage external resources for gaining strategic capabilities (Dua, 2023; Suo, Yang, & Ji, 2023). Therefore, examining how M&A transaction price affects corporate value and under what circumstances M&A can be more effectively executed is essential. This nuanced analysis is crucial for shareholders to receive positive returns and for companies to generate value from M&A activities. This study could resolve the inconsistencies in the existing literature and offer a deeper understanding of the dynamics of mergers and acquisitions through its purpose, which was to examine whether the industry competition level and diversification can mitigate the negative effect of M&A transaction price on corporate value. Thus, the current study uniquely contributes to the existing literature by providing empirical evidence from developing economies, especially Jordan, on how corporations can gain positive outcomes from M&A activities.

This article is structured as follows: Section 2 provides a brief review of theoretical aspects; Section 3 outlines the research methodology, followed by the data analysis and presentation of results and results discussion in Sections 4 and 5, respectively; the article concludes with the conclusions, practical and theoretical implications, study limitations, and future research in Sections 6, 7, and 8, respectively.

2. Theoretical Background

2.1. Mergers and Acquisitions Transaction Price

When two companies come together, it is often called a merger or acquisition. While these terms are used interchangeably, they are slightly different. In a merger, the resources and operations of two separate companies are combined to create a brand-new entity. In this process, the original owners of both companies retain their stakes in the newly formed entity. On the other hand, in an acquisition, one company acquires the shares and operations of another company, resulting in the absorbed company ceasing to exist (Kumar, 2019).

The distinction between "merger" on the one hand and "acquisition" or "takeover" on the other is often related to the size of the involved parties in the process (Bekhuis, 2023). A merger happens when two or more similar businesses join to create a new entity established explicitly for this purpose. On the other hand, an acquisition takes place when one of the businesses involved is larger than the other and it acquires a smaller company (Snow, 2023). The size of the businesses involved does not necessarily determine whether it is a merger or an acquisition. While it is often the case that a larger business acquires a smaller one, mergers between large and smaller businesses, where both merge into a new entity, are also common. Additionally, it is not unusual for a smaller company to acquire a larger one (Suryaningrum et al., 2023).

Therefore, a merger can be defined as a situation where all businesses fundamentally lose their independence, not necessarily their identity. In contrast, an acquisition occurs when the acquiring business retains its independence and the acquired entity, directly or indirectly, becomes part of the acquirer (Asaolu, 2023).

Mergers and acquisitions operations can be divided into three main types: horizontal, vertical, and conglomerate. Horizontal mergers involve parties operating in the same industry. In most cases, the goal behind such action is to reduce the number of competitors and increase market presence, according to Suryaningrum et al. (2023). On the other hand, vertical operations involve companies that are not strictly in the same sector but are part of the production chain. In this case, the rationale is to reduce a step in the production chain by bringing one of them within their competencies. Finally, conglomerate mergers occur in different markets. In this context, the strategy behind the process is to develop mechanisms that hinder the entry of new players into the market, as Canales, De Souza, and Da Motta (2023) stated.

The M&A transaction price is typically set higher than the pre-acquisition market value of the target firm (Poramapojn & Wiboonchutikula, 2023). This is because the acquirer company adds intangible assets (goodwill), among other factors, to the fair value, which considers similar assets in the market or the market trading price of the company when measuring the target firm's transaction price (Hübscher & Martynkiewitz, 2021). Furthermore, depending on the acquirer's strategic decisions, additional amounts can be paid with the expectation of synergistic effects with the target firm (Maha, Aevoae, Viorică, & Dicu, 2023). These additional amounts may be higher depending on the competitive environment surrounding the M&A (Just, Honold, & Meckl, 2023). These factors contribute to the final M&A transaction price being determined at a higher price than the pre-acquisition market value of the target firm, and the difference between this price and the fair value can be interpreted as a premium at the time of the M&A transaction (Bebenroth & Ahmed, 2023). Most previous studies have indicated a tendency for excessive premiums to be paid in merger and acquisition transactions, resulting in the overvaluation of the transaction value (Zhang, Zhang, Yu, & Ma, 2023). Interestingly, Brahma, Boateng, and Ahmad (2023) also discovered a close association between the personal characteristics of the company's Chief Executive Officer (CEO) and the determination of excessive premiums in transaction prices. Specifically, they revealed that CEO hubris, or excessive self-confidence, quantitatively explains a significant portion of merger and acquisition premiums. Recent corporate performance and favourable media coverage significantly influence CEO hubris and self-confidence, which has a negative impact on the interests of acquiring company shareholders in mergers and acquisitions (Can & Dizdarlar, 2022). As a result, CEO's personal judgements may influence corporate mergers and acquisitions rather than careful methodical decision-making processes, and if the market (shareholders) is concerned about this trend, it may respond negatively to a high transaction price.

2.2. Corporate Value

According to Dirman (2020), the value of a company is calculated based on its future cash flows, discounted to its present value. In other words, the projected performance of a company is the primary driver of its value. The generated returns, discounted at a rate above the cost of capital for investments, are what determine this. Conversely, Ilham, Akhyar, and Maimunah (2023) posit that a company's economic value is determined by its operational results, discounted invested capital, and the market value added. This is the basis for Economic Value Added (EVA), which measures a company's financial performance based on its wealth creation. According to Ehrbar and Stewart III (1999), EVA is the only performance measure directly linked to a company's intrinsic market value.

Therefore, it is evident that operational results are crucial in determining a company's value and, consequently, in measuring its performance during mergers and acquisitions. Metrics like EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization), EBIT (Earnings before Interest and Taxes), net profit, and sales growth are essential in measuring company value creation. Moreover, according to Campa and Hernando (2004), they influence the development of synergies in the context of M&As.

In addition to operational metrics, Brainard and Tobin (1968) and Tobin (1969) developed Tobin's Q theory, which gives firms an idea of how to name any top-down capital investment. The authors explain that investment incentives exist when the replacement costs of a firm's physical capital are less than the market value of a share. Therefore, Tobin's Q, which aggregates company expectations over the horizon, is an indicator when making investment decisions. It does not need deeper consideration or further parameters for future investment decisions.

2.3. The Transaction Price of Mergers and Acquisitions and Corporate Value

Previous literature on the effect of mergers and acquisitions (M&A) on corporate value (Arthur & Khindanova, 2023; Bianconi & Tan, 2019; Jain, Kashiramka, & Jain, 2020) has proposed that such actions are detrimental. Although there are cases where M&A benefits shareholders, it is more likely to be beneficial for the target firm's shareholders (Ang, Daher, & Ismail, 2019). On the other hand, merger announcements are more of a burden to the acquirer shareholders (Dixit, 2020). Former research also hinted at the existence of unreasonable premiums in merger and acquisition transactions, which result in a high transaction value

(Zhang et al., 2023). This would make acquisition markets less conducive to shareholder interests. Zhang and Teo (2023) pointed out that merger and acquisition (M&A) transaction prices frequently exceed the financial transaction gains that are expected in the market, as some premium that is measured and paid (compared to the actual transaction benefits) is somewhat too large. Excessive premium paying deteriorates the cumulative abnormal returns of acquirers and targets, they say.

Brahma et al. (2023) also reported that excessive premiums in mergers and acquisitions have a negative impact on the interests of acquiring company shareholders. When a high premium is attached to the transaction price compared to the expected market effects, the market reacts negatively, ultimately leading to a decline in the acquiring company's stock price.

While some studies suggest that mergers and acquisitions are pursued to impact the company positively, other studies based on the agency theory perspective view corporate diversification as a result of the managerial pursuit of personal interests (Seth, Song, & Pettit, 2002; Zhu & Zhu, 2016). In other words, managers may pursue mergers and acquisitions for personal gain even if they know it would lower the company's value (Bauguess & Stegemoller, 2008; Geiger & Schiereck, 2014). If some shareholders hold such a perspective, they may have a negative view of the high valuation of the target company's transaction value.

On the other hand, Kuvandikov, Pendleton, and Higgins (2020) found that the payment of premiums during mergers and acquisitions leads to workforce reductions, ultimately negatively impacting corporate performance after the merger and acquisition. Based on the above, the first hypothesis is:

H_1: The transaction price of mergers and acquisitions negatively impacts the corporate value of acquiring firms.

2.4. Industry Competition Intensity, M&A Transaction Price, and Firm Value

To comprehend the factors that affect corporate performance in mergers and acquisitions (M&A), it is crucial to consider various aspects beyond transaction prices, including research and development (R&D) expenditure and the level of competition in the industry (Kwon, Kim, & Lee, 2020; Lee, Byun, & Park, 2019). These factors play a significant role in determining how companies operate within the M&A process.

In industries marked by high competition, companies often view M&A as a strategic tool to expand their market reach, achieve growth, and enhance operational efficiency (Bhattacharyya, 2019; Jin, Leccese, & Wagman, 2023; Yu & Yan, 2022). For stakeholders assessing firm value, resource allocation toward M&A may be perceived as necessary investments that involve high transaction costs (Long, Luo, Sun, & Zhong, 2023). To maintain and expand their competitive edge, companies operating in such industries require continuous innovation and performance improvement (Ahmed et al., 2023; Suo et al., 2023). Although high transaction costs associated with M&A can negatively impact firm value (Segal, Guthrie, & Dumay, 2022), it can also be seen as a compensatory strategy that can expand competitive advantage for stakeholders by creating operational synergies based on management integration and effective resource allocation, depending on the level of competition. Functional synergy can occur with such integration as the basis, allowing for cost savings by removing redundant functions and effective resource utilization. Furthermore, achieving economies of scale by securing more suppliers and customers can provide greater bargaining power, potentially contributing to profitability and increased corporate value. Transaction costs at high levels of competition have already been shown to decrease firm value. Still, in a low-competition industry, transaction costs may not impact firm value to the same extent. Mergers or acquisitions in these industries may heal resource allocation, lock in cost savings benefits, discourage any incentive for innovation, and may not effectively reduce market dominance (Kaneko & Kajikawa, 2023). Stakeholders, e.g., in the case of low-competition industries, stakeholders who scrutinize the firm value of the merging industry may have the view that the high transaction costs that companies pay regarding mergers would not actually increase company value. Thus, the second hypothesis is:

H_2: In industries characterized by high levels of competition, the negative impact of transaction prices on corporate value is mitigated.

2.5. Diversification in Different Industries, M&A Transaction Price, and Firm Value

The diversification strategy through mergers and acquisitions (M&A) across different industries has been extensively studied, especially when companies in highly competitive industries engage in such activities. From the perspectives of resource allocation and rising competitiveness, market stakeholders may prefer M&A (Ljubownikow & Ang, 2020). More costs caused by competition in the market stimulate companies to make greater innovations (Haucap & Stiebale, 2023). As a result, studies have found that buying out companies or products from the outside seems to be a faster and more lucrative approach for the initial response phase to the competition (Klueter, Moreira, & Ofoedu, 2023). Similarly, mergers and acquisitions (M&A) can drive innovation among companies, mainly when businesses from different industries with unique knowledge and resources are acquired (Grimpe, Hussinger, & Sofka, 2023). Diversifying into various industries through M&A enables companies to develop effective strategies for entering new markets, securing capabilities, and driving long-term growth (Oliveira, Roth, & Ponte, 2003). When growth and innovation opportunities become limited in the current industry, mergers and acquisitions can provide fresh prospects by transferring technology patents and legal rights between different categories (Suo et al., 2023). Studies reveal that external diversification with foreign companies can enhance corporate value compared to internal diversification in the

domestic market (Batsakis, Wood, Azar, & Singh, 2018). Furthermore, diversification can lead to cash flow stability and the formation of internal capital markets (Cerrato, La Rocca, & Alessandri, 2023). Diversifying across different industries is recognized as an innovative and rational growth strategy that actively leverages external resources, and market stakeholders view it as a strategic move that signals a company's commitment to long-term growth, ultimately leading to increased market value (Frésard, Hege, & Phillips, 2017). Based on the above, the third hypothesis is:

H_3: When companies acquire firms in unrelated industries (heterogeneous industries), the negative relationship between transaction prices and corporate value is further mitigated in industries with high competition levels.

2.6. Research Model

The comprehensive research model for this study is depicted in Figure 1.

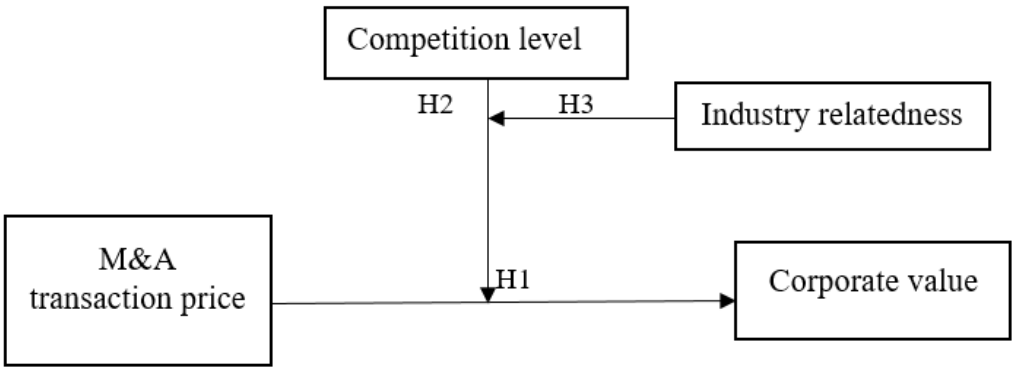

Figure 1. Research model.

3. Research Methodology

3.1. Sample Selection

For this study, a carefully selected sample of companies that underwent M&A transactions between 2017 and 2022 was analysed. The focus of this research was on companies listed in Jordan's Securities Depository Centre (SDC), the Companies Control Department, and the Amman Stock Exchange. These prominent enterprises considerably impact the Jordanian economy, making them the optimal choice for this study. To obtain the M&A data for the sample firms, the SDC Database was used, revealing 480 M&A transactions comprising 120 companies over the pre specified observation period. Additionally, financial data for the acquiring companies was collected using SDC, the Companies Control Department, and the Amman Stock Exchange. While some data limitations were encountered during the data collection, the final sample consisted of 108 companies with 402 M&A transactions.

3.2. Variables Measurement

Tobin's Q test as a corporate value measurement was introduced in the Bhargave and Tandon (2023) study. The Tobin Q is the ratio of a firm's market value to replacement cost, and it has been employed in various research studies as a gauge of corporate value (Alsmady, 2023; Bhargave & Tandon, 2023). This study followed earlier literature (Hussain et al., 2023) by replacing the replacement cost of assets with the book value of assets to calculate Tobin's Q.

The annual total M&A transaction price was also calculated as a percentage of the transaction price for assets as part of the study. The interface, as well as the name of this ratio, is not new. Researchers have widely used it, representing the relative size of transactions (Lukas, Pereira, & Rodrigues, 2023). Among the industries the sample companies belonged to, firms in highly competitive industries were identified by calculating each industry's Herfindahl-Hirschman Index (HHI) (Chang & Yoo, 2023). HHI captures the degree of firm density within an industry and is computed by summing the squared market shares of firms within a given industry (Barka, Benkraiem, Hamza, Lakhal, & Vigne, 2023). This study assumed that all firms within the same industry have the same industry concentration, and lower HHI values indicate intense competition within the market (Ren, Cao, Liu, & Han, 2023). The industries were classified based on the four-digit Standard Industrial Classification (SIC) codes, and HHI values were calculated for each industry (Chang & Yoo, 2023). Industries defined with HHI values of 1300 or lower were considered low-concentration industries with intense competition, following guidelines by the Securities Depository Centre (SDC) of Jordan and the Companies Control Department.

In addition, the study determined whether an M&A transaction was a cross-industry merger based on the four-digit SIC codes. A dummy variable assigned a value of 1 if a company had a history of acquiring firms with different SIC codes among all M&A transactions performed annually and 0 if not.

Finally, various financial factors such as firm size, return on equity, R&D investment ratio, advertising expenditure ratio, fixed asset ratio, and revenue growth rate were considered in the study as they were

expected to impact the dependent variable, corporate value. Year dummies were also included in the model to control for year-specific effects. Table 1 explains the calculation of the variables mentioned above.

Table 1. Measurement of variables.

Variable name		Measurement method
TQ	"Firm value"	"Market value/Assets"
TR	"Acquisition price ratio"	"Aggregate purchase price in mergers and acquisitions/Total assets."
SIZE	"Company size"	"Asset size"
ROE	"Return on equity"	"Current net profit/Owner's equity"
RND	"Research and development expenses"	"Research and development expenses/Revenue"
ADV	"Advertising expenses"	"Advertising expenses/Revenue"
TANG	"Fixed asset ratio"	"Fixed assets/Total assets"
SG	"Revenue growth rate"	"(Current period revenue - previous period revenue) / Previous period revenue"
HCOM	"Highly competitive industry status"	"1 if the HHI calculated based on SIC codes is 1300 or lower, 0 otherwise"
INDF	"Cross-industry mergers and acquisitions (M&A) status"	"1 if the acquiring company and the target company have different SIC codes, 0 otherwise"
YD	Year	"Dummy variable for the year of M&A occurrence"

3.3. Analysis Model

In Model 1, the dependent variable is Tobin's Q (TQ), and the independent variable is the ratio of the acquisition price (TR). Control variables included the highly competitive industry dummy (HCOM), firm size (SIZE), return on equity (ROE), R&D investment ratio (RND), advertising investment ratio (ADV), tangible asset ratio (TANG), and sales growth rate (SG). Additionally, year dummies were included in the model to control the timing of M&A transactions.

$$TQ_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 HCOM_{it} + \beta_3 SIZE_{it} + \beta_4 ROE_{it} + \beta_5 RND_{it} + \beta_6 AVD_{it} + \beta_7 TANG_{it} + \beta_8 SG_{it} + \sum_{p=1}^{6} \gamma_p YD_p + \epsilon_{it,} i = 1, \ldots, 108, t = 1, \ldots, 6 \quad \text{Model (1)}$$

The second model aimed to confirm that the impact of the acquisition price-to-firm value ratio on corporate value is positively moderated in highly competitive industries. The model incorporated the interaction term between the M&A transaction price ratio and the highly competitive industry dummy to do this.

$$TQ_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 TR_{it} X\, HCOM_{it} + \beta_3 SIZE_{it} + \beta_4 ROE_{it} + \beta_5 RND_{it} + \beta_6 AVD_{it} + \beta_7 TANG_{it} + \beta_8 SG_{it} + \sum_{p=1}^{6} \gamma_p YD_p + \epsilon_{it}, i = 1, \ldots, 108, t = 1, \ldots, 6 \quad \text{Model (2)}$$

These two models were created to test Hypothesis 1, which examines the connection between the price of merger and acquisition transactions and enterprise value. Furthermore, they were developed to confirm whether the relationship is affected by high-competition industries, as proposed in Hypothesis 2. This study presented four models, with Models 1 and 2 identical to those mentioned earlier, while Models (3) and (4) apply the equation of Model (2) to the panel of companies that have conducted cross-industry and same-industry mergers and acquisitions, respectively, to test Hypothesis 3. Models (3) and (4), on the other hand, are models that apply the equation from Model 2 to firms that conducted cross-industry and same-industry mergers and acquisitions, respectively. Hypothesis 3 was tested with Models (3) and (4). Before the analysis, variables in the models underwent Winsorizing, which adjusted them to the values at the 1st and 99th percentiles to avoid issues caused by outliers (Hrazdil, Kim, & Li, 2023).

4. Empirical Results

4.1. Basic Statistics

Table 2 presents the statistical data for various variables for the companies included in the sample. On average, the market value of the companies is twice their book value, with a mean of 1.93, as measured by Tobin's Q. The top-performing companies, with the highest merger and acquisition transaction amounts, invested approximately 49% of their assets, with a mean ratio of 0.06. To adjust for the size of each company, the mean company size is reported as 8.79, with a return on equity of 3%. The companies in the sample allocated 3% and 2% of their total revenue to research and development and advertising expenses, respectively. The ratio of tangible assets to total assets for the sample companies was 18%, and they exhibited an average annual sales growth rate of 9%. Dummy variables for high-competition industries and cross-industry mergers and acquisitions are reported as 0.29 and 0.41, respectively, indicating that 29% of the total sample is in high-competition industries, and 41% conducted cross-industry mergers and acquisitions.

Table 3 displays the correlation analysis results between variables. The highest correlation coefficient (p = - 0.39) was found between the enterprise value and the company size variables, and no other variable pairs

had a correlation coefficient greater than 0.5. The model was estimated using pooled Ordinary Least Squares (OLS), and VIF values were calculated to check for multicollinearity issues. The average VIF value was reported as 1.47, suggesting no multicollinearity issues in the model.

Table 2. Descriptive statistics.

Variable	Mean	Standard deviation	Minimum value	Maximum value
TQ	2.15	1.17	0.89	9.97
TR	0.06	0.10	0.01	0.49
SIZE	8.79	1.28	5.91	12.69
ROE	0.03	0.03	- 0.19	0.14
RND	0.03	0.05	0.00	0.32
ADV	0.02	0.03	0.00	0.12
TANG	0.18	0.19	0.00	0.81
SG	0.09	0.017	- 0.34	0.83
HCOM	0.29	0.41	0.00	1.00
INDF	0.41	0.46	0.00	1.00

Table 3. Correlation between variables.

Variable	1	2	3	4	5	6	7	8
TQ	1.00							
TR	0.02	1.00						
SIZE	-0.39***	-0.13***	1.00					
ROE	-0.14***	-0.09***	0.14***	1.00				
RND	0.31***	0.06**	-0.05*	-0.09***	1.00			
ADV	0.22***	-0.02	0.04*	-0.10***	0.09**	1.00		
TANG	-0.14***	-0.02	-0.05*	-0.09***	-0.18***	-0.07**	1.00	
SG	0.02	0.39***	-0.08***	-0.02	0.02	-0.04	-0.03	1.00

Note: * p < 0.1, ** p < 0.05, *** p < 0.01

4.2. Hypothesis Testing Results

This study applied a fixed effect model, considering the characteristics of longitudinal data, and performed robust regression to address heteroscedasticity issues. A total of 402 observations for 108 companies were included in the estimation, and year dummies were incorporated into the model to control for year-specific effects. The explanatory power of each model was reported to be approximately 23% for Models 1 and 2 and around 38% for Models (3) and (4). The reason why Models (3) and (4) have a higher level of explanatory power is because they were estimated using subsamples that showed mergers and acquisitions across industries and within industries, respectively. In each subsample, the independent variables explained the total variation in the dependent variable, Tobin's Q, relatively better than in the entire sample.

Table 4. Panel regression results.

Variables	Model (1) (Entire sample)	Model (2) (Entire sample)	Model (3) (Heterogeneous industry M&A)	Model (4) (Homogeneous industry M&A)
TR	-0.498**	-0.899***	-1.142**	-1.089***
	(0.198)	(0.251)	(0.495)	(0.397)
HCOM	0.361	0.258	0.142	0.695**
	(0.233)	(0.246)	0.146	(0.281)
TR*HCQM	-	0.798*	1.585*	0.722
		(0.398)	(0.831)	(0.491)
SIZE	-0.698***	-0.688***	-0.524***	-0.735***
	(0.119)	(0.120)	(0.131)	(0.198)
ROE	-0.497	-0.489	-1.512	-0.970
	(0.691)	(0.691)	(1.119)	(0.930)
RND	-5.830	-.0511	-14.779***	3.015
	(5.221)	(5.790)	(1.114)	(4.826)
ADV	15.711	15.802	9.776*	34.504**
	(11.891)	(11.885)	(5.114)	(16. 338)
TANG	0.885	0.814	0.786	1.661
	(0.898)	(0.907)	(1.253)	(1.224)
SG	0.533***	0.524***	0.411**	0.831**
	(0.150)	(0.152)	(0.197)	(0.395)

Variables	Model (1) (Entire sample)	Model (2) (Entire sample)	Model (3) (Heterogeneous industry M&A)	Model (4) (Homogeneous industry M&A)
Constant	8.772*** (1.018)	8.690*** (1.021)	7.967*** (1.366)	7.822*** (1.960)
Fixed effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Observations	402	402	210	193
Number of firm	108	108	68	74
Adj. R-squared	0.228	0.233	0.388	0.379

Note: The standard errors are presented in parentheses to ensure robustness.
*p < 0.1, **p < 0.05, *** p < 0.01.

In Table 4, the analysis of the study hypotheses is presented, which aims to validate the relationship between merger and acquisition (M&A) transaction price, firm value, and industry competitiveness. Model 1 tested the first hypothesis that the M&A transaction price negatively affects company value. The analysis results indicated a significant negative impact (β = -0.498; $p < 0.05$) of the M&A transaction price ratio on company value, which supports hypothesis 1. The findings suggest that when the M&A transaction price is high, the company value decreases.

Model 2 investigated the second hypothesis, which suggests that the negative impact of the M&A transaction price on company value will be mitigated in highly competitive industries. The results show that the M&A transaction price negatively impacts company value (β = -0.899; $p < 0.01$), while the dummy variable for highly competitive industries is not statistically significant (β = 0.258; $p > 0.1$). However, the interaction term between the M&A transaction price and the dummy variable for highly competitive industries had a significant positive impact on firm value (β = 0.798; $p < 0.1$). These findings suggest that the presence of highly competitive industries positively moderates the negative impact of the M&A transaction price, thus supporting hypothesis 2.

To provide further insight, the marginal effect of the M&A transaction price on firm value in highly competitive industries in Model 2 was estimated. The results indicate a significant reduction (-0.101 = -0.899 + 0.798) in the impact of the M&A transaction price on company value compared to the impact estimated in Model (1) (-0.498). These findings highlight the crucial role of the competitive nature of the industry in determining the impact of the M&A transaction price on firm value.

Finally, Models (3) and (4) test the third hypothesis, which posits that the impact of the M&A transaction price on firm value differs depending on the industry's heterogeneity. Model (3) examines the impact of the M&A transaction price on firm value in heterogeneous industries, while Model (4) investigates the same for homogeneous industries. The results of Model (3) indicate a positive impact of the M&A transaction price on firm value (β = 1.585; $p < 0.1$) for firms in highly competitive and heterogeneous industries engaged in M&A. In contrast, Model (4) shows a negative impact of the M&A transaction price on company value (β = -1.089; $p < 0.01$) in homogeneous industries, regardless of competition levels.

5. Results Discussion

Similar to previous research, this study has generally found that merger and acquisition transaction prices significantly negatively impact the acquiring firm's future value (Arthur & Khindanova, 2023; Bianconi & Tan, 2019; Jain et al., 2020). That is not a surprise, given that the M&A transaction price is usually higher than the target firm's pre-acquisition market value (Poramapojn & Wiboonchutikula, 2023). The fact that the acquirer adds intangible assets, including goodwill, to the fair value is one reason for this (Hübscher & Martynkiewitz, 2021). In some instances, extra payments may be made due to expected synergies with the target firm (Maha et al., 2023). Similarly, hubris or overconfidence of the CEO explains considerably more M&A premiums quantitatively (Brahma et al., 2023). These factors contribute to the final M&A transaction price being determined at a higher price than the pre-acquisition market value of the target firm, and the difference between this price and the fair value can be interpreted as a premium at the time of the M&A transaction (Bebenroth & Ahmed, 2023). Unfortunately, this premium ultimately negatively affects the interests of acquiring company shareholders (Can & Dizdarlar, 2022).

The study also found that highly competitive industries have a positive effect on mitigating the negative impact of M&A transaction prices on corporate value. Previous literature supports this discovery. In these industries, companies use M&A to expand their market reach, achieve growth, and improve operational efficiency (Bhattacharyya, 2019; Jin et al., 2023; Yu & Yan, 2022). Companies in such industries must continuously innovate and improve their performance to maintain and enhance their competitive edge (Ahmed et al., 2023; Suo et al., 2023). Although M&A transaction costs can negatively affect the value of a firm (Segal et al., 2022), they can also be viewed as a compensatory strategy that expands competitive advantage by creating operational synergies through effective resource allocation and management integration, depending on the level of competition. By integrating functions, cost savings can be achieved by eliminating redundant

functions and utilizing resources effectively. Additionally, securing more suppliers and customers can increase economies of scale, provide greater bargaining power, and potentially increase profitability and corporate value.

Finally, the study finds that M&A transactions can enhance firm value in competitive and heterogeneous industries. For companies operating in homogeneous industries, the effect is adverse, irrespective of the intensity of competition. This conclusion is consistent with the existing literature. M&A is perceived as a resource allocation process that creates competitiveness among market stakeholders (Ljubownikow & Ang, 2020). This emerges as one (low-cost) way to invest more in the innovations of companies in highly competitive markets (Haucap & Stiebale, 2023), hence making mergers and acquisitions an initial short-run response to innovative threats of competition (Klueter et al., 2023). Moreover, M&A may foster innovation, mainly when companies with specialized knowledge and assets from other industries are targeted (Grimpe et al., 2023). In addition to the above relationships, diversification through M&As may also enable companies to build improved pathways to entering new markets, gaining competencies, and concretizing long-run expansion (Oliveira et al., 2003). Therefore, a company's value increases.

6. Conclusion

The lens through which M&As are typically viewed often has a negative focus on the impact of transaction prices on company value. However, the fact is that M&A is an essential part of growth and survival. Recent literature has argued that M&A has positive externalities for the corporate environment, but the analysis of these policies' different traits and effects is not that clear. This study was responsive to the existing literature and relied on panel data on corporate M&A in Jordan for the period from 2017 to 2022. The objective was to observe whether industry competition and heterogeneity can weaken the influence of M&A transaction prices on enterprise value. In the context of M&A transaction prices, the study found that firm value increases when there is more competition and heterogeneity within an industry. These results are highly relevant to the literature and have interesting implications for practitioners.

7. Practical and Theoretical Implications

The results presented in the current study have broad theoretical importance. In the first place, this provides a more quantitative demonstration of how corporate mergers and acquisitions create or destroy value for the acquiring firm while focusing on transaction size. The paper also highlights the importance of the competitive context and specific merger or acquisition attributes, such as whether each company is present in different segments. Overall, this is in line with the most recent literature revealing that one cannot merely look at mergers and acquisitions activities without paying careful attention to several facets of them.

Secondly, the study suggests a theoretical possibility that, under certain conditions, the price of corporate mergers and acquisitions could have a positive impact on the value of the acquiring company. This finding is particularly noteworthy, as previous research has focused on the adverse effects of mergers and acquisitions. The study's first hypothesis confirms this trend. It indicates that the impact of mergers and acquisitions on enterprise value may vary depending on the specific circumstances and strategies of the acquiring company.

From a practical standpoint, this study has significant implications for corporate decision-makers involved in mergers and acquisitions. It suggests that acquiring companies should not only consider the synergies and fair values of potential target companies but also consider the competitive intensity of the market in which they operate and the potential markets that could be accessed through mergers and acquisitions. For example, companies in industries characterized by high competition may find mergers and acquisitions to be a particularly effective growth strategy. Conversely, in situations where the competitive intensity is low or when considering mergers and acquisitions with companies in the same industry, careful decision-making is required to avoid overpaying premiums in the pricing of transactions.

8. Study Limitations and Future Research

The present research study has some limitations and areas for future exploration. Firstly, it relied on data from the Securities Depository Centre (SDC) and the Companies Control Department, which only included acquirer companies listed in the Jordanian market. Consequently, several companies that still needed to meet the criteria were excluded. To address this issue, future research could explore the effects of mergers and acquisitions involving unlisted acquirer companies or companies from different markets outside Jordan.

Secondly, the study analysed the impact of transaction prices on enterprise value by considering moderating variables such as industry competitiveness and target company industry. However, future research could introduce other moderating or mediating variables to achieve specific research objectives. For example, the model could be extended to include variables such as industry type, research and development (R&D) expenditures, and marketing costs to investigate the effects of mergers and acquisitions or transaction prices.

Thirdly, an extended model that accounts for stock market volatility could be proposed if the relevant data is available. Diversifying revenue sources across different industries could impact a company's cash liquidity and affect stock market volatility. Therefore, an expanded model could offer more comprehensive and insightful implications.

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