



Title: Information Asymmetry and Merger Performance on the Johannesburg  
Stock Exchange

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## Declaration

I, Sambulo Siyanda Dlodla, declare that this dissertation is my own unaided work. It is being submitted for the degree of Master of Commerce (Business Finance) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any university.

X *Sambulo Siyanda Dlodla*

Sambulo Siyanda Dlodla

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## **Abstract**

This study examines the impact of information asymmetry on the long-term performance of mergers and acquisitions (M&A) on the Johannesburg Stock Exchange (JSE). The empirical test evaluates the 3-year period of share performance from 2001 to 2019. An event study methodology is utilized to evaluate the relationship between information asymmetry and M&A performance after the deal's completion. The study interrogates the relationship between information asymmetry through proxies and the M&A performance measures (BHAR & CAAR) and the relationship between the deal specific variables and the M&A performance measures. The results reveal several information asymmetry proxies (SPREAD, VOLATILITY, TRADED VOLUME, and TRADED VALUE) exhibit a statistically significant relationship with one or more M&A performance measures in the panel OLS fixed effects model. However, ANALYST COVERAGE was not statistically significant for M&A performance. This suggests that information asymmetry impacts M&A transactions on the JSE on the long run. Additionally, mixed results are observed in the Generalised Method of Moments (GMM) regression. When observing deal-specific variables, the panel OLS regression emphasises their significant relationship with M&A performance, particularly against the CAAR, rejecting the null hypotheses for cash, mixed, size, leverage, and value variables at a 1% or 5% level. Controlling for the financial industry, both panel OLS regression and GMM show a significant relationship between CAAR, which is consistent with Harford's (2005) concept of M&A waves and industry clustering. This emphasises the critical role of industry dynamics on M&A performance. The results suggest that management and investors need to be aware of the information asymmetry in the market when conducting and concluding an M&A transaction. Moreover, management and investors must be aware of the information asymmetry in the market in the long run post-merger.

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**Abbreviations**

AAR – Average Abnormal Returns

AR – Abnormal returns

BHAR – Buy and Hold Abnormal Returns

CAAR – Cumulative Average Abnormal Returns

EMH- Efficient Market Hypothesis

GMM – Generalized Method of Moments

JSE – Johannesburg Stock Exchange

Kurt – Kurtosis

M&A – Mergers and Acquisitions

Skew – Skewness

UK – United Kingdom

US – United States of America

VaR – Value at Risk

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1. Introduction**

M&A represents a crucial aspect of a firm's strategic endeavours to gain a competitive edge in the market. Due to the complex nature of M&As, investors often hypothesise about the reasons for the M&A. This leads to information asymmetry between investors and management. The current study investigates the relationship between information asymmetry and M&A performance. The study examines how information asymmetry influences the decision-making process of investors after the completion of a merger on the JSE. This chapter evaluates the background and motivation of information asymmetry and M&A performance. Thus, the study poses questions and objectives to investigate and draw attention to the flaws in earlier research on information asymmetry in M&A transactions. Moreover, this chapter highlights the hypothesis and benefits of the study.

This chapter is structured as follows: **Section 1.2.** evaluates the background and motivation of the study. **Section 1.3.** evaluates the problem statement proposed by the study and **Section 1.4.** highlights the research objectives. **Section 1.5.** interrogates the research question and **Section 1.6.** evaluates the research hypothesis. Then **Section 1.7.** highlights the benefits of the study in **Section 1.8.** investigates the limitations, and **Section 1.9** summarises the contents of the study.

### **1.2. Background and Motivation**

In the dynamic world of financial markets, M&A is a strategic move used to gain a competitive advantage. M&As are strategic options firms use to achieve their long-term growth strategies, develop innovative products, and adapt to a dynamic business environment (Aggarwal-Gupta, Kumar & Upadhyayula, 2012; Gadiesh & Ormiston, 2002). They occur when two or more firms agree to collaborate and merge into a single entity. The primary goal of an M&A is to increase prosperity, gain a competitive advantage, and establish a strong market presence. Additionally, M&As provide a valuable opportunity for firms to acquire talented employees, specialised skills, experience, and advanced machinery (Kongpichayanond, 2009). M&As are viewed as proactive or reactive responses to the macroeconomic environment in which the firm operates (Bruner & Perella, 2004). During M&A negotiations, investors often question the

motivations behind a firm's decision to merge with another. This leads to significant market speculation about the possibilities and opportunities a firm has identified and aims to explore (Harford, 2005). This causes information asymmetry in the market. This phenomenon occurs when one party has superior knowledge compared to another. Dionne, Haye, and Bergeres (2014) highlight information asymmetry's profound influence on negotiations. This is due to information asymmetry altering investors' perceptions, affecting the market's reaction.

Myers and Majluf (1984) explain how management may seek to increase shareholder wealth while investors try to gain a discount due to information asymmetry in the market. This leads to moments of uncertainty in the market during and after negotiations. Management aims to maximize shareholders' wealth (Baker & Wurgler, 2000; Brealey & Myers, 2000; Damodaran, 1997; Gaughan, 1999; Gort, 1966; Shleifer & Vishney, 2001; Stein, 1996; Van Horne & Wachowicz, 1998). Since investors seek a discount due to asymmetric information (Myers & Majluf, 1984), it is essential to understand the relationship between information asymmetry and M&A performance. This is considering that the Efficient Market Hypothesis (EMH) suggests that all publicly available information is already reflected in stock prices, contradicting the potential effects of information asymmetry in the mergers and acquisitions market. Fama (1970) pivotal work on efficient markets contradicts the affects of information asymmetry in M&A's. Under the different forms of EMH - weak, semi-strong, and strong - there is limited opportunity for investors to consistently outperform the market (Fama, 1970), which would negate the influence of information asymmetry on M&A performance. However, the behavioural finance approach challenges the assumptions of the Efficient Market Hypothesis, arguing that investor irrationality and biases can lead to systematic mispricing in the market (Mchawrab, 2016). In understanding the role of information asymmetry may lead to the reformulating the perception of information and the understanding of EMH. Furthermore, this could significantly affect the acquiring firms' long-run performance in M&A's. Understanding this relationship could profoundly impact management's and investors' decision-making during and after the merger.

### **1.3. Problem Statement**

M&As have been widely researched in emerging and developed markets. Academic literature suggests mixed findings on M&As across several markets. Research from emerging markets yields mixed results. Several studies highlight diminishing returns (Mantravadi & Reddy, 2008; Narayan & Thenmozhi, 2014), while others experienced substantial performance (Zakaria &

Kamaludin, 2018; Isa & Lee, 2011). This may disillusion firms from viewing M&As as a viable strategy to maximize shareholder wealth. Additionally, research on the short and long-run performance of M&As in South Africa is limited and outdated (See Affleck Graves et al., 1988 & Wimberly & Negash, 2004). However, other notable studies on M&As in South Africa are in the context of the African market or in the context of being part of an emerging market (See Alagidede & Amewu, 2018; Grigorieva & Petrunina, 2015). These studies focus on the performance of an M&A. Research on information asymmetry in M&As on the JSE is limited.

Research on information asymmetry in M&As on the JSE focuses on the short-run effects and does not consider the long-run effects. For instance, Chadha (2010), and Makina and Wale's (2016) research viewed information asymmetry in the context of mergers and acquisitions in the short term. Furthermore, the study of Dionne et al. (2014) focuses on information asymmetry, which affects the negotiation and the premium paid for the merger. Thus, exploring the relationship between information asymmetry and M&A performance on the JSE is pivotal. Hence, this study aims to add to the existing academic literature and improve the body of knowledge surrounding information asymmetry in M&As.

#### **1.4. Research Objectives**

The primary objective of this study is to delve into the relationship between information asymmetry and the long-run performance of M&As. Therefore, the following sub-objectives are examined:

- To analysis the long-run buy and hold abnormal returns (BHAR) after the completion of the M&A concerning the information asymmetry proxies and deal-specific variables.
- To analysis the long-run cumulative average abnormal returns (CAAR) after the completion of the M&A concerning the information asymmetry proxies and deal-specific variables.

#### **1.5. Research Questions**

The main research question of the study is as follows:

Does information asymmetry affect the long-run performance of M&As on the JSE?

In addition to the primary question, several other questions can be raised:

- Is there a significant relationship between the information asymmetry proxies and the abnormal returns measures?
- What deal-specific variables affect the abnormal returns of M&As in the long run?

## **1.6. Research Hypotheses**

The research hypothesis that this study will investigate, in line with the research objective are as follows:

Hypothesis I:

H<sub>0</sub>: There is no significant relationship between the asymmetric information proxies and the M&A performance measures post-merger.

H<sub>1</sub>: There is a significant relationship between the asymmetric information proxies and the M&A performance measures post-merger.

Hypothesis II:

H<sub>0</sub>: There is no significant relationship between the deal-specific variables and the M&A performance measures post-merger.

H<sub>1</sub>: A significant relationship exists between the deal-specific variables and the M&A performance measures post-merger.

## **1.7. Potential Benefits of the Study**

This research carries several key benefits. First, it sheds light on the role of information in the market, highlighting its value in influencing investment decisions. By analysing the link between information and post-merger performance, a deeper understanding of how information asymmetry impacts market outcomes will benefit investors and managers.

Second, the study contributes to the existing body of knowledge on mergers by empirically assessing the theories on information asymmetry. This will improve investors' decision-making by enhancing their understanding of factors driving successful mergers.

Lastly, by understanding the impact of information asymmetry on post-merger performance in South Africa, we advance the knowledge surrounding M&As. Furthermore, it understands the

impact information asymmetry has on shareholders. This study highlights the critical role of information in decision-making processes.

## **1.8. Limitations of the Study**

This study focuses on the M&As of listed acquiring stocks between 2001 and 2019 on the JSE. Limiting the scope to listed firms on the JSE will enhance the precision and relevance of our analysis. However, excluding M&As involving non-listed acquiring firms may introduce sample selection bias, potentially impacting the generalizability of our findings. Moreover, the study may be susceptible to omitted variables that could impact the information asymmetry. Unobserved variables could contribute to the results of the study.

Calculating BHAR poses inherent challenges, especially regarding the effects of compounding over time. Mitchell and Stafford (2000) highlight the need to construct a benchmark portfolio to mitigate the compounding effects. Recognizing the potential impact of compounding on the study's results is crucial.

The calculation of fair and appropriate CAAR relies on using an appropriate index. An inaccurate index could introduce biases and lead to inaccurate results. Therefore, caution must be taken in selecting the most suitable index to ensure the accuracy and reliability of the findings.

## **1.9. Structure of the Research Report**

**Table 1:** Summary of the contents of each chapter

| <b>CHAPTER</b>    | <b>CONTENT</b>                                                                                                                                                     |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CHAPTER 1:</b> | <b>Background and Motivation</b><br>The first chapter of the study covers the introduction and the background behind the study's undertaking.                      |
| <b>CHAPTER 2:</b> | <b>Literature Review</b><br>The second chapter reviews the literature on the topics discussed in the study surrounding the proposed problem.                       |
| <b>CHAPTER 3:</b> | <b>Research Methodology</b><br>The third chapter covers the research design, reviewing the methods used and discussing the possible methods and conflicts that are |

|                   |                                                                                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | apparent with the proposed methods in the analysis. A further discussion surrounding the data and conflicts is covered in this section.                                                                                  |
| <b>CHAPTER 4:</b> | <b>Results</b><br>The fourth chapter analyses the data, and the results are interpreted and displayed in tables and other statistical formats.                                                                           |
| <b>CHAPTER 5:</b> | <b>Conclusion and Recommendations</b><br>The concluding section concludes the study based on the study's results and outlines potential methods or improvements that can be used to address any shortfalls of the study. |

## **1.10. Conclusion**

This chapter evaluated the background and motivation of the study. Understanding the background of information asymmetry in M&A highlights the importance of the study. Expanding the body of knowledge surrounding M&As and information asymmetry could reduce suboptimal decisions and mispriced M&A transactions. The study aims to explore whether information asymmetry has a significant impact on the post-merger performance of firms listed on the JSE. This is evaluated through the study's research questions, objectives, and hypothesis. In doing so, the study aims to contribute to the existing body of knowledge and provide valuable insights for investors, managers, and policymakers. The next chapter examines the existing literature on Information asymmetry and M&As.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1. Introduction**

This chapter comprehensively reviews the literature on M&A long-run performance and information asymmetry. Understanding these frameworks and reasons for entering a merger is essential to better comprehend the factors contributing to post-merger performance. Furthermore, investigating the presence of information asymmetry will provide insight into the significance of information asymmetry in post-merger performance. Understanding the role of information in M&As is essential as it impacts decision-making, valuation assessments, and overall post-merger performance. This chapter examines the ongoing discussion on the relationship between information asymmetry and M&A performance. This chapter comprehensively reviews the effects of M&A wealth on emerging and developed markets.

This chapter is structured as follows: **Section 2.2.** evaluates the M&As and the theories that motivate why they are conducted, investigating the effects of wealth on the emerging and developing markets. **Section 2.3.** evaluates the theories on information asymmetry and **Section 2.4.** investigates information asymmetry and M&A Performance.

#### **2.2. Understanding Mergers and Acquisitions**

The terms "mergers" and "acquisitions" are often used interchangeably in many studies, as noted by Sherman (2011). Although one refers to joining two or more firms and the other to purchasing a firm, there is no material difference in the result. Merged or acquired firms share resources and pursue the same strategy as new companies. Mergers and acquisitions are critical topics in the finance literature and firm strategy, with the primary objective being to maximize shareholder wealth (Wimberley & Negash, 2004).

There are four main types of M&As: vertical mergers, horizontal mergers, congeneric/concentric mergers, and conglomerate/diversification mergers (Green & Cromley, 1982; Gitman, Juchau & Flanagan, 2015). Vertical mergers occur when a firm merges with a company in the same line of business or part of the firm's value chain. According to Garfinkel and Hankins (2011), this type of merger is usually undertaken due to possible cash flow uncertainties that may arise in the future. Backward integration is a merger with a firm that

supplies necessary raw materials, and forward integration, a merger with a firm that distributes or is close to the consumer side of the operation, are other types of vertical mergers (Brealey, Myers & Allen, 2017). Horizontal mergers occur when a firm merges with a direct competitor in the same industry to increase its market share and benefit from economies of scale (Green & Cromley, 1982). Congeneric/concentric mergers involve merging firms that operate in the same industry but are neither suppliers nor customers of the acquiring firm and do not offer the same product (Mulaudzi, 2020). Conglomerate/diversification mergers refer to mergers between firms that do not operate in the same industry. These types of mergers are also known as diversification mergers. They occur when the acquiring firm's strategy aims to diversify its cash inflows and mitigate against economic conditions experienced in one industry (Green & Cromley, 1982). The four types of mergers provide insight into why firms engage in M&As.

The primary aim of mergers is to achieve performance and risk management benefits for the firms involved. Some firms take part in M&A to achieve synergy or for agency or hubris reasons, according to Berkovitch and Narayanan (1993). Overall value is created through the combination of their resources and capabilities. The shared resources bring economic benefits (Trautwein, 1990; Harrison, Hitt, & Ireland, 2001). The agency hypothesis suggests that managers have a principal role in representing the interests of shareholders. However, it is also realistic to expect them to participate in M&As to achieve personal goals instead of maximizing the firm's wealth. This leads to managers being overconfident and underestimating the challenges of integration. Optimistic individuals assess the designated objectives optimistically, possibly leading to misevaluation during negotiations. Berkovitch and Narayanan (1993) and Pettit, Seth, and Song (2000) found that M&As due to agency and hubris motivations are more likely to have a detrimental effect on the firm's long-term performance.

## **2.2.1 Wealth Effects in Emerging Markets**

### **2.2.1.1. Short-run wealth effects performance**

Emerging markets are being increasingly examined in financial literature concerning the instantaneous financial consequences of M&As. Mixed results have been found from empirical investigations conducted across different countries. Sogorb-Mira (2019) examined the impact of M&A announcements on shareholder value in the Latin American market. The findings of this study revealed significant average abnormal returns (AARs) on the announcement day, with the Latin American market experiencing AARs of 0.012%. Alagidede and Amewu (2018)

explored the value created by acquiring shareholders in the African market through M&A announcements. The study's results show positive AAR on the announcement day: 0.009% for the African market (including South Africa) and 0.007% for the South African market.

Similar results were found when Banerjee, Deisting, and Sehgal (2019) examined the Indian market. Their study reveals a positive reaction to the public M&A announcements, leading to a significant increase in share prices. Specifically, acquiring firms experience significant AARs of 1.25% on the announcement day.

Moreover, Chu, Ma, and Pagán (2009) demonstrate findings suggesting a 0.43% AAR on the day of the announcement in ten Asian stock markets. However, conflicting findings arise from Fabich, Kinatader, and Wagner's (2017) investigation of the BRICS markets. The researchers discovered that acquisition announcements resulted in a non-significant negative return as the acquiring firms experienced an AAR of -0.1239%. Alagidede and Amewu (2018) find that the African market (excluding South Africa) has a cumulative average abnormal return (CAAR) of 9.5% over a 51-day event window, whereas the South African market exhibits a CAAR of 1.01%. Therefore, the empirical evidence presents contradicting results in emerging markets.

#### **2.2.1.2. Long-run wealth effects performance**

The long-term effects of M&As in emerging markets is an ever-expanding body of literature. Leepsa and Mishra (2017) examine 25 emerging markets (including the JSE) and explore the post-merger performance of firms in those countries. The results reveal a consistent decline in the overall performance of the acquiring firm following the completion of the M&A deal. This finding aligns with previous research conducted by Mantravadi and Reddy (2018) in the Indian market, Bertrand and Betschinger (2013) in the Russian market, and Narayan and Thenmozhi (2014). These studies highlight the persistent long-term performance deterioration of merged firms.

This performance decline may be due to insufficient corporate governance, inadequate information disclosure, and ineffective management. These factors could impede the seamless integration of the M&A. This reduces the effective use of the M&A's new resources. However, evidence of sustained performance in M&A is found in developing markets. This is highlighted by Andre, Chou, and Yen (2013), Leepsa and Mishra (2012), and Mantravadi and Reddy (2008).

Evidence surrounding M&As in emerging markets produces mixed results. The mixed results may arise from various elements, such as industry dynamics, regulatory structures, and managerial capacities in developing markets. This evidence from developing markets highlights the importance of the investigation to understand the effectiveness of M&As in developing nations.

## **2.2.2. Wealth Effects in Developed Markets**

### **2.2.2.1. Short-run wealth effects performance**

Short-run wealth effects are essential in understanding the rapid shifts and reactions within financial markets. Andrade, Mitchell, and Stafford (2001) undertake a similar analysis to examine the immediate impact of M&A announcements on wealth in advanced economies. Their study reveals that acquiring companies experience modest improvements of 0.8% immediately after the announcement. Franks, Harris, and Titman (2008) confirm that acquiring firms in Continental Europe and the United Kingdom (UK) generate a 0.6% return on the announcement day.

While announcement returns provide insights into the market's reaction on a specific day, evaluating the cumulative returns surrounding the event day is crucial. Anderson, Reeb, and Zhao (2022) investigate the M&A returns surrounding the announcement in developed markets. Their research found positive cumulative returns of 1.5% over a 5-day event window. These findings are consistent with the studies conducted by Andrade et al. (2001) and Franks et al. (2008). The evidence indicates that the UK outperforms Continental Europe regarding M&A performance, highlighting the significance of market dynamics in shaping post-announcement returns. Contrastingly, Alexandridis, Petmezasm, and Travlos (2010) propose evidence that indicates M&As in the United States of America (US), UK, and Canada display negative CAARs between 1.34% to 1.58% over a five-day event window. These results reveal mixed results in developed markets.

### **2.2.2.2. Long-run wealth effects performance**

The long-run performance of combined firms has been broadly examined in developed markets. Duchin, Schmidt, and Zingales (2010) contribute to this research area by compiling empirical evidence on the long-term outcomes of M&A transactions in developed markets. Their findings reveal a wide range of conclusions regarding the overall advantages of M&A

deals. A substantial body of evidence supports the notion that M&A transactions do not yield significant benefits. M&A performance tends to deteriorate for several years following the deal's completion. Schweizer, Walker, and Zhang (2013) and Harper and Madura's (2015) findings in the US, UK, and other developed markets further support the notion.

However, compelling evidence suggests that specific M&A transactions successfully integrate and generate synergies, resulting in positive post-M&A performance. Humphery-Jenner and Powell (2011) confirmed these findings in the Australian market, Boubaker and Hamza (2014) in the UK market, and Glamboosky, Jory, and Ngo (2020) in the US market. Hence, the empirical evidence provides mixed results concerning the extent to which M&As contribute to the long-term performance of acquiring firms.

### **2.3. Theories of Information Asymmetry**

Information asymmetry occurs when investors and a firm's management have access to different information about the firm. This asymmetry can arise due to differences between market participants and the firm over time. Information asymmetry creates uncertainty between investors and firms. Myers and Majluf (1984) explain how management may attempt to increase shareholder wealth while investors try to gain a discount due to asymmetric information, leading to moments of uncertainty. There are six theories surrounding information asymmetry. The theories surrounding information asymmetry are adverse selection, moral hazard, signalling theory, screening theory, principal-agent theory, and the information content of dividends theory.

Adverse selection theory suggests that when information about a product or service is asymmetrically distributed, it can lead to a market dominated by lower-quality products. According to Akerlof (1970), adverse selection is when one party has better information than the other before entering a transaction. This leads to one of the parties benefiting from the information while the other receives a substandard product. According to Borochini, Ghosh and Huang (2019) when two parties possess disparate levels of knowledge about each other's operations, financial standing, and overall value may create poor deals and create mispricing and lead to subsequent losses. This creates an arbitrage with those who have superior knowledge leverage this advantage to identify and capitalize on market inefficiencies (Barbaroux, 2014). Corporate reputation is an important signal that can help overcome information asymmetry in the marketplace.

Moral hazard theory is when one party changes their behaviour when they are not responsible for their consequences (Holmström, 1979). When one party has more information regarding the potential risks, it raises the potential moral hazard. This is due to the parties taking greater risks, knowing they will not be held responsible for their actions. This imbalance can lead to suboptimal decision-making, resulting in a misallocation of resources within the market. This is due to those with less information being unable to accurately assess the true nature of the risks involved (Leland & Pyle, 1977). According to Laib and Abadli (2018), the presence of information asymmetry not only undermines the effectiveness of financial intermediation but also complicates the pricing of assets.

The signalling theory is when parties with private information share it in an observable manner. Spence (1973) demonstrates that observable actions can mitigate information asymmetry. If information is readily shared between parties (signalling), it mitigates information disparities, thus enabling more accurate pricing of securities and fostering a more efficient allocation of resources. Additionally, enhancing transparency through improved communication channels can lead to stronger relationship. This has been shown to positively influence firm valuation while simultaneously addressing the challenges posed by information asymmetry in equity markets (Dass & Massa, 2009). Firms with better communication and transparency may experience increased stock liquidity and reduced adverse selection effects, ultimately benefiting both the firms and their investors. According to Leland and Pyle (1977) this improvement in information flow not only assists lenders in evaluating the true characteristics of borrowers but also diminishes the risks associated with moral hazard, thereby enhancing the overall robustness of the financial system.

The screening theory is when one party with more information creates processes to extract information from the parties with less information. Rothschild and Stiglitz (1976) explore this theory concerning the insurance market. They highlight how insurance companies use screening tools to determine individual risk assessments and distinguish high-risk and low-risk clients. In doing so, they can price premiums differently for different clients. Borrowers typically have better information about their own creditworthiness and the viability of their projects than lenders (Leland & Pyle, 1977). Consequently, riskier borrowers may be more inclined to seek financing, as they can obscure their true risk profile from lenders. This information asymmetry can lead to adverse selection, where high-risk borrowers are more

likely to obtain loans, while low-risk borrowers are unable to differentiate themselves and may be priced out of the market.

The principal-agent theory describes a situation where an agent, such as a manager or employee, acts on behalf of a principal, such as a shareholder or employer. Information asymmetry may arise in this context, as the agent typically has more detailed knowledge about their own actions and efforts than the principal. This can lead to conflicts of interest, as the agent may have incentives that differ from those of the principal. Meckling (1976) examines strategies for aligning the interests of the principal and the agent, such as through the use of performance-based compensation or monitoring mechanisms, in order to mitigate the risks posed by information asymmetry in principal-agent relationships.

The information content of dividends theory suggests that managers possessing information about the firm's prospects may use dividend decisions to signal the firm's strength or weakness to investors. Miller and Rock (1985) examine how dividend policy can be used as a signal to convey information about a firm's financial health. This theory implies that the announcement of dividend increases, or decreases can influence the stock price, as it provides investors with a credible signal about the firm's future performance. These information asymmetries can lead to distortions in resource allocation, mispricing of financial instruments, and suboptimal decision-making by market participants. Information asymmetry can have profound implications for the functioning of financial markets and the decision-making processes of corporations.

## **2.4. Information Asymmetry and M&A Performance**

Information asymmetry is a critical concept in financial markets and should be researched in conjunction with its effects on different strategic financial decisions. Research conducted by Cornell (1979) highlights the impact of information asymmetry has on performance. Using the Mayers-Rice analytical framework prove the superior returns of informed investors over uninformed investors using CAPM, the arbitrage pricing model and many other equilibrium models of security pricing. Hence, when applying information asymmetry to M&A transactions, a party with more information than the other is posed to make a substantial gain. An acquirer with more information will be able to purchase the target at a discount, impacting the shareholder value as the market readjusts to the perceived value of the target firm (Dionne et al., 2014). Inefficient markets are often the result of information asymmetry. This occurs

when one party in a transaction possesses more information than the other and exploits this information advantage to their benefit (Myers & Majluf, 1984). This leads to market participants needing more information and creating disparities in market returns. The significance of information in financial markets has been emphasized in previous research, particularly by Fama (1970) through the EMH. EMH contradicts the potential effects of information asymmetry in the mergers and acquisitions market. Under the different forms of market efficiency - weak, semi-strong, and strong - there is limited opportunity for investors to consistently outperform the market (Fama, 1970), which would negate the influence of information asymmetry on M&A performance. However, the behavioural finance approach challenges the assumptions of the Efficient Market Hypothesis, arguing that investor irrationality and biases can lead to systematic mispricing in the market (Mchawrab, 2016). The ongoing debate between the EMH and behavioural finance highlights the complexities involved in understanding the role of information asymmetry in mergers and acquisitions.

Despite the extensive literature on information asymmetry (Back, 1993; Meza & Webb, 1987; Cornell, 1979; Dadalt, Gay & Nam, 2002; Elbadry et al., 2015; Van Ness, Van Ness & Warr, 2001), research related to M&As is limited. Studies by Das and Sengupta (2001) and Dionne et al. (2014) investigate information asymmetry in M&As. However, their studies focused on the impact of information asymmetry on the bargaining power or premium paid during the M&A process. Measuring information asymmetry in M&A's is a labour-intensive process as demonstrated by Das and Sengupta (2001) and Dionne et al. (2014). These respective studies used dynamic variables and assumptions and Monte Carlo simulations to identify the effects of information asymmetry in M&A's. However, Elbadry et al., (2015) draws from many studies (Van Ness et al., 2001; Huang & Stoll, 1997; Wang, 1993; Acker, Stalker & Tonks, 2002; Gajewski, 1999; Lin, Sanger & Booth, 1995) to create proxies to estimate information asymmetry. They found that the 4 variables used to approximate information asymmetry (SPREAD, VOLATILITY, TRADE VOLUME and TRADE VALUE) explained roughly 94.5% of the total variation of their data. This highlighted their ability to estimate information asymmetry.

#### **2.4.1. Information asymmetry and M&A performance in emerging markets**

Information asymmetry can influence merger announcement returns in emerging markets. Song, Zeng and Zhou (2021) focus their investigation on M&A in Asian emerging markets. Using an event-time methodology proposed by Brown and Warner (1985), their study reveals

a negative relationship between private targets and the initial market reaction. Their panel OLS regression showed that their private target dummy variable shows that when less information is available to the market due to the target being a private firm creates information asymmetry between investors and the market. This implies that when there is a difference in the information of the merging entities, market participants may react negatively, reducing the shareholder value. Investigations on the JSE have examined how information asymmetry affects M&A outcomes. The relationship between information asymmetry and the bidders gains of South African M&A transactions is examined by Draper and Paudyal (2008). This suggests that firms with high levels of pre-acquisition information asymmetry generate lower announcement returns when bidding for target firms (Draper & Paudyal, 2008). This illustrates that the acquiring firm's performance at the announcement is affected by information asymmetry in the M&A.

In addition, Morkel et al. (2015) also investigate how information asymmetry impacts post-merger integration success in South Africa. Their study reveals that higher levels of information asymmetry negatively impact the integration process and subsequent performance of combined firms. Chen and Huang (2016) examined M&A in China and found that information asymmetry diminishes post-merger performance. Their findings reveal that information asymmetry hinders the expected synergy of the M&A. This suggests that the presence of information asymmetry can result in acquiring firms not effectively integrating with the target firm.

Information asymmetry and M&A performance in emerging markets discover a similar trend between the two. With the high levels of information asymmetry discovered to produce lower announcement returns (Draper & Paudyal, 2008; Morkel et al., 2015) in the short-run. For acquiring firms, the implication is that acquirers should focus on reducing information asymmetry before pursuing a merger or acquisition, in order to maximize gains at the announcement stage.

#### **2.4.2. Information asymmetry and M&A performance in developed markets**

Information asymmetry in developed markets is widely researched. Chen, Harford, and Li (2007) investigated M&As in the US and found that acquiring firms experience lower announcement returns in the presence of information asymmetry. Through the use of an OLS panel regressions, an event study and instrumental variables, Chen et al.(2007) highlighted that dedicated analysts monitoring firms (ANALYST COVERAGE) contribute positively to firm

performance and discourage earnings management . This illustrates that if there is information asymmetry (a decrease in the number of monitors) between the merging entities and investors may exhibit a negative response, thereby reducing shareholder value.

Empirical evidence suggests that the presence of information asymmetry can lead to significant challenges in effectively integrating the operations, systems, and cultures of merging firms. This lack of information transparency and understanding can ultimately result in diminishing post-merger performance and value creation. Studies by Halebian, Devers, McNamara, Carpenter, and Davison (2009) investigated how information asymmetry between the acquirer and target directly impacts the success of post-merger integration. Their research indicates that higher levels of information asymmetry are linked to greater difficulties in successfully integrating the merged entities, as well as poorer overall performance returns. This emphasizes the critical importance of addressing information asymmetry during the integration process in order to facilitate a smoother transition and maximize the potential benefits of the merger or acquisition.

Information asymmetry appears to have a more pronounced negative impact on M&A performance in emerging markets compared to developed markets. In emerging markets, studies have found that the presence of information asymmetry between the merging entities and investors can lead to a negative market reaction, reducing announcement returns and shareholder value (Song et al., 2021; Draper & Paudyal, 2008). This is likely due to the higher information opacity and less developed institutional environments in many emerging economies, which make it more challenging for investors to obtain reliable information about the target firms.

In contrast, developed markets are generally characterized by higher transparency, stronger investor protection, and more sophisticated financial institutions and analysts that can help mitigate information asymmetry. While information asymmetry can still impact M&A performance even in developed markets, the negative effects may be less severe compared to emerging markets. The studies reviewed suggest that addressing information asymmetry is particularly crucial for acquiring firms in emerging markets in order to maximize gains at the announcement stage and ensure successful post-merger integration (Morkel et al., 2015; Chen & Huang, 2016). Acquirers in these markets should focus on enhancing information transparency and understanding between the merging firms to facilitate a smoother transition and improved long-term performance.

## **2.5. Conclusion**

This chapter evaluated the literature on M&A long-run performance and information asymmetry. The literature review indicates three distinct and consistent viewpoints concerning post-merger performance. The first viewpoint asserts that M&As yield positive post-merger performance. This suggests that the combined entities achieve superior post-merger returns compared to pre-merger returns. The second perspective maintains that M&As contribute to negative post-merger performance. Lastly, the third viewpoint posits that mergers have no significant impact on M&A performance. These results highlight the mixed results on M&A's ability to create wealth in emerging and developed markets.

The impact of information asymmetry on merger performance is a critical factor to consider in both developed and emerging markets. In developed markets, increased levels of information asymmetry are associated with lower announcement returns and increased post-merger integration difficulties. Similarly, in emerging markets, information asymmetry results in lower announcement returns and hinders post-merger performance. The next chapter will discuss the methodology of the study.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This chapter explains the data sample and methodologies used in the study. The methodology will carefully analyse the intricate relationship between information asymmetry and merger performance on the JSE. This chapter will delve into the research methods used to validate and support the study's hypothesis through an event study. The quantitative analysis employs a panel regression and generalized method of moments (GMM) incorporating information asymmetry proxies and firm-specific variables. This methodology is used to evaluate the influence of information asymmetry on the long run performance of M&A and the long run impact of different deal specific variables.

This chapter is structured as follows: **Section 3.2.** describes the data used in the study. **Section 3.3.** evaluates the variables used in the study and **Section 3.4.** investigates the methodology of the study. **Section 3.5.** justifies the methodology used in this study.

#### **3.2. Data description**

This study interrogates publicly traded firms on the JSE that successfully concluded an M&A from 2001 - 2019. The sample period allows for three years of price data post-acquisition date. The sample 3-year period is significant and appropriate to conduct the analysis. This approach is appropriate as it captures the experience of investors across different event horizons and mitigate the use of only clean event windows in the study (Chipeta & Nkiwane, 2019). The secondary data on the concluded M&A deals is gathered for the Bloomberg Global Database. The data collected will contain all necessary information: the name of the acquirer, the name of the target, the share price, volatility, bid-ask spread, announcement date, acquisition date, trade volume, trade value, and number of analysts covering the share.

The sample is selected based on the following criteria:

1. The transaction deal is an M&A
2. The deal status of each M&A transaction is completed.

3. The acquirer is a publicly listed firm on the JSE. Firms delisted at the conclusion or during the 3-year period post-merger are excluded from the analysis. This is done to avoid the results being biased.
4. M&As are where the acquirer purchases 10% or more of the target firm.
5. The acquiring firm is in South Africa.
6. M&As must have three years of performance data and a post-acquiring date.

After applying the above criteria, the sample of deals covered is 361. All data will begin one month (T-1) before the conclusion date for each M&A and spanning over three years to cover the share's 3-year performance period.

### **3.3. Variables**

This research study will use asymmetric information proxies such as bid-ask spread (SPREAD), VOLATILITY, TRADE VOLUME, TRADE VALUE, and ANALYST COVERAGE. This will assist in investigating moments of information asymmetry in post-merger performance over three years (Chipeta & Nkiwane, 2019). Understanding information asymmetry proxies concerning the performance measures may highlight the influence of information asymmetry on the M&A's performance. This may reveal when information asymmetry may affect the M&A's performance. There are several proxies used to measure asymmetric information. Each proxy cannot be directly attributed as the most accurate measure of information asymmetry; thus, five proxies have been selected due to their common use in academic literature.

Table 2 displays the variables used in the regression model and explains each proxy, the performance measure used, and the source of each proxy. This further details the importance of each proxy and how each proxy fits into the regression model. In addition to the information asymmetry, several deal-specific variables are added to the regression model.

The first observed information asymmetry proxy is the SPREAD. This is the bid-ask spread of a share and is viewed as being primarily encompassed by information asymmetry (Menyah & Paudyal, 2000). Van et al. (2001) and Elbdry et al. (2015) uncover a strong positive correlation between the SPREAD and all the components of information asymmetry. Glosten and Milgrom (1985) corroborate these findings.

The second information asymmetry proxy is VOLATILITY. This is the volatility in the share price returns over a period. Wang (1993) illustrates how volatility is affected by the information asymmetry between management and investors. Elbdry et al. (2015) found that VOLATILITY positively correlates with information asymmetry. This illustrates that an increase in VOLATILITY leads to an increase in information.

The third information asymmetry proxy is the TRADE VOLUME. This is the number of shares traded for a share. Van Ness et al. (2001) point out that less traded shares have less information associated with them compared to frequently traded shares. Gajewski (1999) demonstrates that high trading volume days coincide with the announcement. This highlights the effects of information on the trading volume of a share. Elbrary et al. (2015) suggest that the information asymmetry component of the TRADE VOLUME may be overstated in the proxy. However, it is still a valid proxy for the analysis as it encompasses information asymmetry. Elbdry et al. (2015) identify a negative correlation between TRADE VOLUME and information asymmetry.

The fourth information asymmetry proxy is the TRADE VALUE. This is the market value of the traded. Elbdry et al. (2015) found a negative correlation between the TRADED VALUE and asymmetric information. This means that a share with a large TRADED VALUE will have less information asymmetry. This is due to investors not investing copious amounts of funds in a share with a large amount of information asymmetry and uncertainty.

The fifth information asymmetry proxy is the ANALYST COVERAGE proxy. The ANALYST COVERAGE proxy is the number of analyst recommendations made on a share. The proxy is selected due to the scrutiny a share receives from analysts. Their work contributes significantly to the available information in the market (Van Ness et al., 2001). Firms with significant analyst coverage tend to have lower information asymmetry, as the analysts' information gathering, analysis, and dissemination activities help ensure the market values these firms at their equilibrium levels. As a result, these firms do not need to pursue costly information-sharing activities, such as mergers and acquisitions, to gain market attention. Conversely, firms with limited analyst coverage suffer from higher information asymmetry due to the reduced availability of public information about them (Draper & Paudyal, 2008). A negative relationship is found between the ANALYST COVERAGE proxy and information asymmetry.

The deal-specific variables are common variables used in regression models (Gajewski, 1999; Wang, 1993; Huang & Stoll, 1997). The industry variable has been used to control for the

financial industry shares for two reasons. The first is due to the number of shares of M&As in the sample (136 of 361) that originated from the financial industry. This is to control for Harford's (2005) findings of M&A's happening in waves and industry waves clustering in time. One can extrapolate whether M&As happen in industry waves and industry clusters by controlling for the financial industry. Controlling for the largest industry in the sample may assist in identifying the wave. Another reason is to control the barrier to entry in the financial industry. Claessens (2009) highlights the difficulty of entering and exiting the financial market. Controlling this may allow for a more accurate assessment of the M&A performance.

The cash or mixed deal specific variables examine the method of payment used in the completion of the M&A. The method of payment used in mergers and acquisitions is a crucial factor that can affect the long-term performance of the combined entity. Jensen (1986) argues that cash payments are more beneficial, as they reduce the amount of unallocated funds and thus lower the agency costs associated with free cash flow. Conversely, Myers and Majluf (1984) suggest that equity payments are more valuable, as the acquiring company can leverage overpriced shares to acquire tangible assets. Ultimately, the market perceives the payment method as a signal, which can influence the acquirer's performance around the announcement of the merger or acquisition. Including these variables will allow for a more accurate assessment of the M&A performance.

The size deal specific variable examines the size of the acquiring firm. Healy, Palepu and Ruback (1992) found that large M&A's produced positive accounting performance due to increased asset productivity. Fuller, Netter and Stegemoller (2002) examined the relationship between the relative size of the target firm compared to the bidder firm and the returns to acquirers. They found that for public targets, as the target's size increased relative to the bidder, the returns were more positive for cash-financed acquisitions, more negative for stock-financed acquisitions, and remained relatively unchanged for a combination of cash and stock financing. The size variable is included to capture this potential relationship between acquirer size and M&A performance.

The leverage deal specific variable examines the leverage of the acquiring firm. The acquiring firm's leverage significantly impacts post-M&A performance (Gupta, Raman & Tripathy, 2023). A firm's capital structure influences its investment decisions, as mergers and acquisitions are often associated with leverage due to the costly and externally financed nature of growth initiatives (Harrison et al., 2014). However, high debt levels can expose firms to financial

distress. Leverage helps reduce future free cash flows, constrain managerial discretion, and motivate managers to improve firm performance (Masulis et al., 2007). Conversely, unsustainable debt from an acquisition can destroy acquirer shareholder value. Overall, there is substantial evidence that capital structure policy affects M&A financing decisions and outcomes.

The value deal specific variable examines the market valuation of the acquirer. The book-to-market (BTM) ratio is utilised as a proxy for the value. High BTM is categorised as value acquirers and low-BTM firms are categorised as glamour stocks (Chipeta & Nkiwane, 2019). M&A's offer an opportunity for undervalued acquirers to leverage their stock to acquire assets at bargain prices (Alexandridis, Antypas & Travlos, 2017). Rau and Vermaelen (1998) found that value acquirers outperform glamour acquirers in the long run, while glamour acquirers tend to overpay for targets. Including the acquirer's market valuation allows for the analysis of how investor perceptions of the acquirer's value impact M&A performance.

An additional deal-specific variable included is the crisis variable. Due to the sample period (2001-2019), the fiscal crisis is considered in the performance of the shares. According to the timeline depicted by Hausman and Johnston (2014), a dummy variable has been created to control for the fiscal crisis. This is done to improve the model's fit and understand the performance of shares during the period.

**Table 2:** Dependent and Independent variables for the regression analysis.

| Variables             | Description                                                                        | Source                                                                   |
|-----------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Dependent variables   |                                                                                    |                                                                          |
| CAAR                  | This is the cumulative average abnormal return. It is calculated using Equation 4. | Alagidede and Amewu (2018), Alexandridis, Petmezasm, and Travlos (2010). |
| BHAR                  | This is the buy-and-hold abnormal return. It is calculated using Equation 5.       | Zakaria and Kamaludin (2018).                                            |
| Independent Variables |                                                                                    |                                                                          |

|                    |                                                                                                                                                                            |                                                                   |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Spread             | The average change in the bid-ask spread from the month before to the current month averaged over the year.                                                                | Huang and Stoll (1997), Madhavan, Richardson, and Roomans (1997). |
| Volatility         | The monthly average of share return volatility.                                                                                                                            | Wang (1993).                                                      |
| Trade volume       | The number of shares traded in a month for a given share divided by the number of shares outstanding.                                                                      | Draper and Paudyal (2008), Gajewski (1999).                       |
| Trade value        | The market value of shares traded in a particular month.                                                                                                                   | Gajewski (1999).                                                  |
| Analyst coverage   | The number of analysts observing a share.                                                                                                                                  | Barth and Kasznik (2001).                                         |
| Cash or Mixed      | This is the financing method used to complete the merger and acquisition. Two dummy variables will be used. One is for Cash payments, and the other is for mixed payments. | Martin (1996), Faccio and Masulis (2005).                         |
| Financial Industry | This is whether the acquisition is in the financial industry or not.                                                                                                       | Healy et al., (1992)                                              |
| Size               | This is the size of the acquiring firm. It is calculated by using the log of the total value of the acquirers' market capitalization.                                      | Moeller, Schlingemann and Stulz (2004)                            |
| Leverage           | This is defined as the leverage of the acquiring firm. It is calculated by dividing the book value of long-term debt by total assets.                                      | Harrison, Hart and Oler (2014).                                   |
| Value              | This refers to the market valuation of the acquirer. The book-to-market (BTM) ratio is utilised as a proxy for the value.                                                  | Alexandridis et al., (2017), Rau and Vermaelen (1998).            |

Crisis

This dummy variable controls for Hausman and Johnston moments through the financial crisis from (2014), Manual (2009). July 2007 to August 2009.

### 3.4. Methodology

An event study methodology is used to examine the effects of information asymmetry on post-merger performance. The purpose of an event study is to analyse the changes in share prices during the period surrounding an event. This approach assumes that any changes will not affect the efficiency of the market. This concept is in line with the research of Fama (1970) and assumes that the market is fully efficient, and all information is incorporated in the price. This suggests that the market is rational, and the prices reflect the announcement of the M&A agreement and the news that follows the deal's completion.

Several benchmark return models can be used to estimate expected returns. Models include capital asset pricing, market, and market-adjusted models (Ibbotson & Jaffe, 1975). This research uses the market model to determine expected returns for each month of the event window (Brown & Warner, 1985). Jain, Rani, and Yadav (2015) state that the market model is considered the most statistically precise approach since it captures investors' expectations and viewpoints regarding the announcements afterwards. The performance measures are calculated monthly to observe the month-on-month changes. This allows for the research to be observed over a longer period.

The following Equation is used to calculate the expected returns in the market model (McWilliams & Siegel, 1997):

$$E(R_{it}) = \alpha + \beta_i(RM_t) + \varepsilon_{it} \quad (1)$$

Where:  $\alpha$  is the value of expected returns of a share  $i$  at time  $t$  if there is no return on the market;  $\beta$  is the estimate of the systematic risk of the share  $i$ ;  $RM_t$  is the return on the market (benchmark) at time  $t$ , and  $\varepsilon_{it}$  is the error term of the share at time  $t$ .

A benchmark or market index assesses whether market conditions influence a company's earnings in a particular month. The JSE FTSE All-share index is the benchmark for this analysis. The difference between the actual returns and the expected revenue is calculated to identify any abnormal returns (AR) which may indicate deviations from normal market

behaviour. Therefore, the AR for the event period is determined using the formula shown in Equation 2:

$$AR_{it} = R_{it} - E(R_{it}) \quad (2)$$

Where:  $R_{it}$  is the actual return calculated as  $\ln(P_{it}/P_{it-1})$  of a share  $i$  at time  $t$ .  $P_t$  is the average closing share  $i$  price in month  $t$ , and  $P_{it-1}$  is the average closing share  $i$  price in the month before  $t$ .  $E(R_{it})$  is the expected return of a share  $i$  at time  $t$  (McWilliams & Siegel, 1997).

The average abnormal return is determined using the formula depicted in Equation 3:

$$AAR = \frac{1}{n} \sum_{i=1}^n AR_{it} \quad (3)$$

Where:  $AAR_{it}$  is the average abnormal return of a share  $i$  at time  $t$ ;  $AR_{it}$  is the abnormal return of share  $i$  at time  $t$ ; and  $n$  is the sample size.

AARs are aggregated to determine the overall impact of corporate events. Therefore, the CAAR is determined using the formula shown in Equation 4:

$$CAAR_{it} = CAAR_{it-1} + AAR_{it} \quad (4)$$

Where:  $CAAR_{it}$  is the cumulative average abnormal return of a share  $i$  at time  $t$ ;  $CAAR_{it-1}$  is the cumulative average abnormal return of a share  $i$  at time  $t-1$ ; and  $AAR_{it}$  is the average abnormal return for firm  $i$  of a share  $i$  at time  $t$ .

The monthly abnormal returns are then compounded to calculate the buy and hold abnormal returns (BHAR) over different holding periods. The BHAR is determined using the formula shown in Equation 5:

$$BHAR_{it} = \prod_{t=1}^T (1 + AR_{it}) - 1 \quad (5)$$

Where:  $BHAR_{it}$  is the buy and hold abnormal returns of a share  $i$  at time  $t$ , and  $AR_{it}$  is the abnormal returns of a share  $i$  at time  $t$ . Before assessing the significance of the data, it is necessary to perform a normality test to determine if the data set exhibits typical noise (Hsu & Lachenbruch, 2008). Various methods can be employed to examine normality. One such

method involves visually evaluating the data using a histogram with density lines. Alternatively, formal normality tests such as the Shapiro-Wilk and Jarque-Bera tests will evaluate whether the return distribution follows a normal distribution. The results of these tests are essential in determining whether parametric or nonparametric significance tests are appropriate. Since share returns do not typically follow a normal distribution, nonparametric tests are more commonly employed. Woolson (2008) highlights that the Wilcoxon signed-rank test is appropriate as it is often used in event studies to evaluate the robustness and significance of returns across different events.

The Wilcoxon signed-rank test detects whether two related samples originate from the same population. The test evaluates whether the median of the differences between paired observations is zero by comparing the differences between the observations.

The statistic value represents the test statistic of the Wilcoxon signed-rank test. It is used to assess if the median of the differences between paired observations is zero and to compare the differences between the observations. The statistical value's magnitude reveals the degree of correlation between the matched observations. If the null hypothesis is true, the p-value represents the likelihood of obtaining a test statistic equally extreme to or more extreme than the observed one. The null hypothesis in this situation is that the matched observations have no discernible difference.

The Wilcoxon signed rank is calculated as follows in Equation 6:

$$T = \left\{ \frac{n(n+1)}{2} \right\} - T_+ \quad (6)$$

Additionally, a test on the correlation will be used to understand how the asymmetric information proxies may behave in relation to abnormal returns. This will enhance our understanding of the proxies in our regression model.

The correlation coefficient is calculated using the formula shown in Equation 7:

$$C_{xyit} = \frac{\sum (x_{it} - \bar{x}_i)(y_{it} - \bar{y}_i)}{\sqrt{\sum (x_{it} - \bar{x}_i)^2 \sum (y_{it} - \bar{y}_i)^2}} \quad (7)$$

Where:  $C_{xyit}$  is the correlation coefficient between a return measure of a share  $i$  and an asymmetric information proxy at time  $t$ ;  $X_{it}$  is the return measure of a share  $i$  at time  $t$ ;  $y_{it}$  is the

asymmetric information proxy at time  $t$ ;  $\bar{X}_i$  is the average returns of a share  $i$ ;  $\bar{y}_i$  is the average asymmetric information proxy of a share  $i$ .

An analysis is conducted to investigate the relationship between information asymmetry proxies and the long-term performance of M&A, and a multivariate regression analysis is conducted. The model includes several firm and deal-specific characteristics to assess their impact on the performance of the M&A over time. The panel OLS regression equation is presented below:

$$R_{i,t} = \alpha + \beta_1 IAProxy_{i,t} + \beta_2 Cash_i + \beta_3 Mixed_i + \beta_4 FinancialIndustry_i + \beta_5 i, t + \beta_6 Leverage_{i,t} + \beta_7 Value_{i,t} + \beta_8 FinancialCrisis_{i,t} + e_{i,t} \quad (8)$$

Where IA Proxy is the information asymmetry proxy of a share  $i$  at time  $t$ ; Cash  $i$  is the cash payment dummy variable of a share  $i$ ; Mixed is the mixed payment dummy variable of a share  $i$ ; FinancialIndustry  $i$  is the financial industry dummy variable of a share  $i$ ; Size  $it$  is the log of the total value of the acquirers' market capitalization  $i$  at time  $t$ ; Leverage  $it$  is the leverage of a share  $i$  at time  $t$ ; Value  $it$  is the book-to-market (BTM) ratio of the share  $i$  at time  $t$ ; FinancialCrisis is the fiscal crises dummy variable of a share  $i$  at time  $t$ . To estimate the model in Equation 8, panel OLS regressions are used with standard errors robust to panel-specific heteroskedasticity. The fixed effects model is used to avoid heterogeneity issues that may arise in the analysis. According to Gujarati and Porter (2009), using panel data has several advantages. First, it enables the analysis of dynamic changes over time. Secondly, it minimizes biases resulting from aggregating individuals and companies into broad aggregates. The inclusion of deal-specific variables is to control for unique factors of each merger (Bradley, Desai & Kim, 1988). This is done to isolate factors that impact the performance of the merger. In addition, including these factors is essential for a robust and accurate analysis (Shleifer & Vishny, 2003).

### **3.5. Justification of Research Methodology**

In the study of M&As, panel regressions are a frequently utilized analysis method. A panel regression analysis considers variations within a specific period and across distinct categories. Moreover, it enables the control of unobserved heterogeneity and addresses concerns related to endogeneity (Stock & Watson, 2008). Capturing time-series variations is a notable advantage of panel regression. Researchers can investigate how merger-related factors develop over time by considering time-specific variables in the regression model. Besides capturing time-series

variations, panel regression allows researchers to analyse cross-sectional differences among merging firms. There are two primary panel data estimation models: the fixed effects and the random effects models.

According to Wooldridge (2010), the fixed effects models provide explicitly the capability to account for constant firm-level characteristics over time and might impact merger results. Random effects models address unobservable firm differences, which may change or stay constant. Incorporating random effects enables researchers to evaluate the diversity of M&A effects across different firms. Greene (2012) sheds light on the heterogeneity of M&A outcomes. A random effect panel regression model offers valuable insights into the heterogeneity of M&A outcomes.

Panel regressions also provide an appropriate framework for addressing endogeneity issues in M&A data analysis. Past researchers deem the approach suitable for M&A research (Mitchell & Stafford, 2000; Easley & O'Hara, 2004). If not managed, M&A is frequently affected by visible and unobservable elements, which can result in skewed estimates. The fixed effects model was selected to provide better handling of heterogeneity in the M&A data.

An alternative approach for a panel regression that enables endogeneity management is the (GMM). According to Arellano and Bover (1995) and Ullah, Akhtar, and Zaefarian (2018), the GMM helps reduce endogeneity problems and accurately estimates the influences experienced by M&As. The GMM model can be conducted using instrumental factors or lagged dependent variables. By including instrumental factors, the GMM model uses endogenous explanatory variables to assist in identifying model parameters to improve the estimates' efficiency. By employing lagged dependent variables as instruments, the GMM model addresses endogeneity by capturing past influences of endogenous variables. The GMM model is used as a robustness test for this study. Several model specification tests are used to improve the accuracy and dependability of GMM estimations. There are five specification tests for the GMM model: the over-identifying restrictions test, the Sargan test, the Hausman test, the Cameron and Trivedi decomposition test, and the Hansen-Hodrick (HH) test.

### **3.5.1. The Over-identifying restriction test (Hansen J test)**

The over-identifying restrictions test, sometimes called the Hansen J Test, examines the validity of the overidentifying restrictions, which are additional moment conditions beyond the minimum necessary for identification. The model examines the suitability of the sample

moments implied by the model concerning the actual sample moments (Hansen, 1982). If the model is correctly specified, the difference between the samples should be close to zero. The Hansen J Test examines the appropriateness of the chosen model's complexity and identifies potential overfitting.

### **3.5.2. Sargan test**

Similar to the over-identifying restrictions test (Hansen J Test), the Sargan test examines the validity of the overidentifying restrictions. The test involves computing the sum of squared residuals from the moment conditions not employed in the estimation (Sargan, 1958). The resulting test statistic is then compared to a chi-squared distribution under the null hypothesis, providing a means to assess the robustness of the model's-imposed restrictions. The null hypothesis is rejected if the computed test statistic significantly differs from zero at a chosen significance level. This indicates a potential issue with the validity of the overidentifying restrictions.

### **3.5.3. Hausman test**

The Hausman test assesses the presence of endogeneity within the GMM model. The Hausman test determines whether including certain variables as endogenous significantly affects the parameter estimates and model efficiency (Hausman, 1978). The test compares coefficient estimates from models with endogenous and exogenous regressors. The null hypothesis is rejected if the test statistic significantly differs from zero. This indicates the presence of endogenous variables.

### **3.5.4. Cameron and Trivedi decomposition test**

The Cameron and Trivedi decomposition test is a statistical test used in the context of binary choice models and distinguishes between the impact of endogeneity and that of weak instruments (Cameron & Trivedi, 2009). The test is a nuanced approach to assessing endogeneity. The Cameron and Trivedi decomposition test decomposes the likelihood-ratio test into components representing endogeneity contributions and weak instruments. The likelihood-ratio test is often used to assess the overall goodness-of-fit of a model. A significant contribution from the endogeneity component signals the potential presence of endogeneity issues in the model.

### **3.5.5. Hansen-Hodrick (HH) test**

The Hansen-Hodrick (HH) Test addresses the issue of serial correlation in the errors of a GMM model. This test compares the efficient GMM variance-covariance matrix to an Ordinary Least Squares (OLS)-based matrix (Hansen & Hodrick, 1980). The HH Test is particularly relevant when estimating time series models and whether the residuals in the model exhibit serial correlation. The null hypothesis is rejected if the test statistic significantly differs from zero. This indicates the presence of endogenous variables.

When using GMM models, tests for serial correlation, normality of residuals, endogeneity, and weak instruments must be considered to enhance the model's findings (Davidson & MacKinnon, 1993; Kleibergen & Paap, 2006; Wooldridge, 2002). Every test has a distinct function in revealing specific aspects of the model specification and assessing the validity of the empirical results under close examination. These tests represent the best practices required to perform trustworthy financial research.

## **3.6. Conclusion**

This chapter examined the sample selection criteria and methodology used in this study. To answer the research question, rigorous tests must be run to fully understand M&A performance and information asymmetry. An event study methodology is utilized to evaluate the relationship between information asymmetry and M&A performance after the deal's completion. This methodology assists in evaluating M&A log run performance post-merger. Using an event study methodology assists in understanding the long-run relationships between the dependent and independent variables. A clear relationship between the variables is observed and analysed using a panel regression of the information asymmetry proxies and the M&A's performance. Panel regression offers a reliable framework for assessing merger data because it can capture time-series and cross-sectional fluctuations, correct for unobserved heterogeneity, and handle endogeneity issues. The fixed effects model will be utilized for these reasons. The GMM is also included in the analysis to test the robustness of the findings. The next chapter details the results of the study.

## **CHAPTER 4**

### **RESULTS**

#### **4.1. Introduction**

This chapter displays and discusses the results of the study's empirical analysis. This chapter displays the results received by analysing 361 M&As from 2001-2019. The data sample is subsequently analysed and graphically displayed before an investigation into the M&A performance measures is conducted. Empirical tests are then conducted on information asymmetry and M&A performance. These results highlight whether information asymmetry affects M&A performance in the long run. In addition, a regression analysis is employed to examine the relationship between information asymmetry and M&A long-run performance. These results will highlight the effect information asymmetry has on M&A performance and allow for a suitable conclusion to be drawn. Additional tests are conducted to validate this study's findings further and verify the variables used in the study.

This chapter is structured as follows: **Section 4.2.** examines the Statistics of the data used in the study. **Section 4.3.** evaluates the M&A performance measures used in the study and **Section 4.4.** displays the results of the Wilcoxon signed-rank test. **Section 4.5.** examines the results of the correlation analysis and **Section 4.6.** evaluates the regression results of the study. **Section 4.7.** examines the results of the diagnostic tests panel OLS regression.

## 4.2. Descriptive Statistics

**Table 3:** Descriptive Statistics

|                                      | Mean       | Median    | Min      | Max          | STD Dev     | Skew    | Kurt     |
|--------------------------------------|------------|-----------|----------|--------------|-------------|---------|----------|
| <b>M&amp;A Share Data</b>            |            |           |          |              |             |         |          |
| Price                                | 27,8332    | 7,7183    | 0,0300   | 3628,1770    | 143,8214    | 18,3800 | 362,0360 |
| Returns                              | 0,0040%    | 0,0010%   | -0,6488% | 2,1959%      | 0,1038      | 3,5369  | 60,2186  |
| <b>M&amp;A Performance Measures</b>  |            |           |          |              |             |         |          |
| BHAR                                 | 0,0065%    | -0,0410%  | -1,6381% | 10,9398%     | 0,7685      | 4,4518  | 37,4063  |
| CAAR                                 | 0,0142%    | 0,0093%   | -2,9847% | 2,4683%      | 0,4329      | -0,3909 | 8,1218   |
| <b>Information Asymmetry Proxies</b> |            |           |          |              |             |         |          |
| SPREAD                               | 2,7428     | 0,2638    | 0,0000   | 165,0174     | 9,9781      | 7,9175  | 82,4017  |
| VOLATILITY                           | 44,4472    | 31,0395   | 0,0000   | 970,282      | 48,2228     | 6,0224  | 62,5899  |
| TRADED VOLUME                        | 6,6049     | 6,6720    | 0,0000   | 8,7444       | 1,0071      | -1,4260 | 6,1062   |
| TRADED VALUE                         | 6,7213     | 7,6742    | 0,0000   | 11,3825      | 2,8993      | -1,4202 | 0,9524   |
| ANALYST COVERAGE                     | 3,1287     | 2,0000    | 0,0000   | 20,0000      | 3,967       | 1,4448  | 1,4795   |
| <b>Deal Specific Variables</b>       |            |           |          |              |             |         |          |
| CASH                                 | 0,6399     | 1,0000    | 0,0000   | 1,0000       | 0,4800      | -0,5829 | -1,6605  |
| MIXED                                | 0,2216     | 0,0000    | 0,0000   | 1,0000       | 0,4153      | 1,3407  | -0,2024  |
| FINACIAL INDUSTRY                    | 0,6233     | 1,0000    | 0,0000   | 1,0000       | 0,4846      | -0,5088 | -1,7413  |
| SIZE                                 | 9,0905     | 9,5223    | 0,0000   | 12,1705      | 2,1523      | -3,2789 | 11,3832  |
| LEVERAGE                             | 3,3876     | 1,9595    | 0,0000   | 222,7246     | 9,0722      | 19,3808 | 447,2154 |
| VALUE                                | 69000,7543 | 4938,4180 | -18,5510 | 2806023,5606 | 242534,5273 | 5,6465  | 40,0098  |
| CRISIS                               | 0,1642     | 0,0000    | 0,0000   | 1,0000       | 0,3705      | 1,8127  | 1,2862   |

Table 3 presents the descriptive statistics for the closing price, return, and dependent and independent variables of the M&A sample. The type of variable that separates these results is being observed. It can be observed that the price has a large standard deviation. Prior research by Fama and French (1992) highlighted the impact of size and industry on share prices. This may be due to large outliers in large firm valuations contributing to the positively skewed distribution. As share returns do not follow a normal distribution, a positive skewness (Skew) in the closing price and returns are expected and are found in the sample data. The results show that over the 3-year period, on average, M&A returns yield a low positive return. The BHAR is observed to have large minimum and maximum values. The BHAR exhibits a positive average abnormal return. The positive mean in BHAR suggests the presence of positive abnormal returns post-merger.

The information asymmetry proxies have a substantial standard deviation, which is relatively high for each proxy. This demonstrates information's impact on M&A. Mitchell and Stafford (2000) highlight the role of diverse perceptions and trading behaviours. The positive skewness

and Kurt further substantiate this. The skewness indicates that the information asymmetry proxies are skewed to the right. These results indicate that M&A firm's information asymmetry proxies are skewed by large firms present in the data.

The large standard deviation in the SIZE and LEVERAGE proxies is observed in the results. Larger deals and those involving highly leveraged firms could contribute significantly to the large standard deviation. Bradley, Desai, and Kim (1983) and Harris and Raviv (1988) underscore the impact of deal size and financial structure on M&A outcomes, providing insights into the potential sources of variability in these deal-specific variables.

**Table 4:** M&A transactions

| Industry               | Cash payments | Stock purchases | Mixed Payment | Total |
|------------------------|---------------|-----------------|---------------|-------|
| Basic Materials        | 15            | 6               | 6             | 27    |
| Communications         | 7             | 0               | 5             | 12    |
| Consumer, Cyclical     | 35            | 3               | 1             | 39    |
| Consumer, Non-cyclical | 26            | 5               | 10            | 41    |
| Diversified            | 12            | 4               | 4             | 20    |
| Energy                 | 2             | 0               | 0             | 2     |
| Financial              | 85            | 26              | 25            | 136   |
| Industrial             | 41            | 4               | 21            | 66    |
| Technology             | 8             | 2               | 8             | 18    |
| Total                  | 231           | 50              | 80            | 361   |

Table 4 displays the number of M&A transactions aggregated by Payment and Industry. It is observed that 136 (37.6%) M&As originated from the financial industry. With 85 (62.5%) of the financial industry, M&As are paid in cash. The energy industry had the lowest number of M&A transactions between January 2001 and March 2019. Most of the M&As in the sample were paid in cash, with 231 (63.8%) taking place under the payment method.

**Figure 1:** M&A sample average monthly returns

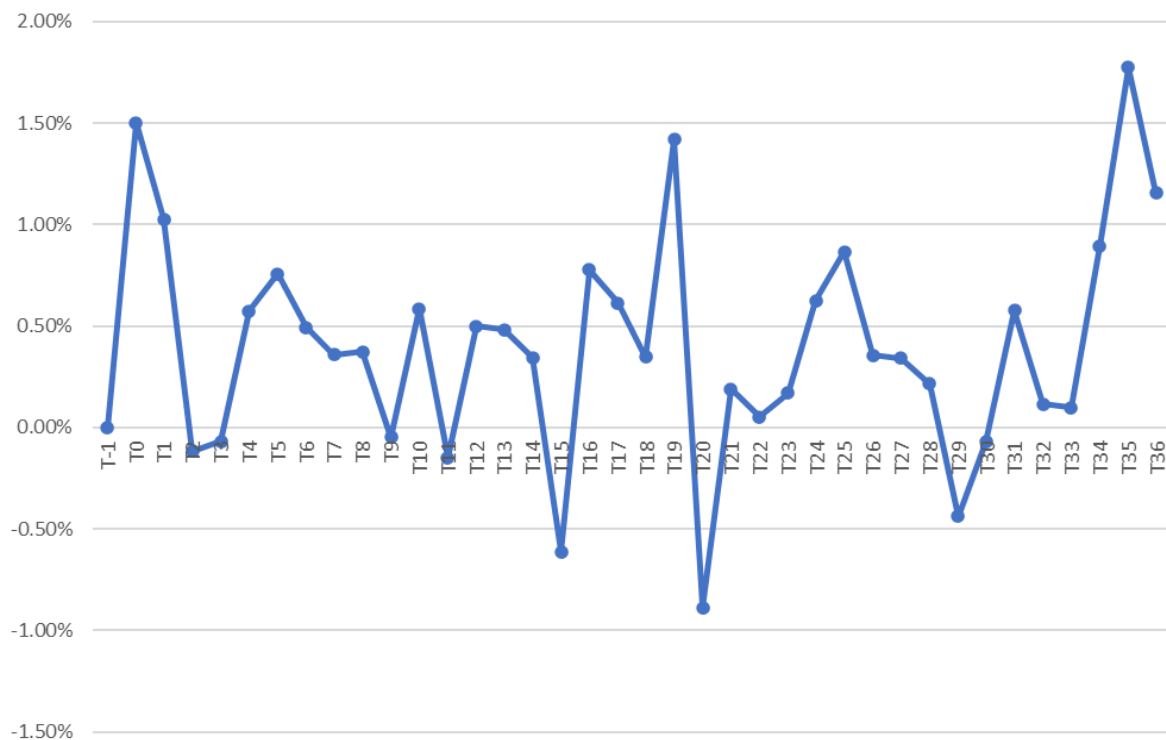


Figure 1 displays the returns of the M&A sample starting a month before the conclusion of each merger. It is apparent that at the conclusion ( $T_0$ ) of the M&A, there is a significant rise in the share returns. This is common as Gough and McColgan (2019) and Jarrell, Brickley, and Netter (1988) found that after the M&A, the share returns tend to rise significantly. This allows one to infer that investors share a similar sentiment about the conclusion/announcement of the M&A and the reasons for the M&A. By raising the share price, investors believe that the M&A is management's attempt to create wealth. However, over the 36-month period of the M&A, investors react erratically. This may cause investors to question the acquiring firm's ability to utilize their added resources and generate wealth. This may also be investors identifying positive indicators in the M&A. Month-on-month performance shows how investors attempt to fully utilize the available information to make the most rational decision at that moment. The inference here is that a decline in month-on-month returns may be caused by information asymmetry. This may be due to investors' uncertainty in management's ability to fully utilize their added resources. However, the entirety of the returns may also be skewed by large firms and several other factors that should still be considered when looking at each share return in the M&A sample. This makes it difficult to accurately infer investors' sentiment and decision-making monthly.

**Figure 2:** M&A sample average cumulative monthly returns

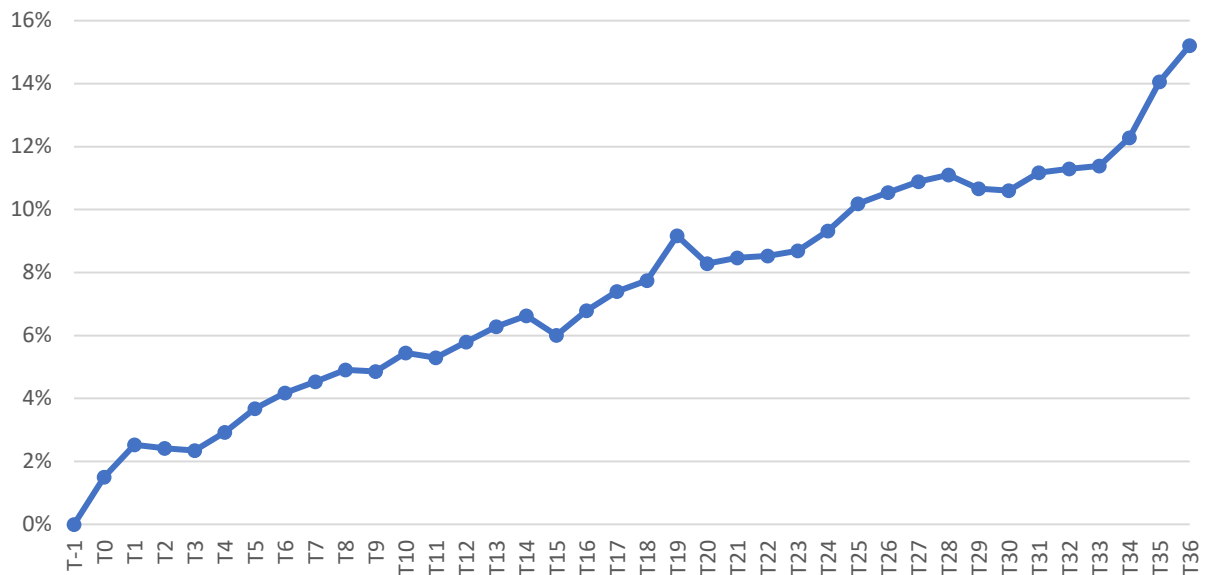


Figure 2 demonstrates that a substantial gain can be made over time by purchasing an M&A's share after the transaction and holding it for 36 months. This could be due to the risks taken in completing the M&A deal that see a high reward after the deal. Furthermore, this illustrates how investors generally believe in the reasons firms merge and believe in their ability to produce substantial gains. However, this does not mean a portfolio of M&As will outperform the benchmark (JSE FTSE All-share index); rather, the portfolio can generate substantial gains over the long run. During the early stages, post-merger investors look for a clear sign of synergy within the merged parties to indicate a profitable M&A and that the acquiring firm can use its newly acquired resources. At the end of the 36 months, a rapid increase in cumulative returns is observed. This indicates that investors are fully optimistic about the firm's ability to use its resources and expect it to generate substantial returns going forward.

### **4.3. M&A Performance Measures Analysis**

#### **4.3.1. Buy and Hold Abnormal Returns (BHAR)**

The BHAR is calculated to evaluate the performance of M&A. The BHAR is calculated monthly from a month before the M&A (T-1) conclusion.

**Figure 3:** Average buy and hold abnormal monthly returns

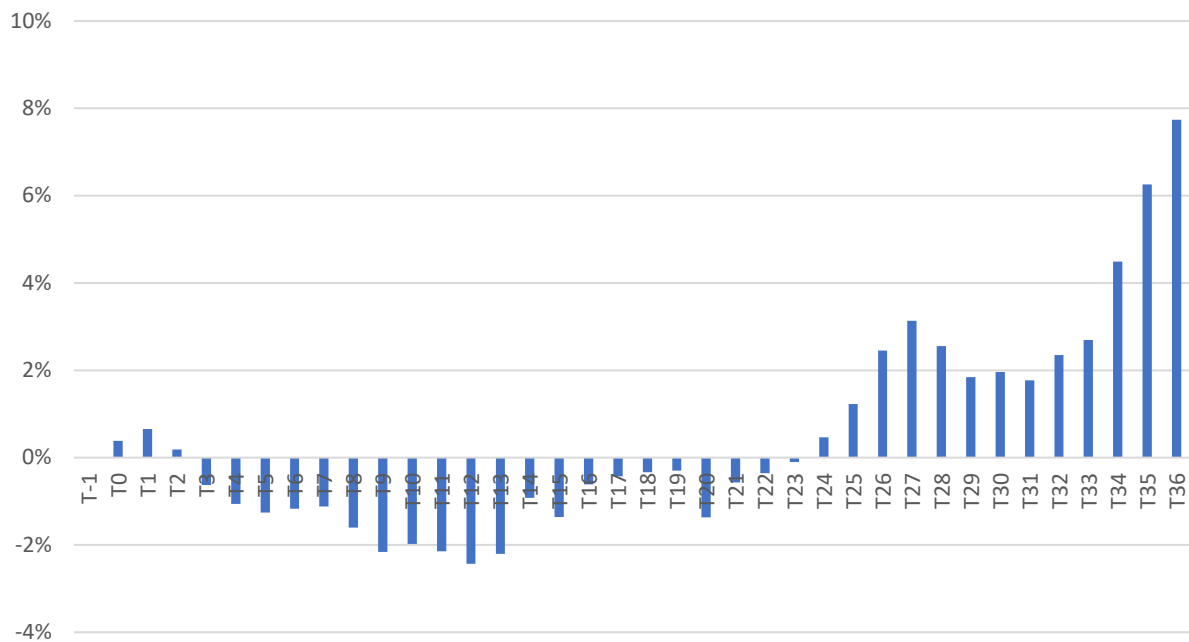


Figure 3 demonstrates how investors are pleased with the news of the completion of the M&A at  $T_0$ . However, on average, they become pessimistic about the M&A as the BHAR depreciates and the share begins to perform poorly compared to the benchmark (JSE All share). Investors withhold judgment on a share for the initial 24 months ( $T_{24}$ ), reacting harshly to information regarding the share over the period. After 24 months, investors begin showing any confidence in the merger. This may be due to investors' survivorship bias in M&As (Andrade et al., 2001).

However, investors may allow sufficient time for the combined firm to develop the synergy needed to operate efficiently. The increase experienced in the first three months post-merger shows the impact of the M&A's announcement on the share price (Alagidede & Amewu, 2018). The decline in BHAR from month 3 ( $T_3$ ) to month 24 ( $T_{24}$ ) may be the market reacting rationally to the expectations of management's ability to fully utilize the capabilities of the newly formed company to generate wealth. In this regard, investors are rational as they patiently observe the M&A and allow time for the management to execute the right strategy. However, investors are irrational in believing that the M&A in that phase (month 3 ( $T_3$ ) to month 24 ( $T_{24}$ )) is unable to perform at an adequate level post the merger. This illustrates how investors are pleased with the completion of the M&A but are pessimistic about its ability to produce returns from month 3 ( $T_3$ ) to month 24 ( $T_{24}$ ) post-merger.

### 4.3.2. Cumulative Average Abnormal Returns (CAAR)

The CAARs are calculated to further evaluate the performance of M&As. The CAAR is calculated monthly, starting a month before the M&A (T-1) conclusion.

**Figure 4:** Average cumulative average abnormal monthly returns

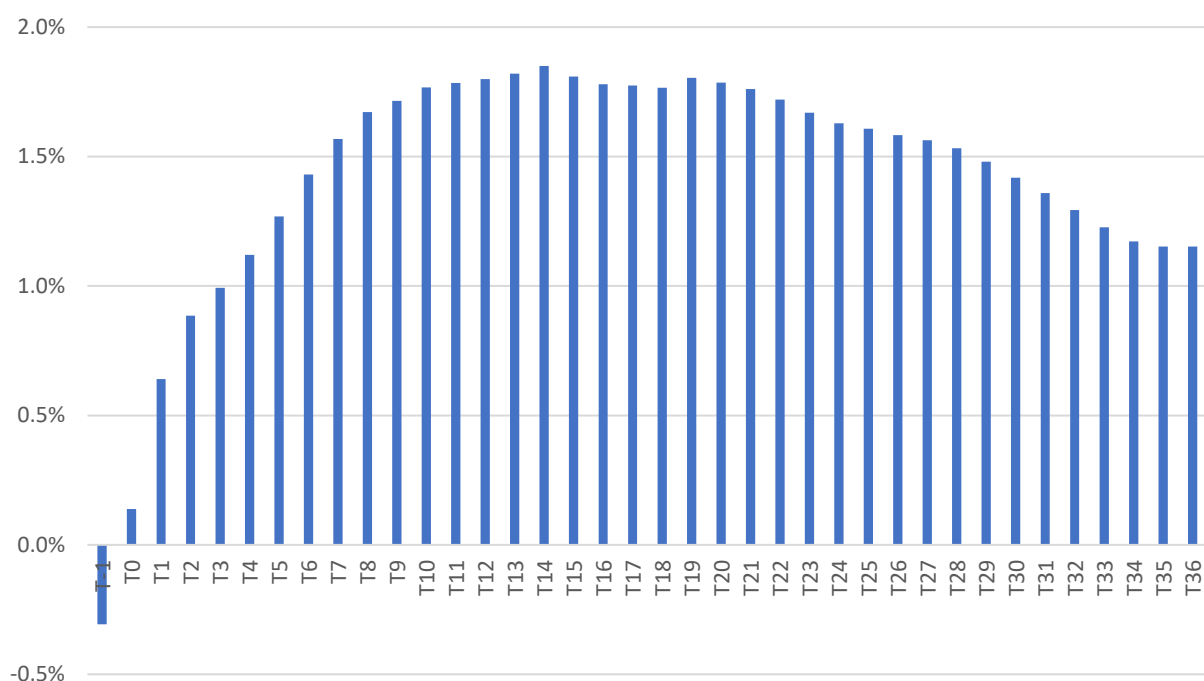


Figure 4 shows that, on average, the cumulative average abnormal returns increase over time. This illustrates that investors overreact to the information after the completion of the M&A and cause the M&A's share price to rise past the average abnormal returns. This reaction takes a while to be fully absorbed. This illustrates that investors are not quick to negate the newly formed M&A. Investors initially overreact but do not act aggressively to correct it because the firm may still be performing. After 14 months (T<sub>14</sub>), the returns begin to plateau and decline as the negative average abnormal returns affect the CAAR in the long run.

### 4.3.3. BHAR vs CAAR

With the apparent differences between the BHAR and the cumulative average abnormal returns, each describes differences in thought between the event and the performance of the shares post-merger (Dutta & Jog, 2018). The BHAR illustrates moments where the share price post-merger underperforms the benchmark. This indicates that mergers typically underperform

for several months after completion (Loughran & Vijh, 1997). Furthermore, this depicts the market believing that the initial share price was overpriced and subsequently overreacted to the event. This causes a decline in the months following the completion of the merger. However, Moeller, Schlingemann, and Stulz (2005) illustrate that over time and within, the market begins to react positively and rationally after identifying the wealth generated from the merger.

The CAAR illustrates how, over time, the performance of the shares improves. This shows how firm performance post-merger is increasing, and investor's view mergers positively (Barber & Lyon, 1997). The CAAR depicts how investors react positively to the merger and behave rationally to the share over time. This means that investors believe the decision to merge is correct, and post-merger believes the firm will perform as expected or better.

The BHAR shows that the pure performance of the share post-merger underperforms the benchmark. This may be caused by the knowledge that the firm will not be able to fully utilize the newly acquired resources in a brief period, which coincides with the findings in the CAAR. This is because investors are aware that the firm will take time to utilize the resources but view the merger event as a positive one and, over time, will become valuable and attain returns past the benchmark (Moeller et al., 2005). According to Barber and Lyon (1997), the CAAR illustrates that more investors have begun to invest in the firm over time. However, due to timing, they may be wary about entering at the wrong time, but they believe that the merger was a promising idea overall.

#### **4.4. The Wilcoxon Signed-rank Test**

Table 5 presents the Wilcoxon signed-rank test. As stated in section 3.4, the p-value represents the likelihood of obtaining a test statistic equally extreme to or more extreme than the observed one. The null hypothesis in this situation is that the matched observations have no discernible difference. The results show that the BHAR fails to reject the notion that there is a difference between the two sets. This means there is no evidence that the two data sets were from different populations. However, a small P-value for the CAAR indicates the differences between the two data sets. This rejects the test's null hypothesis and finds reason to believe that the two come from different data populations. This may be due to the CAAR's nature, which may be skewing the data in the test. Li and Li (2014) find comparable results in their research report when investigating predictability in the Chinese stock market. Similar findings in papers by

Kinnunen and Martikainen (2018) and Fang and Kim (2016) show that the differences between the CAAR and the actual returns are different and statistically significant.

**Table 5:** The Wilcoxon signed-rank test results

| M&A performance measures | Statistics | P-value                |
|--------------------------|------------|------------------------|
| BHAR                     | 326        | 0.7005                 |
| CAAR                     | 44         | 1.0755E <sup>-07</sup> |

## 4.5. Correlation Analysis

### 4.5.1. Correlation matrix

Table 6 presents the correlations between the M&A regression variables. Fama and French (1996) conducted a similar analysis to examine the relationship between several market risk proxies and returns. The analysis illustrates that the two M&A payment type variables have the largest negative correlation (-0.7113). This relationship is expected as both measures represent the method of payment used in the M&A. The relationship is found to be statistically significant at a 5% level. Furthermore, the results indicate a positive correlation between ANALYST COVERAGE and TRADED VOLUME (0.5492) and between ANALYST COVERAGE and TRADED VALUE (0.3396). These correlations may be due to two reasons. The first reason is that ANALYST COVERAGE attracts investors to shares, increasing trading activity. Loh and Mian (2006) report evidence that ANALYST COVERAGE increases trading activity, especially in high information asymmetry shares. The second reason is that ANALYST COVERAGE provides accurate and timely information to investors, reducing information asymmetry and improving trading liquidity in the market (Bushee, 1998). Van Ness et al. (2001) document a negative association between ANALYST COVERAGE and information asymmetry. As more analysts begin to cover and report on firms, information asymmetry may decrease as trading activity increases and vice versa. Both these reasons affect the TRADED VOLUME and TRADED VALUE proxies. The increased trading activity will cause an increase in the TRADED VOLUME and TRADED VALUE proxies. The VOLATILITY has a stronger positive correlation with the SPREAD proxy than the M&A performance measures. Hasbrouck (1988) indicates that this may be due to market effects as informed investors, at moments of

high volatility, tend to exploit larger spreads, leading to uninformed investors adjusting their prices.

Furthermore, ANALYST COVERAGE positively correlates with value (0.4821) and size (0.3059). One can infer that more analyst recommendations are made on large firms with large market capitalizations. This is due to the public's interest in larger firms. Analysts cover these firms because investors are more interested in large and smaller firms. This is due to investors' expectations of large firms regarding their performance. Analysts covering a share allows for a greater flow of information to international and institutional investors. This improves investor confidence in the share, which assists a firm's value.

Overall, the correlation coefficients are insignificant enough to rule out concerns about multicollinearity in the sample data. According to Gujarati and Porter (2009), when correlation coefficients are larger than 0.8, they indicate multicollinearity. However, Belsley, Kuh, and Welsch (1980) and Montgomery, Peck, and Vining (2021) state that individual correlations may not capture multicollinearity. This is due to individual correlations not being significant. However, variables can collectively influence one another. Correlation coefficients may not capture the nonlinear relationships between variables, which may lead to multicollinearity.

**Table 6:** A correlation matrix of the regression variables

| Variables            | (1)        | (2)        | (3)        | (4)        | (5)        | (6)        | (7)        | (8)        | (9)        | (10)       | (11)       | (12)      | (13)       | (14)   |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|--------|
| (1) BHAR             | 1,0000     |            |            |            |            |            |            |            |            |            |            |           |            |        |
| (2) CAAR             | 0,1465 **  | 1,0000     |            |            |            |            |            |            |            |            |            |           |            |        |
| (3) SPREAD           | -0,1190 ** | -0,0989 ** | 1,0000     |            |            |            |            |            |            |            |            |           |            |        |
| (4) VOLATILITY       | -0,2077 ** | -0,1145 ** | 0,3685 **  | 1,0000     |            |            |            |            |            |            |            |           |            |        |
| (5) TRADED VOLUME    | 0,0797 **  | 0,1077 **  | -0,3643 ** | -0,2602 ** | 1,0000     |            |            |            |            |            |            |           |            |        |
| (6) TRADED VALUE     | 0,0754 **  | -0,0182 *  | -0,1769 ** | -0,1642 ** | 0,3569 **  | 1,0000     |            |            |            |            |            |           |            |        |
| (7) ANALYST COVERAGE | 0,0127     | 0,0191 *   | -0,2048 ** | -0,2399 ** | 0,5492 **  | 0,3396 **  | 1,0000     |            |            |            |            |           |            |        |
| (8) Cash             | 0,0463 **  | 0,0824 **  | -0,0617 ** | -0,0978 ** | 0,0479 **  | -0,0243 ** | 0,0940 **  | 1,0000     |            |            |            |           |            |        |
| (9) Mixed            | -0,0503 ** | -0,1290 ** | 0,0348 **  | 0,0963 **  | -0,0781 ** | -0,0302 ** | -0,0861 ** | -0,7113 ** | 1,0000     |            |            |           |            |        |
| (10) Industry        | 0,0189 *   | -0,0293 ** | -0,0210 ** | 0,1052 **  | -0,2224 ** | -0,0864 ** | -0,1599 ** | 0,0241 **  | 0,0707 **  | 1,0000     |            |           |            |        |
| (11) Size            | 0,0772 **  | 0,0602 **  | -0,1133 ** | -0,1077 ** | 0,1459 **  | 0,1410 **  | 0,3059 **  | 0,1212 **  | -0,0383 ** | 0,0613 **  | 1,0000     |           |            |        |
| (12) leverage        | -0,0142    | -0,0126    | -0,0255 ** | -0,0116    | 0,1072 **  | 0,0637 **  | 0,1377 **  | 0,0547 **  | -0,0569 ** | -0,1308 ** | 0,0809 **  | 1,0000    |            |        |
| (13) Value           | 0,0245 **  | -0,0079    | -0,0806 ** | -0,0741 ** | 0,2857 **  | 0,2172 **  | 0,4821 **  | 0,0512 **  | -0,0637 ** | -0,1919 ** | 0,1604 **  | 0,2160 ** | 1,0000     |        |
| (14) Crisis          | 0,0118     | 0,0168 *   | -0,0485 ** | 0,0143     | 0,0177 *   | -0,0912 ** | -0,0232 ** | -0,0380 ** | 0,0491 **  | 0,0344 **  | -0,1476 ** | -0,0166   | -0,0416 ** | 1,0000 |

Note: This table displays the pairwise correlations of the regression variables. \* Denotes statistically significance at the 10% level, \*\* denotes statistically significance at the 5% level

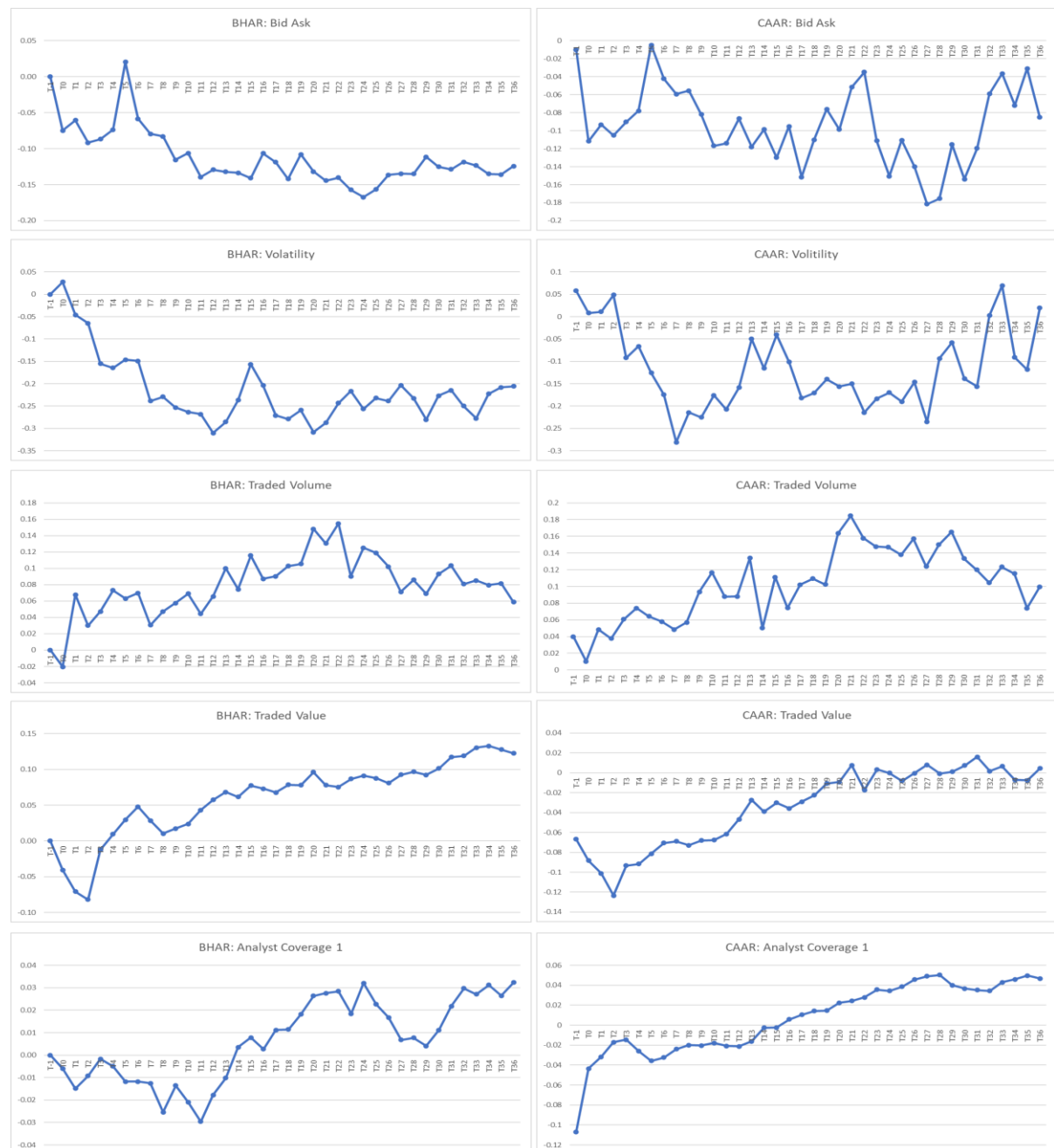
#### 4.5.2. Correlation over time

Figure 5 displays the correlation between the information asymmetry proxies and the M&A performance measures over a 3-year period. Engle (2002) highlights the importance of correlation over time, especially in the financial markets, in relation to risk and the Value at Risk (VaR) estimation. When investigating the SPREAD proxy against the BHAR and the CAAR, it is apparent that an overall negative correlation is observed. These findings are corroborated by Amihud and Mendelson (1991), who found that an increase in the SPREAD leads to underperformance. The VOLATILITY proxy has an overall negative correlation against the BHAR and against CAAR. This is expected as Grinblatt and Okamura (1995) show that shares with high volatility tend to have low returns. This shows that an increase in the VOLATILITY is related to a share underperforming.

The correlation results for the TRADED VOLUME proxy exhibit an overly positive correlation to the M&A performance measures. Edelen, Evans, and Kadlec (2013) found similar results in their analysis. By controlling for other factors such as size and book-to-market, they found that a high trading volume share tends to overperform. Elbdry et al. (2015) showed that a decrease in information asymmetry will cause an increase in trading volume and a subsequent increase in the M&A's performance. These results, through Elbdry et al. (2015) findings, imply a relationship between information asymmetry and M&A performance exists. The correlation results for the TRADED VALUE proxy yield mixed results between the M&A performance measures. The proxy exhibits an overall positive correlation with the BHAR but an overall negative correlation with the CAAR. This is due to the differences in the M&A performance measures. The BHAR exhibits investors' harsh view of an M&A and is inclined to invest in shares with substantial amounts of liquidity. The CAAR shows that investors believe that M&A's initial do not perform in the first 2 years post-merger regardless of the value exchanging hands in the market over time. The ANALYST COVERAGE yields mixed results against the M&A performance measures. The overall correlation is inconclusive; however, against both measures, the proxy exhibits similar trends. There are three possible reasons for the inconclusive overall correlation in the proxy: overvaluation and herding. Stathopoulos and Gorjaev's (2017) work views the increase in ANALYST COVERAGE as causing overvaluation through the increase in recommendations made. This will decrease the firm's cost of capital, and investors become aware of the share's overvaluation. This causes a subsequent devaluation to bring the share back to its fundamental price. Faugere and van Erlich

(2011) illustrate how a lack of diversity in recommendations (herding) causes investors to lack confidence in the share and leads to a price decline. Over time, the increase in analyst recommendations is viewed by investors as a good sign, leading to a subsequent rise in performance.

**Figure 5:** Correlation between each M&A performance measure and information asymmetry proxy over time



## 4.6. Regression Results

### 4.6.1. Information asymmetry versus M&A performance

Table 7 presents the regression results between information asymmetry proxies and M&A performance. As presented by the panel OLS regression, several information asymmetry variables tend to have a statistically significant relationship with the M&A performance measures. However, the TRADED VOLUME proxy has no statistically significant relationship with the BHAR. Furthermore, the ANALYST COVERAGE, surprisingly, does not have a statistically significant relationship with the BHAR or the CAAR. When observing the regression results, the SPREAD, VOLATILITY and TRADED VALUE have a statistically significant relationship with the BHAR and the CAAR. These relationships are found to be statistically significant at a 1% level. These findings reject the null hypothesis. The results show that the SPREAD, VOLATILITY and TRADED VALUE have a highly negative relationship with the M&A performance measures. Elbrary et al. (2015) findings in section 3.3, in conjunction with these results, show that against the SPREAD and VOLATILITY proxies, the M&A performance measures have a negative relationship with information asymmetry. This means that as the information asymmetry of a share increases, M&A performance tends to decrease and vice versa.

With regards to the TRADED VALUE proxy, the M&A performance measures have a positive relationship with information asymmetry. This relationship contradicts Elbrary et al.'s (2015) findings on the relationship between information asymmetry and the TRADED VALUE. A negative relationship is expected between TRADED VALUE and information asymmetry. These results show that as TRADED VALUE increases, information asymmetry decreases, M&A performance decreases, and vice versa. This means a positive relationship between information asymmetry and M&A performance has been found when using the TRADED VALUE as a proxy for information asymmetry. This may be due to investors predicting future volatility and adjusting their trading strategies based on price pressure (Johnson & So, 2016). However, when observing the GMM regression, mixed results are observed. The SPREAD fails to reject the null hypothesis against both M&A performance measures. The VOLATILITY and TRADED VALUE reveal mixed results as these proxies fail to reject the BHAR and CAAR, respectively. Ullah, Akhtar and Zaefarian (2018) attribute the differences in the models to the endogeneity bias found in their estimations.

# Information asymmetry and Merger Performance on the Johannesburg Securities Exchange

**Table 7: Regression results**

| Variables                      | Panel OLS Regression    |                         |                         |                         |                         | Generalized Method of Moments |                        |                         |                         |                         |
|--------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------------|------------------------|-------------------------|-------------------------|-------------------------|
|                                | SPREAD                  | VOLATILITY              | TRADED VOLUME           | TRADED VALUE            | ANALYST COVERAGE        | SPREAD                        | VOLATILITY             | TRADED VOLUME           | TRADED VALUE            | ANALYST COVERAGE        |
| <b>(1) BHAR</b>                |                         |                         |                         |                         |                         |                               |                        |                         |                         |                         |
| IA Proxy                       | 0.0000***<br>(-13.8740) | 0.0000***<br>(-25.1190) | 0.2042<br>(-1.2697)     | 0.0000***<br>(-4.1776)  | 0.0533*<br>(-1.9328)    | 0.7053<br>(-0.3782)           | 0.1065<br>(-1.6135)    | 0.0392***<br>(-2.0619)  | 0.8336<br>(-0.2099)     | 0.3901<br>(0.8593)      |
| CASH                           | 0.0338**<br>(-2.1229)   | 0.2422<br>(-1.1696)     | 0.0381**<br>(-2.0736)   | 0.0043***<br>(-2.8556)  | 0.0108**<br>(-2.5498)   | 0.5489<br>(0.5970)            | 0.0256**<br>(-2.2329)  | 0.8312<br>(-0.2131)     | 0.0664*<br>(-1.8353)    | 0.6087<br>(-0.5118)     |
| MIXED                          | 0.0000***<br>(-6.0086)  | 0.0001***<br>(-3.8327)  | 0.0000***<br>(-6.2809)  | 0.0000***<br>(-7.1494)  | 0.000***<br>(-6.9048)   | 0.0584*<br>(-1.8923)          | 0.0031***<br>(2.9590)  | 0.7912<br>(-0.2647)     | 0.0752*<br>(-1.7793)    | 0.6089<br>(0.5115)      |
| FINACIAL INDUSTRY              | 0.4001<br>(0.8415)      | 0.0000***<br>(4.2736)   | 0.4236<br>(0.8002)      | 0.4676<br>(0.7264)      | 0.5736<br>(0.5627)      | 0.3932<br>(1.2853)            | 0.0304**<br>(-2.1644)  | 0.8334<br>(-0.2103)     | 0.0640*<br>(-1.8417)    | 0.6069<br>(0.5144)      |
| SIZE                           | 0.0000***<br>(5.1709)   | 0.0000***<br>(8.5565)   | 0.0003***<br>(3.6187)   | 0.3299<br>(0.9743)      | 0.0000***<br>(4.5525)   | 0.2940<br>(1.0493)            | 0.9396<br>(0.0757)     | 0.3551<br>(-0.9247)     | 0.1974<br>(1.2889)      | 0.1316<br>(1.5076)      |
| LEVERAGE                       | 0.0020***<br>(-3.0928)  | 0.0184**<br>(-2.3586)   | 0.0023***<br>(-3.6187)  | 0.0013***<br>(-3.2102)  | 0.0020***<br>(-3.0893)  | 0.5027<br>(-0.6703)           | 0.3105<br>(-1.0142)    | 0.2428<br>(-1.1679)     | 0.6959<br>(-0.3907)     | 0.7022<br>(-0.3823)     |
| VALUE                          | 0.1576<br>(0.4133)      | 0.0184**<br>(1.3168)    | 0.0120**<br>(2.5136)    | 0.0818*<br>(1.7407)     | 0.0027***<br>(2.9949)   | 0.7365<br>(0.3364)            | 0.7963<br>(0.2581)     | 0.6784<br>(0.4145)      | 0.7029<br>(0.3813)      | 0.8522<br>(-0.1862)     |
| CRISIS                         | 0.3144<br>(1.0060)      | 0.0120**<br>(2.5119)    | 0.0987*<br>(1.6511)     | 0.1752<br>(1.3558)      | 0.1366<br>(1.4887)      | 0.3460<br>(-0.9423)           | 0.2663<br>(-1.1114)    | 0.1021<br>(-1.6342)     | 0.2086<br>(-1.2573)     | 0.3266<br>(-0.9508)     |
| <b>(2) CAAR</b>                |                         |                         |                         |                         |                         |                               |                        |                         |                         |                         |
| IA Proxy                       | 0.0000***<br>(-11.0401) | 0.0000***<br>(-11.7520) | 0.0000***<br>(-4.6994)  | 0.0001***<br>(-3.9415)  | 0.9619<br>(-0.0478)     | 0.6466<br>(0.4585)            | 0.0059***<br>(-2.7494) | 0.6829<br>(-0.4084)     | 0.0000***<br>(-4.3728)  | 0.0000***<br>(4.6106)   |
| CASH                           | 0.0028***<br>(-2.9945)  | 0.0075***<br>(-2.6746)  | 0.0000***<br>(-4.5531)  | 0.0024***<br>(-3.0326)  | 0.0009***<br>(-3.3340)  | 0.4493<br>(-0.7639)           | 0.0211**<br>(2.3061)   | 0.0000***<br>(-30.3161) | 0.0000***<br>(45.8647)  | 0.0000***<br>(26.1962)  |
| MIXED                          | 0.0000***<br>(-13.2160) | 0.0000***<br>(-12.3740) | 0.0000***<br>(-14.6070) | 0.0000***<br>(-13.4940) | 0.0000***<br>(-13.8420) | 0.4457<br>(0.7626)            | 0.0209**<br>(2.3105)   | 0.0134**<br>(-2.4736)   | 0.0000***<br>(-45.1693) | 0.0000***<br>(-26.4754) |
| FINACIAL INDUSTRY              | 0.0001***<br>(-4.0523)  | 0.0153**<br>(-2.4260)   | 0.0000***<br>(-4.0964)  | 0.0001***<br>(-4.0063)  | 0.0001***<br>(-4.0348)  | 0.2822<br>(1.0753)            | 0.0210**<br>(-2.3072)  | 0.0000***<br>(-27.4899) | 0.0000***<br>(-44.0610) | 0.0000***<br>(26.5513)  |
| SIZE                           | 0.0000***<br>(10.8070)  | 0.0000***<br>(11.9310)  | 0.0057***<br>(2.7652)   | 0.0000***<br>(10.4320)  | 0.0000***<br>(9.3140)   | 0.4399<br>(0.9349)            | 0.0337**<br>(2.1240)   | 0.5207*<br>(1.9425)     | 0.0212**<br>(-2.3026)   | 0.0010**<br>(-3.2708)   |
| LEVERAGE                       | 0.0064***<br>(-2.7263)  | 0.0176**<br>(-2.3744)   | 0.0031***<br>(-2.9592)  | 0.0079***<br>(-2.6566)  | 0.0060***<br>(-2.7474)  | 0.3812<br>(-0.8757)           | 0.5063<br>(0.6646)     | 0.2119<br>(-1.2483)     | 0.0806*<br>(-1.7472)    | 0.0756<br>(-1.7765)     |
| VALUE                          | 0.0002***<br>(-3.7276)  | 0.0005***<br>(-3.4731)  | 0.0007***<br>(-3.4063)  | 0.0210***<br>(-2.3081)  | 0.0077***<br>(-2.6658)  | 0.5436<br>(-0.6074)           | 0.7022<br>(0.3825)     | 0.0059***<br>(2.7522)   | 0.2637<br>(-1.1176)     | 0.0553*<br>(1.9161)     |
| CRISIS                         | 0.0110***<br>(3.0867)   | 0.0001***<br>(3.9242)   | 0.0146**<br>(2.4425)    | 0.0005***<br>(3.4925)   | 0.0006***<br>(3.4162)   | 0.5304<br>(0.6274)            | 0.6356<br>(0.4739)     | 0.5967<br>(0.5291)      | 0.2150<br>(1.2399)      | 0.0135***<br>(3.2048)   |
| Number of Observations         | 13718                   | 13718                   | 13718                   | 13718                   | 13718                   | 12635                         | 12635                  | 12635                   | 12635                   | 12635                   |
| Number of Companies            | 361                     | 361                     | 361                     | 361                     | 361                     | 361                           | 361                    | 361                     | 361                     | 361                     |
| R Squared (1)                  | 0.0194                  | 0.0494                  | 0.0058                  | 0.069                   | 0.0059                  |                               |                        |                         |                         |                         |
| R Squared (2)                  | 0.0323                  | 0.0334                  | 0.0252                  | 0.0248                  | 0.0237                  |                               |                        |                         |                         |                         |
| Hansen J Test (1)              |                         |                         |                         |                         |                         | 1.0000                        | 1.0000                 | 1.0000                  | 1.0000                  | 1.0000                  |
| Hansen J Test (2)              |                         |                         |                         |                         |                         | 0.0000                        | 0.0000                 | 0.0000                  | 0.0000                  | 0.0000                  |
| Arellano-Bond test for AR1 (1) |                         |                         |                         |                         |                         | 0.0000                        | 0.0000                 | 0.0000                  | 0.0000                  | 0.0000                  |
| Arellano-Bond test for AR2 (1) |                         |                         |                         |                         |                         | 0.1350                        | 0.1080                 | 0.1150                  | 0.1270                  | 0.1140                  |
| Arellano-Bond test for AR1 (2) |                         |                         |                         |                         |                         | 0.0000                        | 0.0000                 | 0.0000                  | 0.0000                  | 0.0000                  |
| Arellano-Bond test for AR2 (2) |                         |                         |                         |                         |                         | 0.0150                        | 0.0910                 | 0.0740                  | 0.4650                  | 0.1660                  |

**Note:** This table presents the results of Panel OLS regression and Generalized Method of Moments (GMM) analyses. The Panel OLS regression estimates were conducted to examine the relationship between the information asymmetry proxies and the M&A performance measures. The GMM is utilized to verify the robustness of the panel OLS regression. Statistical significance is denoted by \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Mixed results are found in both regression models when examining the TRADED VOLUME proxy. When observing the panel OLS regression, TRADED VOLUME has a statistically significant relationship with the CAAR. However, the proxy does not provide significant evidence of a relationship with the BHAR. The results show that the TRADED VOLUME rejects the null hypothesis (against the CAAR) and fails to reject the null hypothesis (against the BHAR). The results indicate that the CAAR has a negative relationship with information asymmetry, corroborated by Van Ness et al. (2001). As a share is less traded, less information about the share is found, which will increase information asymmetry and a subsequent decrease in M&A performance. However, the BHAR lacks evidence of a relationship between information asymmetry and the M&A performance measure. When observing the GMM model results, the inverse can be found. A statistically significant relationship between the TRADED VOLUME proxy and the BHAR is found. However, the proxy does not provide significant evidence of a relationship with the CAAR. The GMM results show that the TRADED VOLUME proxy rejects the null hypothesis (against the BHAR) and fails to reject the null hypothesis (against the CAAR).

Mixed results are found in both regression models when examining the ANALYST COVERAGE proxy. When observing the panel OLS regression, ANALYST COVERAGE has a statistically significant relationship with the BHAR; however, the proxy does not provide significant evidence of a relationship with the CAAR. The results show that the ANALYST COVERAGE rejects the null hypothesis (against the BHAR) and fails to reject the null hypothesis (against the CAAR). These panel OLS results on the CAAR illustrate that the information analysts share is more important than the number of analysts covering a share. According to Fama (1970), in an efficient market, all the information is already reflected in the share. This makes the number of recommendations analysts make appear not to influence a share price. Womack (1996) states that conflicts of interest between analysts and the firms they cover may affect an analyst's objectivity. This potentially decreases the analyst's impact on the CAAR. When observing the GMM model results, the inverse can be found. A statistically significant relationship is found between the ANALYST COVERAGE proxy and the CAAR; however, the proxy does not provide significant evidence of a relationship with the BHAR. The GMM results show that the ANALYST COVERAGE proxy rejects the null hypothesis (against the BHAR) and fails to reject the null hypothesis (against the CAAR).

#### 4.6.2. Deal specific variables versus M&A performance

In understanding the long-run performance of M&A, it is important to examine the deal-specific variables used in the analysis. These variables highlight the influences of M&A experience through factors decided by management. The factors reveal how the deal is constructed and how the integration processes change the shared experiences post-merger (Nazarova & Koshelev, 2020). Kumar and Sengupta (2020) highlight the complex nonlinear relationships in M&As. Examining the deal-specific variables the acquiring firm would have used to evaluate and value the target firm pre-merger is essential.

Table 7 presents the regression results between deal-specific variables and M&A performance. When observing the panel OLS regression results, the deal-specific variables against the CAAR reveal a statistically significant relationship with M&A performance. These relationships are statistically significant at a 1% or 5% level. These results show that against the CAAR, they reject the null hypothesis. When observing the panel OLS regression results, the deal-specific variables against the BHAR, the cash, mixed, size, leverage and value variables show a statistically significant relationship with M&A performance. The variables in 3 or more regressions reveal a statistically significant relationship with M&A performance. These relationships are statistically significant at a 1%, 5% or 10% level. These results show that against the BHAR, the cash, mixed, size, leverage and value variables reject the null hypothesis. These results illustrate the influence of the deal-specific variables. Gigante and Rubinacci (2022) highlight the importance of deal-specific variables on M&A performance. They state that deal-specific variables can positively influence the performance of acquired returns. However, the GMM model reveals mixed results. The mixed variable, the most consistent variable in the BHAR models, rejects the null hypothesis in 3 models, with cash, mixed, financial industry and size being the only variables to reject the null hypothesis in 3 or more CAAR models. These relationships are statistically significant at a 1%, 5% or 10% level. The contradictory result may be due to the endogeneity bias found in their estimations (Ullah et al., 2018).

The interesting findings are that controlling for the largest industry (the financial industry) revealed a statistically significant relationship between the CAAR in the panel OLS regression and the GMM. These are Harford's (2005) findings of M&As happening in waves and industry waves clustering in time. By controlling for the financial industry, significant evidence is found

that M&As happen in industry waves and industry clusters and significantly affect M&A performance. Furthermore, the crises variable showed a statistically significant relationship between the CAAR in the panel OLS regression and a statistically significant relationship between the CAAR in the GMM model and the ANALYST COVERAGE regression. The variable shows the effect of the financial crisis on M&A performance from 2001-2019 (Hausman & Johnston, 2014). Moreover, the relationship in the ANALYST COVERAGE regression is the most interesting. These results highlight the effects of information shared amongst investors during the crises, which heavily affected M&A performance. During the crises, the financial industry was the most affected, and a clear relationship between industry and crises on M&A performance highlights the sheer effects of the variables on M&A performance. The results show the importance of information and the effects of information asymmetry on M&A performance.

#### **4.8. Conclusion**

This chapter investigates the intricate connections between M&A performance proxy on the JSE and information asymmetry proxies over a 3-year period. Notably, the BHAR exhibits initial underperformance, while the CAAR shows consistent positive performance. The correlation analysis highlights significant correlations between ANALYST COVERAGE and size and between ANALYST COVERAGE and value. This meant more analyst recommendations were made on large firms with large market capitalizations. This is due to the public's interest in larger firms. The correlation coefficients did not indicate the presence of multicollinearity in the model ( $>0.8$ ). The panel OLS regression results revealed a statistically significant relationship between several information asymmetry variables and M&A performance measures. The SPREAD, VOLATILITY, and TRADED VALUE are statistically significant at a 1% level and reject the null hypothesis. However, when observing the GMM regression, mixed results are observed. The SPREAD fails to reject the null hypothesis against both M&A performance measures. The VOLATILITY and TRADED VALUE reveal mixed results as these proxies fail to reject the BHAR and CAAR, respectively. However, the TRADED VOLUME proxy has no statistically significant relationship with the BHAR. Surprisingly, ANALYST COVERAGE has no statistically significant relationship with BHAR and CAAR.

When observing the GMM model results, the inverse can be found. A statistically significant relationship is found between the TRADED VOLUME proxy and the BHAR; however, the

proxy does not provide a statistically significant relationship with the BHAR. The GMM results show that the ANALYST COVERAGE proxy rejects the null hypothesis (against the BHAR) and fails to reject the null hypothesis (against the CAAR).

When observing the relationship between deal-specific variables and the M&A performance measures, the panel OLS regression results showcase a statistically significant relationship between deal-specific variables and M&A performance, particularly against the CAAR, where cash, mixed, size, leverage, and value variables exhibit significance at 1% or 5%. These relationships reject the null hypothesis, underscoring the impact of these variables on M&A performance. Gigante and Rubinacci (2022) emphasize the positive influence of deal-specific variables on acquirer returns, aligning with the observed patterns. However, the GMM model introduces contradictions, notably with the mixed variable consistently rejecting the null hypothesis in BHAR models and cash, mixed, industry, and size being the only variables doing so in three or more CAAR models. These contradictory GMM results may stem from endogeneity bias, as Ullah et al. (2018) discussed, signalling the complexity of accounting for such biases in estimations. The industry variables findings align with Harford's (2005) findings that mergers happen in waves and are aggregated by industry. Overall, the empirical results illustrate the existence of a relationship between M&A performance and information asymmetry. Furthermore, the empirical results illustrate the existence of a relationship between M&A performance and the deal-specific variables. The next section concludes the findings of this study.

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1. Introduction**

There has been a global surge in M&A activity in recent years, driven by their effectiveness in capital restructuring and generating inorganic growth. M&As offer companies avenues for acquiring untapped resources, expanding their customer base, increasing market share, and enhancing competitiveness through economies of scale. The complex nature of M&As often triggers investor speculation about the underlying motivations, creating information asymmetry between investors and management. This information gap leads to uncertainty in the market as investors seek to understand the reasons behind a firm's decision to engage in a merger, with the goal of either enhancing shareholder wealth or capitalizing on potential discounts due to market speculation. This study investigated the relationship between information asymmetry and the long-term performance of M&As. The investigation allows a better understanding of the role of information as demonstrated by Fama (1970) but applied to M&A. This chapter concludes the study and highlights the findings of the investigation. Highlighting the results and research conducted in the study will help understand its contribution to academic research and the benefits gained from the analysis.

This chapter is structured as follows: **Section 5.2.** summarises the findings of the study. **Section 5.3.** shows how the study's findings could contribute to academic literature, and **Section 5.4.** highlights the potential research that could be conducted around this study.

#### **5.2. Summary of Findings**

This study finds that the existing literature leads to the conclusion of 3 viewpoints on information asymmetry and M&A performance. The first viewpoint asserts that mergers yield positive financial performance, suggesting that the combined entity achieves improved financial outcomes compared to pre-merger levels. The second perspective maintains that mergers contribute to negative financial performance. Lastly, the third viewpoint posits that mergers have no significant impact on financial performance or that performance outcomes depend on various contextual factors.

The impact of information asymmetry on merger performance is a critical factor to consider in both developed and emerging markets. The discernible pattern in the market reveals that higher levels of information asymmetry correlate with diminished announcement returns, heightened by post-merger integration challenges and an increased likelihood of merger failure. Developed and emerging markets share a commonality in the negative repercussions of information asymmetry, highlighting the importance of effective communication, thorough due diligence, and transparency. By promoting greater transparency, improving information sharing, and fostering open lines of communication between merging entities, firms can enhance the likelihood of successful M&As and realize the anticipated benefits.

The study reveals mixed results in M&A performance measures, with BHAR indicating initial underperformance and CAAR consistently showing positive performance. Correlation analysis underscores significant relationships between ANALYST COVERAGE and size/value, indicating more recommendations for larger firms. The panel OLS regression demonstrates statistically significant associations between information asymmetry variables (SPREAD, VOLATILITY, TRADED VALUE) and M&A performance at a 1% level. Surprisingly, GMM regression yields mixed results, with some proxies failing to reject null hypotheses. Notably, the TRADED VOLUME proxy lacks a statistically significant relationship with BHAR. Similarly, ANALYST COVERAGE does not exhibit significance with both BHAR and CAAR.

When observing deal-specific variables, the panel OLS regression emphasizes their significant relationship with M&A performance, particularly against CAAR, rejecting the null hypotheses for cash, mixed, size, leverage, and value at a 1% or 5% level. This aligns with Gigante and Rubinacci's (2022) findings on the positive influence of such variables on acquirer returns. However, GMM results introduce mixed results, with the cash, mixed, size, leverage and value variables consistently rejecting the null hypothesis in CAAR models. Controlling for the financial industry, both panel OLS regression and GMM reveal a significant relationship between CAAR, aligning with Harford's (2005) concept of M&A waves and industry clustering. This emphasizes the impactful role of industry dynamics on M&A performance. Additionally, the crises variable demonstrates a significant relationship between the CAAR in both panel OLS regression and GMM, particularly in the context of the ANALYST COVERAGE regression, underscoring the profound influence of the financial crises (2001-2019). The ANALYST COVERAGE regression unveils intriguing insights, emphasizing the substantial impact of information dissemination during crises on M&A performance. These

results underscore the pivotal role of information and its asymmetry in shaping M&A outcomes, emphasizing the interplay between industry, crises, and information dynamics. In conclusion, the empirical evidence underscores the complex relationship between M&A performance, information asymmetry, and deal-specific variables.

### **5.3. Contribution of the Study**

This study demonstrates the significance of information in the market and its impact on post-merger performance in the context of South Africa. The research paper carries several key benefits. Firstly, it sheds light on the role of information in the market, highlighting its value in influencing investment decisions. By identifying the statistically significant relationship between the information asymmetry proxies and the M&A performance measures, this study shows the importance of information and its ability to affect the M&A's long-run performance. An understanding of how information asymmetry impacts market outcomes is observed by analysing the link between information and post-merger performance. This benefits both investors and managers. This allows managers to consider the asymmetrical information in the market after the conclusion of an M&A transaction to maximise investor sentiment in favour of the firm.

Secondly, this study contributes to the practical application of its findings in M&A deals. Management and investors must mitigate the effects of the deal-specific variables to improve the M&A performance appropriately. M&A deal specifics are primarily outside of the firm's control, such as the industry and crises; however, understanding that M&As are found in this study to be found in merger waves and an industry clustered (Harford, 2005) highlights the need to understand its competitors and utilize their judgment and timing when entering an M&A deal. M&A deal payment method (cash & mixed) variables should be utilized with the foresight of improving post-merger performance. Selecting the easiest payment method may not assist post-merger performance and reduce the firm's future performance. Evaluating and understanding the firm's size, value, and leverage will further assist in understanding and forecasting the future M&A's performance, allowing for better decision-making. Investors will benefit from understanding what variables to examine before investing in firm's post-merger.

Thirdly, the study contributes to the existing body of knowledge on mergers by empirically assessing widely recognized theories on information. Myers and Majluf's (1984) seminal work are further enhanced in this study as it is found that information asymmetry, when identified

and utilised, can yield gains in the market. Furthermore, Morkel et al. (2015) seminal work is further corroborated by this study as it reveals that higher levels of information asymmetry negatively impact merged entities. This underscores the importance of mitigating information asymmetry through effective communication and thorough examination before and after a merger, ultimately leading to improved merger performance.

Furthermore, the study contributes to the understanding of the behaviour of investors. This research highlights the behaviour of investors during periods of high information asymmetry, shedding light on the presence of irrational tendencies. Moments of high volatility after the conclusion of the M&A transaction led to share underperformance, as noted in the correlation analysis. The awareness of irrationality is crucial for both investors and managers, as it underscores the need for constant vigilance in managing and disclosing information to maximize returns for shareholders in the long run.

By understanding the impact of information asymmetry on post-merger performance in South Africa, we advance the knowledge surrounding M&As and their implications for shareholders. The findings serve as a guide for investors and managers alike, highlighting the critical role of information in decision-making processes.

#### **5.4. Recommendations for Further Research**

Further research is needed to better understand the relationship between M&A performance and information asymmetry. An analysis of cross-border mergers could allow for further investigation into the impact of cultural, legal regulations, and economic restrictions that may affect the impact of information asymmetry on M&A performance. This may provide knowledge of multinational companies and allow for a better understanding of the M&A performance of successful M&A transactions cross-border. Researching data from a developed market like the New York Stock Exchange may yield better results as this may increase the sample size. Furthermore, an analysis conducted on developed markets may demonstrate the differences between emerging and developed markets.

The long-run analysis observed in this study reveals many patterns and contributes to a comprehensive understanding of M&A performance. However, a short-run analysis of M&A transactions centred around the announcement or completion date may allow for a more comprehensive understanding. This may allow for a direct view of investor sentiment in a very

short period to understand the factors that may cause investors to behave irrationally in the early moments of an M&A transaction. Using intra-day JSE data, similar to research by May, Farrell, and Rossouw (2018), may allow for a greater view of the effects of the information proxies and M&A performance. With the advancement rate of technology, live trader tweets could be used in conjunction with information asymmetry, similar to the seminal work by Cookson and Niessner (2020). This may assist in a more detailed view of investors' sentiment at the announcement of the M&A transaction.

This study compared the results of a panel OLS regression and GMM analysis to determine to evaluate the possible link and between information asymmetry and long run M&A performance. In doing so, tests on the data for endogeneity were not conducted. This allows the possibility of the independent variable affecting dependent variables by an unknown factor (Antonakis, Bendahan, Jacquart & Lalive, 2010). This focused heavily on the information proxies and the M&A performance measures and does not consider other possible factors and effects that may influence the results. Investigating several factors that may influence the variables may allow for a more distinct analysis of information asymmetry in M&A's and allow for a more distinct understanding of changes and methods used to reduce information asymmetry and allow for a greater performance of M&A's in the long run on the JSE. Furthermore, an investigation into the influences of the variables on one another may reveal the best measures to use and possibly improve the results.

Lastly, an investigation into the effectiveness of various strategies in mitigating information asymmetry during M&A processes. Investigating the impact of enhanced communication, transparency measures, and advanced technologies in reducing information gaps could offer practical insights for firms engaged in M&A transactions. By applying primitive strategies, one may identify effective strategies to assist management in reducing information asymmetry that will effectively limit negative investor sentiment about the M&A transaction. This may be paired with an analysis of the regulatory landscape of M&As in different regions. Examining the changes in antitrust laws, disclosure requirements, or other regulatory factors and identifying factors that influence M&A activities will benefit academic literature. Understanding the legal environment's impact on deal structures and outcomes would be crucial for policymakers and practitioners.

## **5.5. Conclusion**

In conclusion, this study enriches existing literature by consolidating three viewpoints on information asymmetry and its impact on M&A performance. The first perspective suggests positive financial outcomes, highlighting improved post-merger financial performance. The second emphasizes negative consequences, while the third contends that the impact depends on contextual factors, warranting further investigation. The study underscores the challenges in mitigating information asymmetry and advocates for effective communication, due diligence, and transparency as key strategies. Analysing investor sentiment post-merger reveals a spectrum of perceptions, with positive CAAR indicating a favourable sentiment and BHAR reflecting anticipation of optimal resource utilization. Additionally, the study significantly contributes to understanding the impact of information on the JSE post-merger performance. By revealing the relationship between information asymmetry proxies and M&A performance, it underscores the pivotal role of information in shaping long-term outcomes, empowering managers to navigate information dynamics effectively.

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