Stock market reactions to merger announcements: COVID-19-induced transactions

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Abstract

Purpose – The central aim of this study was to analyse stock market reactions to merger announcements in South Africa.

Design/methodology/approach – The study identified thirteen mergers and acquisitions ($n = 13$) that took place following the COVID-19 pandemic. An event study approach was utilized for data analysis, given its relevance to the study. The event window was made up of 20 business days (-10 t $+10$).

Findings – Overall, the cumulative average abnormal returns remained positive throughout the event window, suggesting that, at an aggregate level, the markets reacted positively to merger decisions, particularly regarding mergers that received clearance from South African competition authorities. Notably, on the event day (t+0), cumulative average abnormal returns peaked at 2%, which indicates that the markets were highly efficient in absorbing information about merger decisions.

Practical implications – These observations support the semi-strong form of the efficient market hypothesis, suggesting that stock prices rapidly reflect publicly available information, including announcements related to mergers and acquisitions.

Originality/value – Firstly, research on this topic remains limited in South Africa, and the few existing studies have produced ambiguous results. Secondly, earlier research primarily focused on the period prior to the COVID-19 pandemic, before and after the 2008 financial crisis. In contrast, this proposed study concentrates on transactions induced by the COVID-19 pandemic, investigating whether such transactions have positively influenced the stock returns of either the acquiring and/or target firm's shareholders. Exploring this new context helps enrich the understanding of market efficiency and investor reactions to M&A news in emerging economies.

Keywords Stock market, Mergers and acquisitions, Covid-19, South Africa

Paper type Research article

1. Introduction

The onset of the Fourth Industrial Revolution, coupled with the unprecedented COVID-19 pandemic, has significantly affected longstanding businesses, compelling them to reformulate their traditional business models to ensure their viability (Oyeyipo, 2024). While some companies have voluntarily exited the market, others have chosen to pursue acquisitions to realize efficiency gains and improve profitability. Mergers and acquisitions play a crucial role in the growth of businesses both in South Africa and globally (Antoniadis *et al.*, 2014). Beyond the transfer of ownership and assets of the target company, these transactions often lead to enhanced efficiency in their utilization (Dymond, 2018). Companies pursue mergers and

acquisitions for various reasons, including achieving efficiency gains, expanding into new markets, broadening their product and/or service offerings, restructuring debt and in some instances, to eliminate competition (Pandey and Kumari, 2020).

While these activities can offer substantial benefits to the merging entities and their shareholders, they frequently raise public interest concerns related to job cuts and ownership (Chen *et al.*, 2019). In the context of South Africa, mergers and acquisitions often result in a decrease in ownership by historically disadvantaged individuals, which is vital for addressing past racial inequalities and promoting empowerment. Bacon and Cagigas (2022) posit that, traditionally, businesses viewed mergers and acquisitions as a strategy for rapid growth. However, in recent times, mergers and acquisitions have evolved into a strategy for survival, particularly in light of the unprecedented COVID-19 pandemic. Mergers and acquisitions not only impact the involved parties but also have significant implications for the structure, performance, and behaviour of the industries in which they occur (Farinós *et al.*, 2020). In South Africa, these implications are particularly pronounced due to the high level of market concentration present in several sectors. While market concentration may stem from a lack of new market entrants, it is predominantly driven by the acquisition of existing players (Goga, 2024).

For example, a health market inquiry conducted by the Competition Commission of South Africa (2019) revealed that over the past thirty years, the health facilities market has become so concentrated that only three hospital groups now account for nearly 90% of the entire market. This situation has largely resulted from a series of uncontested mergers and acquisitions over time. Rani *et al.* (2015) argue that, at the firm level, mergers are generally viewed positively by shareholders, as they can potentially enhance the growth and profitability of the merged entity. Although it has been previously established (see Moffett and Naserbakht, 2013; Gitau, 2013) that mergers positively influence stock returns for shareholders of both the acquiring and target firms, some research studies (e.g. Gopalaswamy *et al.*, 2008; Shah and Arora, 2014; Assefa *et al.*, 2021) have identified instances where wealth transfers occur, benefiting the shareholders of the acquiring firm at the expense of those of the target firm, and vice versa.

Against this backdrop, this study re-visits the concept of mergers and acquisitions by assessing the impact of competition dynamics on the stock market. To be precise, the proposed study scrutinizes the effect of merger announcements on the stock performance of various listed companies in South Africa. This is achieved by means of the traditional event study methodology. Firstly, research on this topic remains limited in South Africa, and the few existing studies (i.e. Ndlovu, 2017; Madume, 2023) have produced ambiguous results. Secondly, earlier research primarily focused on the period before and after the 2008 financial crisis. In contrast, this proposed study concentrates on transactions induced by the Covid-19 pandemic, investigating whether such transactions have positively influenced the stock returns of either the acquiring and/or target firm's shareholders. Exploring this new context helps enrich the understanding of market efficiency and investor reactions to M&A news in emerging economies.

The study is structured as follows: the first section introduces the study, outlining its objectives and contributions. The second section provides a background on mergers notified, and finalized by the Competition Tribunal in South Africa. The third section presents a concise discussion of the literature, encompassing both theoretical and empirical reviews. The fourth section elaborates on the empirical strategy, including the data collection process, estimation techniques and the research hypothesis. The fifth section offers a detailed discussion of the findings in line with previous studies. Finally, the last section concludes the study and discusses its implications for policy-making.

2. Background
At the global level, mergers and acquisitions have emerged as crucial strategies for corporate growth and restructuring. The urgency to pursue mergers and acquisitions has since intensified

due to the significant challenges that many companies have faced in the aftermath of the Covid-19 pandemic (Raman and Selvaraj, 2024). Competition regulators faced considerable challenges in implementing effective remedies during a severe crisis and, in accurately assessing the legitimacy of the failing firm defence. This rapid shift has led competition regulators to adopt a more rigorous approach in assessing mergers, particularly as companies attempted to invoke the failing firm defence (Kooli and Lock Son, 2021).

Locally, merger assessment has evolved swiftly through the introduction of new legal theories of harm, among others. The South African Competition Act came into effect in 1999, a move that was warmly embraced by market participants as it represented a significant effort by the democratic government to enhance market regulation in the country (Competition Commission and Competition Tribunal, 2019). This was particularly crucial in light of South Africa's dual economy, shaped by the highly concentrated markets established during the apartheid era. The primary objectives of the Act were to promote market efficiency, expand consumer choice and ultimately improve social and economic welfare (Brooks, 2001). Initially, the policy was built around three key instruments: the evaluation of horizontal practices, the scrutiny of restrictive practices and the oversight of abuse of dominance cases (Hartzenberg, 2006).

Through extensive consultations and in recognition of the nation's complex history of racial oppression and economic segregation, several amendments were made. Notably, these revisions integrated public interest considerations alongside economic efficiency, enabling the Competition Commission to account for broader societal impacts when assessing cases (van Wyk *et al.*, 2023). Since its inception, the Competition Commission has witnessed a rise in the number of notifiable mergers and acquisitions. Figure 1 below reflects the total number of merger cases notified and finalized by the Competition Commission.

South Africa experienced a notable surge in merger notifications just before the 2008 global financial crisis. However, this trend was significantly interrupted by the crisis's onset. From a business standpoint, the financial turmoil and subsequent economic downturn led to decreased profitability as aggregate demand dwindled, primarily due to falling household incomes (Naape and Masoga, 2020). This decline resulted in an increase in notified merger cases following the global financial crisis, as businesses sought mergers to remain viability, similar to the pattern observed during the Covid-19 pandemic. The trend in Figure 1 also indicates that there are minimal discrepancies between the number of merger cases notified and those
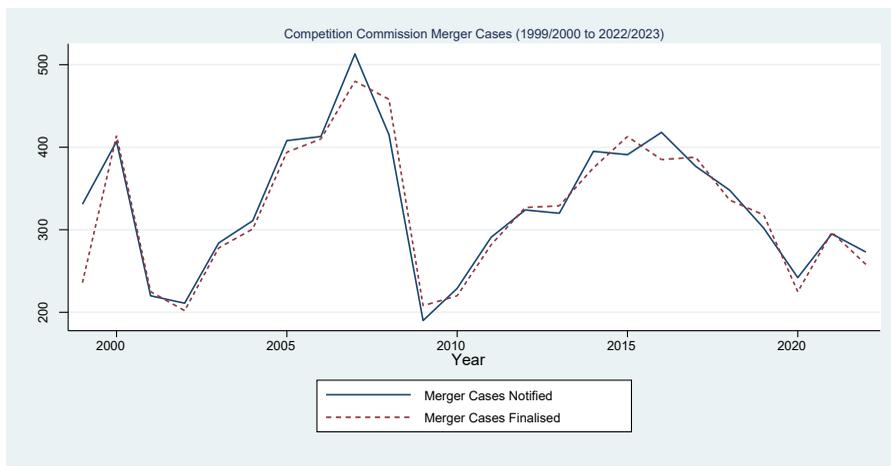

Figure 1. Competition commission merger cases (1999–2023). Source: Competition tribunal annual reports

finalized by the Competition Commission. This observation leads to a reasonable assertion that the Competition Commission has effectively managed to finalize the majority of notified merger cases.

Figure 2 below presents the total number of merger cases notified to the Competition Commission, categorized into small, intermediate, and large mergers. Observations from Figure 2 indicate that the majority of merger cases notified to the Competition Commission between 2000 and 2024 were classified as intermediate mergers, followed closely by large mergers. Additionally, the proportion of intermediate mergers has increased steadily over time in comparison to large mergers. Small mergers account for a relatively minor share of the total number of notified merger cases. For completeness, the classification of a merger depends on the value of the proposed transaction. A transaction is classified as a large merger when the combined value of the transaction exceeds R6.6 billion or when the target firm's assets or revenue surpass R190 million (South African Government, 2009). For intermediate mergers, the combined value of the transaction must exceed R600 million, or the target firm's assets or revenue must exceed R100 million.

Figure 3 below shows the total merger decisions made by the Competition Tribunal. The vast proportion of mergers approved by the Competition Tribunal was approved unconditionally and this trend has remained largely consistent over the entire period. In contrast, the number of prohibited mergers was notably high in 2004 and to a lesser extent in 2018. Additionally, there has been a steady increase in the number of conditional approvals throughout the period under review. This rise in conditional approvals correlates with the introduction of public interest conditions, some of which include measures such as moratoriums on employment, a greater spread of ownership and the establishment of employee ownership schemes (Competition Commission, 2024). What has also been a prominent feature in conditional approvals are commitments towards enterprise and supplier development.

3. Literature review
3.1 Theoretical review
3.1.1 Motives for mergers and acquisitions. The existing literature contains a number of studies that have attempted to understand the motives for firms to undertake mergers and acquisitions. To this end, Berkovitch and Narayanan (1993) reviewed the literature and found
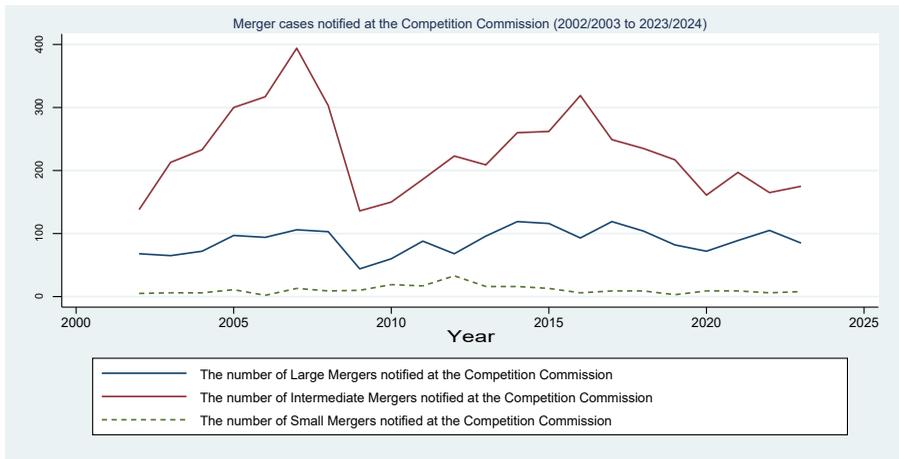

Figure 2. Number of mergers notified by size (2002–2024). Source: Competition Commission annual reports
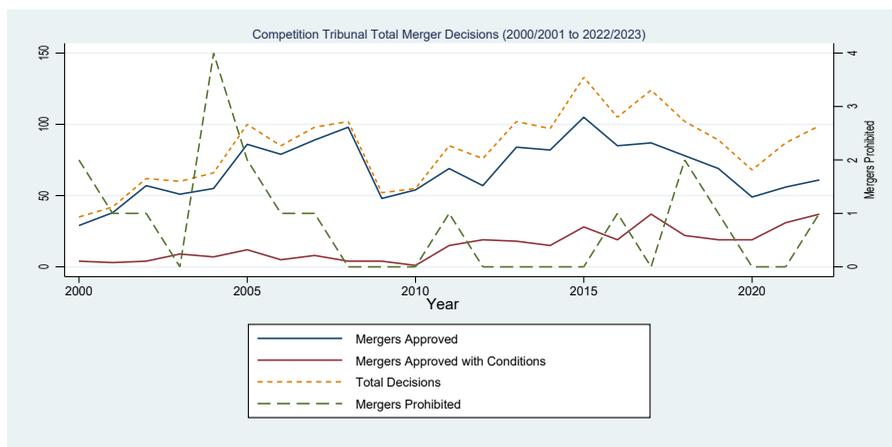
Figure 3. Competition tribunal merger decisions (2000–2023). Source: Competition Tribunal annual reports

that there are three major motives for mergers and acquisitions. The first is referred to as the synergy motive, which postulates that mergers and acquisitions occur because of the economic gains that are achieved through the merging of the resources of the two firms. In this instance, firms would want to achieve financial, operational, and managerial synergies. The second motive is termed the agency motive and postulates that mergers and acquisitions improve the management welfare of the acquiring firm at the expense of the shareholders of the acquiring firm. The third motive, coined the hubris hypothesis, postulates that managers can also make mistakes in the evaluation of target firms and may engage in mergers and acquisitions even in instances where there is no synergy.

In addition to the above merger motives, Trautwein (1990) identified additional motives for mergers and acquisitions. The first motive identified by Trautwein (1990) is referred to as the monopoly theory and postulates that mergers and acquisitions are planned and executed in order to achieve market power. Second, Trautwein (1990) argued that mergers and acquisitions are planned and executed by managers who have better information than the stock market about the value of a target firm. This motive is referred to as the valuation theory. Third, Trautwein (1990) submitted that some strategic decisions are not based on comprehensively rational choices but on outcomes of processes governed by: (1) individuals who possess limited information processing capabilities; (2) strategic decisions that are the outcome of political games played between an organization and outsiders and (3) organizational routines that prevent rational solutions to problems. This merger motive is often referred to as the process theory motive. Table 1 below provides a summary of the different motives for mergers and acquisitions.

3.1.2 Efficient market hypothesis. The event study methodology employed in this study is based on the concept known as the efficient market hypothesis. The efficient market hypothesis postulates that markets have a number of rational profit-maximizing agents who compete with each other for the purposes of trying to predict future market values of individual securities, whereby current important information is publicly available to all market participants (Fama *et al.*, 1969; Fama, 1970). Fama *et al.* (1969) submit that the efficient market hypothesis comes in three forms, that being, weak, semi-strong and strong.

The weak form suggests that the share price reflects all existing historically available information. This implies that investors are unable to make abnormal profits from investing in financial assets. The semi-strong form suggests that, in addition to the available historical information, the share price is adjusted for new information released to the public. In addition,

Table 1. Motives for mergers and acquisitions

Motive	Description	Source
Synergy motive	The main purpose is to achieve synergies in the form of financial, operational, and managerial synergies	Trautwein (1990), Berkovitch and Narayanan (1993), Goergen and Renneboog (2004)
Agency motive	Managers aim to maximise their own utility at the expense of shareholders	Shleifer and Vishny (1989), Trautwein (1990), Berkovitch and Narayanan (1993), Goergen and Renneboog (2004)
Hubris hypothesis	Occur when they are mistaken in the valuation of the target firm	Berkovitch and Narayanan (1993), Goergen and Renneboog (2004)
Monopoly theory	The purpose is to achieve market power	Trautwein (1990)
Valuation theory	The acquiring firm has better information about the value of the target firm than the stock market	Trautwein (1990)
Process theory	Merger decisions that are not based on rational choices, but on outcomes of processes governed by other circumstances	Trautwein (1990)

Source(s): Shleifer and Vishny (1989), Trautwein (1990)

the share price will change quickly and without bias to incorporate any other new public information released to the public. Lastly, the strong form suggests that the share price reflects all public and private information, and no investor is able to outperform the market on a risk-adjusted basis over the long run (Titan, 2015). Several studies have used the event study methodology in order to assess the impact of merger and acquisition announcements on the stock market. A review of some of these studies is found below. These studies are based on the efficient market hypothesis and assume that the markets in question are efficient. This implies that a merger and acquisition transaction announcement will be represented in its respective share price, as the price of an individual share in an efficient market reflects both historical events and events that the market expects will occur.

3.2 Empirical review
The existing literature contains a vast number of empirical studies undertaken in diverse international jurisdictions and contexts. These studies have assessed the impact of merger announcements on the stock market for purposes of determining the factors that influence market reactions. These studies reveal inconclusive findings on the reactions of the stock market to merger announcements. The studies reviewed are grouped thematically as follows: (1) studies that found positive or marginal market reactions to merger and acquisition announcements; and (2) studies that found insignificant or no market reactions to merger and acquisition announcements.

One such study that found positive or marginal market reactions to merger and acquisition announcements is the work of Jain and Sunderman (2014), which employed various event study methodologies and regression analysis on Bombay Stock Exchange merger announcements that took place between 1996 and 2010. The authors found evidence of informed trading and positive cumulative average returns ("CAARs") beginning before the public announcements and persisting through the sample period.

Similarly, Shah and Arora (2014) employed an event study methodology on mergers and acquisitions that took place in the Asia-Pacific region between May 2013 and September 2013. Employing multiple event windows (2, 5, 6 and 10 days before and after the announcement) the authors found that target firm stock prices generated positive and statistically significant CAARs. Pandey and Kumari (2020) examined merger and acquisition announcement effects

on the stock returns of acquiring banks in India and the United States of America using data obtained from the National Stock Exchange and Yahoo Finance. The empirical results revealed that Indian bank shares demonstrated more pronounced and lasting significant CAARs through and after the event window when compared to their USA counterparts.

Oswal and Goel (2020) applied an event study methodology to 352 merger and acquisition transactions that took place in India over the period 2003 to 2018. The study found a marginally positive abnormal return for acquiring firms on the day of the announcement, which faded by the second day. Madume (2023) investigated merger and acquisition attempts using data obtained from the Johannesburg Stock Exchange for transactions that took place between 1997 and 2020. The empirical results revealed that acquiring firms saw positive abnormal returns for a few days following a transaction announcement but experienced negative abnormal returns if the transaction attempt ultimately failed.

Sayed (2024) assessed Saudi Arabian mergers and acquisitions that took place in the banking industry using an event study methodology. The empirical results revealed immediate positive market responses to merger and acquisition announcements, which were attributed to anticipated synergies with longer-term stock price effects varying according to the relationship between initial expectations and actual outcomes.

In contrast, studies that found insignificant or no market reactions to merger and acquisition announcements include the work of Chhetri and Baral (2018). The authors analysed 15 financial institutions in Nepal over the period 2010 to 2022. The empirical results revealed that the abnormal returns for both the acquiring and target firms before the merger announcements were not significant, which suggested that there were no wealth effects in Nepal's capital markets. Ndlovu (2017) employed an event study methodology on 34 Johannesburg Stock Exchange acquisitions for the period 2003–2013. The empirical results revealed that merger and acquisition announcements did not create value for acquirer shareholders during and around the announcement period in South Africa.

Similarly, Ramphele (2024) employed an event study methodology in order to evaluate merger transactions for Johannesburg Stock Exchange-listed firms that took place over the period 2009 to 2019. The empirical results revealed that mergers and acquisitions in South Africa did not have a notable impact on stock returns. The reviewed literature presents a complex and varied picture of stock market reactions to merger and acquisition announcements. While several studies identify positive abnormal returns, often concentrated around or shortly after the announcement date, other studies reveal overall insignificant effects, which suggest considerable variability across contexts, regions and time period. Specifically, in the South African context, the findings are notably ambiguous. Further, it is also important to recognize that much of the existing literature predates the COVID-19 pandemic. In contrast, the present study focuses on post-pandemic merger and acquisition transactions, aiming to analyse whether these COVID-19-induced transactions have had a different or more pronounced effect on stock returns for acquiring and target firms. In doing so, this study seeks to enhance and update the current understanding of the topic.

3.3 The hypothesis

This section details the study's hypothesis and outlines the theoretical expectations on what is likely to happen when a merger and acquisition transaction is announced in the market. The empirical studies on stock market reactions to merger and acquisition announcements reveal ambiguous results with no clear and concise conclusion on whether merger and acquisition announcements have an effect on stock prices. Further, the efficient market hypothesis suggests that in an efficient financial market, a merger and acquisition announcement will be immediately incorporated into stock prices. Therefore, this study assumes that the Johannesburg Stock Exchange is an efficient financial market. This implies that an announcement of a merger and acquisition transaction will be quickly absorbed into firm

stock prices, thereby yielding no abnormal returns around the announcement period. Given this, the study formulated the following hypotheses:

H_0 (Null Hypothesis)

Merger and acquisition announcements have no significant impact on stock prices on the event day, pre-merger and the post-merger period. This value will be measured by the CAAR, implying that merger and acquisition announcements yield zero abnormal returns (CAAR = 0). Further, if they do yield abnormal returns higher than zero, the abnormal returns will not be significant.

H_1 (Alternative Hypothesis)

Merger and acquisition announcements have a significant impact on the stock prices on the event day, the pre-merger and post-merger period. This value will also be measured by the CAAR. This alternative hypothesis suggests that merger and acquisition announcements will have an impact on stock prices and the abnormal returns are significant (CAAR ≠ 0).

The study's hypothesis can be summarized as follows:

$$H_o: \text{CAAR} = 0 \, (\text{abnormal returns do not exist})$$

$$H_1: \text{CAAR} \neq 0 \, (\text{abnormal returns exist})$$

Whereby H_o represents the null hypothesis and H_1 represents the alternative hypothesis. The study opted to employ a two-sided hypothesis test given that prior studies reported mixed results, that being, positive and significant CAARs, while other studies revealed negative or insignificant CAARs. The authors are of the view that the two-sided test is appropriate as the nature of the two-sided test allows for the detection of potential effects in either direction and will capture the differences in either direction (Moyé and Tita, 2002).

4. Empirical strategy

The primary goal of this study is to analyse the reactions of the stock market to merger announcements in South Africa. To achieve this, the study employed an event study methodology on thirteen (13) major mergers and acquisitions that occurred between 2020 and 2024. This time period was selected given that the aim of this study is to investigate whether transactions induced by the Covid-19 pandemic positively influence the stock returns of either acquiring and/or target firms. An event study analysis requires that the event, the date of the event, the event window, the window estimation, and the estimation model be determined (Pandey and Kumari, 2020). The events in this instance are the announcements of mergers and acquisitions, whereas the event dates are the dates of the announcements. Table 2 below reflects the event dates, merging parties and case numbers.

As reflected above, the study evaluated a total of thirteen (13) announcements (events) that involve ten (13) different dates (event dates). Additionally, each event window is made up of 20 days from −10 to +10 business days. In addition, to enhance the reliability of the empirical results, this study incorporated additional robustness checks by including shorter (−5 to +5) event windows. Daily stock price data was collected for each transaction from reliable data sources. In addition to the above, this study employed the market model in order to estimate the abnormal returns. Abnormal returns are estimated by subtracting the expected return from the actual return on the stock market (Pandey and Kumari, 2020). To this end, we estimated the abnormal returns for each day of the event window. The formula below is used to estimate the abnormal returns:

$$AR_{Ft} = R_{Ft} - ER_{Ft} \tag{1}$$

Where AR_{Ft} represents the abnormal return on the firm's stock F on day t. R_{Ft} represents the actual return on the firm's stock F on day t. Whereas ER_{Ft} represents the expected return on the

Table 2. Sample selection

Case no.	Acquiring firm	Target firm	Industry	Announcement date
LM011Apr24	Sanlam Life Insurance Ltd	Assupol Holdings Ltd	Insurance	2024-08-22
LM071Sep21	Shoprite Supermarkets (Pty) Ltd	Massmart Holdings Ltd	Retail	2022-12-09
LM051Jul23	Afrimat Ltd	Lafarge South Africa Holdings	Construction	2024-04-10
LM151Dec23	Sea Harvest Group Ltd	Terrasan Beleggings (Pty) Ltd	Fishing and Abalone	2024-05-09
LM156Dec21	Impala Platinum Holdings Ltd	Royal Bafokeng Platinum Ltd	Mining and Manufacture of non-ferrous metals	2022-11-16
LM089Oct21	Firstrand Bank Ltd	Kulula Air	Financial Institutions	2021-12-06
LM172Jan23	Clicks Investment	Sorbet Holdings	Beauty and Personal Care	2023-06-01
LM135Dec21	A.P Moller-Maersk S/A	Senator International	Sea and Coastal passenger water transport	2022-03-02
LM073Sep21	Standard Bank Group Ltd	Liberty Holdings Ltd	Financial and insurance activities	2021-12-09
LM175Jan23	Santam Ltd	MTN Portfolio	Insurance	2023-03-13
LM059Aug21	Sanlam Life Insurance Ltd*	Alexander Forbes	Insurance	2021-10-26
LM045Jun24	Redefine Properties Ltd	Setso Property Fund (Pty) Ltd	Real Estate	2024-07-30
LM136Dec21	Sunside Acquisitions (Pty) Ltd	Namibian Breweries Investment	Alcoholic Beverages	2023-03-08

Source(s): Authors' computations using competition tribunal website

firm's stock F on day t. Furthermore, in order to estimate the actual return of a security, we subtracted the previous day's security price from the price as on the day of calculation and then divided the difference by the previous day. In addition, to calculate R_{Ft}, this study employed the formula below:

$$R_{Ft} = \frac{P_{Ft} - P_{Ft-1}}{P_{Ft-1}} \times 100 \tag{2}$$

Where P_{Ft} represents the price of the firm's stock F on day t and P_{Ft-1} represents the price of the firm's stock F before day t. Further, the expected return on the firm's stock F, ER_{Ft} is estimated using the following formula:

$$ER_{Ft} = \alpha + \beta_j(R_{mt} - \alpha) \tag{3}$$

Where α and β_j represent the intercept and slope of the regression model, respectively. R_{mt} represents the rate of return on the Johannesburg Stock Exchange on day t. After the abnormal returns for each day in the event period have been estimated, the average abnormal returns of the sample are estimated by dividing the aggregated abnormal returns by the sample size. Using this approach, the average abnormal returns ("AARs") for the firm's stock F are estimated using the formula found below:

$$AAR_{Fk} = \frac{1}{N} \sum_{F=1}^{K} AR_{Ft} \tag{4a}$$

Where AAR_{Fk} represents the average abnormal return for the firm's stock F for the period K whereas N represents the sample size. Subsequent to estimating the AARs, this study will also estimate the cumulative average abnormal returns ("CAARs") using the following formula:

$$CAAR_{Fk_1,k_2} = \sum_{k=k_2}^{k_2} AR_{Ft} \tag{4b}$$

Where k_1, k_2 represent the period of the event window.

Following the estimation of both AARs and CAARs for the event period, this study tested significance. With regard to the AARs, the t-statistics t_{AAR} was employed. This was achieved by dividing the AARs by the standard deviation of the aggregate estimation period of the daily abnormal returns (Pandey and Kumari, 2020). Regarding the CAARs, this study employed the t-statistics t_{CAAR} which is estimated by dividing the CAARs with the product of the aggregate estimation period standard deviation of the daily abnormal returns and the square root of the absolute value of the event day plus 1. To this end, the formula below is employed to estimate the standard deviation of the estimation period of daily abnormal returns.

$$\sigma_{j,est} = \sqrt{\frac{\sum_{-90}^{-31}(AR_{Ft} - AAR_{est})^2}{n}} \tag{5}$$

Where $\sigma_{j,est}$ represents the estimation period standard deviation of the daily abnormal returns and AAR_{est} represents the average abnormal return on the firm's stock F for the estimation period. Further, n represents the number of days in the estimation period. Furthermore, the standard deviation of the aggregate estimation period standard deviation, $\sigma_{j,est}$ can be derived using the following formula:

$$\sigma_{N,est} = \sqrt{\frac{\sum_{i=1}^{N} \sigma_{i,est}^2}{N^2}} \tag{6}$$

Lastly, the t-statistics for AARs and CAARs can be estimated using the following formulas:

$$t_{AAR} = \frac{AAR_t}{\sigma_{N,est}} \tag{7}$$

$$t_{CAAR} = \frac{CAAR_t}{\sigma_{N,est}\sqrt{N_{t+1}}} \tag{8}$$

Where N_{t+1} represents the absolute value of event day t plus 1. The above test statistics were used to assess the study's null hypothesis, which is that abnormal returns on and around the announcement dates are less than or equal to zero. If the AARs are positive and significant, this suggests that the stock market responded positively. Furthermore, if the t-test statistic is greater than the critical values, this suggests that the average abnormal return is statistically significant.

5. Findings and discussions

This section provides a comprehensive analysis of the findings derived from the event study. Table 3 summarizes the descriptive statistics of the individual companies on the announcement day. This includes the share price, trading volume (Vol), actual returns (R), abnormal returns (AbR) and cumulative abnormal returns (CAR). Notably, actual returns for several companies, including Afrimat, Click Investment and A.P. Moller-Maersk S/A, were positive on the announcement day. Similarly, the abnormal returns for these companies were also positive on the announcement day. In stark contrast, Sanlam Insurance, Shoprite Holdings and Impala Platinum experienced negative actual and abnormal returns over the same timeframe.

Observations from Table 3 further reveal that the cumulative abnormal returns for most entities, with the exception of Shoprite Holdings and Impala Platinum, were positive on the announcement day. This suggests that their stock prices reacted favourably to the event. van Langh (2022) likewise found evidence of positive abnormal returns around the announcement day of mergers and acquisitions in the US retail industry. Among the companies listed in Table 3, Sanlam Life recorded the highest cumulative abnormal returns, followed by Sea Harvest, Santam Ltd, and A.P Moller-Maersk S/A. In contrast, Clicks Investment and Sunside Acquisitions displayed the lowest values in cumulative abnormal returns.

Table 4 below outlines the cumulative abnormal returns for each company over a 20-day period (-10 t $+10$). During this timeframe, Shoprite experienced an average cumulative abnormal return contraction of 6.1%, reflecting a negative market reaction to the event. Conversely, Sanlam's average cumulative abnormal returns were at 3.1%, with Maersk at 0.8%, Sea Harvest at 0.9%, and Afrimat at 1.4%. Notably, Impala achieved the highest average cumulative abnormal returns for the period, amounting to 4.5%. Two key insights can be drawn from these observations. First, they indicate that the markets were highly efficient in absorbing information during the 20-day period. Second, they demonstrate that the stock prices of both Impala and Sanlam Life responded positively to the merger decisions.

Table 3. Descriptive statistics

Acquiring firm	Event day	Price	Open	High	Low	Vol	R	AbR	CAR
Sanlam Insurance Ltd	2024/08/22	8.405	8.4	8.614	8.375	2.95 M	−0.51%	−0.61%	1.11%
Shoprite Holdings Ltd	2022/12/09	23.8	24.8	24.8	23.621	2.19 M	−3.34%	−3.46%	−3.30%
Afrimat Ltd	2024/04/10	6	5.765	6.003	5.76	293.78 K	3.54%	3.77%	4.19%
Sea Harvest Ltd	2024/05/09	785	785	785	785	79.22 K	0.00%	0.20%	3.77%
Impala Platinum Holdings	2022/11/16	19.75	20.4	20.748	19.617	3.00 M	−3.25%	−3.65%	−4.07%
Firstrand Bank Ltd	2021/12/06	5.699	5.6	5.716	5.592	11.56 M	1.73%	1.73%	4.33%
Clicks Investment	2023/06/01	23.95	23.304	24.075	23.304	2.11 M	2.13%	2.50%	1.17%
A.P Moller-Maersk S/A	2022/03/02	20.592	19.582	20.813	19.283	37.73 K	3.73%	4.04%	1.35%
Standard Bank Group Ltd	2021/12/09	13.511	13.5	13.66	13.415	2.26 M	0.08%	0.12%	0.62%
Santam Ltd	2023/03/13	27.94	28.284	28.469	27.339	132.42 K	−1.31%	−1.54%	0.35%
Sanlam Insurance Ltd*	2021/10/26	6.252	6.212	6.288	6.186	3.28 M	0.22%	0.12%	0.67%
Redefine Properties Ltd	2024/07/30	415	415	421	412	6.26 M	−0.48%	−0.71%	0.98%
Sunside Acquisitions Ltd	2023/03/08	82.25	82.00	82.50	81.75	133.29 K	0.86%	0.55%	0.17%

Source(s): Authors' computations

Table 4. Individual company cumulative abnormal returns over a 20-day period

Day (t)	Shoprite	Sanlam	Maersk	Sea harvest	Afrimat	Impala
−10	0.4%	5.5%	1.1%	1.7%	1.6%	8.8%
−9	0.0%	2.7%	1.7%	0.9%	−1.2%	−1.4%
−8	−0.6%	2.3%	−1.0%	1.0%	2.4%	11.2%
−7	0.9%	4.5%	−1.8%	−3.2%	0.0%	4.7%
−6	−4.7%	4.6%	2.0%	2.1%	0.0%	2.8%
−5	0.4%	4.5%	−2.1%	4.4%	0.8%	4.0%
−4	1.1%	4.1%	−3.6%	−0.1%	3.9%	6.7%
−3	2.3%	3.1%	3.7%	1.0%	−6.9%	3.0%
−2	−0.6%	1.4%	−1.3%	2.3%	3.8%	2.6%
−1	−0.1%	3.0%	−1.0%	−0.8%	1.7%	5.0%
0	−3.3%	2.1%	4.6%	1.0%	7.5%	0.7%
1	0.5%	4.6%	2.8%	2.6%	9.3%	4.4%
2	0.1%	2.6%	−2.2%	−0.5%	5.9%	4.1%
3	−0.3%	2.2%	−4.1%	2.7%	0.1%	2.6%
4	−2.8%	3.9%	−2.4%	1.0%	−3.4%	4.5%
5	2.4%	5.8%	6.3%	0.9%	0.8%	7.1%
6	−0.1%	2.4%	0.9%	−1.7%	0.1%	4.3%
7	0.3%	−0.8%	6.2%	0.8%	1.1%	2.6%
8	−0.6%	1.8%	7.1%	1.0%	1.2%	5.1%
9	0.2%	2.4%	2.1%	1.0%	0.7%	3.2%
10	−1.5%	3.3%	−3.3%	1.3%	0.5%	8.0%
Average	−6.1%	3.1%	0.8%	0.9%	1.4%	4.5%

Source(s): Authors' computations

An intriguing finding is that on the event date (t+0), the cumulative abnormal returns for Shoprite Holdings declined sharply by 3.3%. In contrast, the cumulative abnormal returns for Maersk and Afrimat were notably significant, standing at 4.6% and 7.5%, respectively. This suggests that their stock prices reacted positively to the event. Impala and Sea Harvest recorded moderate cumulative abnormal returns of 0.7% and 1%, respectively. A similar trend was observed on day t+1, where all entities reported positive cumulative abnormal returns. However, these gains were somewhat short-lived by day t+2. These findings align with the research conducted by Gopalaswamy *et al*. (2008), which showed that acquiring companies typically experience higher returns during the announcement period, although there is a downward trend in cumulative returns in the period following the merger. The study by Shah and Arora (2014) also revealed evidence of positive cumulative abnormal returns on the event day.

Table 5 below outlines the cumulative abnormal returns for additional companies over a 20-day period (−10 t +10). Several companies, including Clicks, Redefine and Sanlam, experienced negative average cumulative abnormal returns during this 20-day period, indicating that, on average, the market reacted unfavourably to the events. In contrast, Standard Bank Group, FirstRand, Sunside and Santam achieved positive abnormal returns throughout the entire period, demonstrating that the market responded positively to the merger decisions communicated by the authorities.

On the event day (t+0), the market exhibited varying responses to different events. For example, decisions related to Standard Bank, FirstRand, Clicks, and Sunside Acquisitions received a positive market reaction, while the decisions concerning Redefine, Sanlam and Santam were met with unfavourable responses. A similar trend was noted by Pandey and Kumari (2020), who discovered that while different markets respond distinctively, such news influences stock price reactions by generating abnormal returns around the announcement date. Barasa (2015) also identified varying responses. He found that in some cases, share prices

Table 5. Individual company cumulative abnormal returns over a 20-day period

Day (t)	Standard bank	Clicks	FirstRand	Sunside	Redefine	Sanlam*	Santam
−10	3.5%	−4.0%	3.0%	3.5%	−1.4%	−0.9%	1.6%
−9	−5.5%	−1.3%	1.1%	0.5%	−1.6%	−1.8%	3.2%
−8	6.7%	−2.2%	−0.5%	1.2%	−3.5%	−1.2%	3.2%
−7	2.3%	−2.2%	2.2%	0.3%	−0.9%	−1.0%	−1.4%
−6	3.4%	−0.9%	−5.5%	1.5%	−0.5%	1.6%	1.5%
−5	2.3%	−3.3%	4.1%	1.4%	1.0%	0.1%	2.7%
−4	2.0%	−1.7%	2.5%	3.6%	−2.6%	−0.6%	−0.9%
−3	3.6%	−1.8%	4.4%	1.1%	−0.7%	−2.2%	0.4%
−2	1.8%	−4.6%	1.2%	0.8%	−2.6%	0.4%	0.8%
−1	1.8%	−1.6%	1.3%	1.0%	0.5%	0.8%	0.3%
0	1.9%	0.5%	3.2%	2.3%	−1.4%	−0.3%	−0.7%
1	0.5%	−0.5%	2.5%	2.0%	1.7%	−0.4%	−2.5%
2	0.8%	0.7%	1.5%	0.7%	0.9%	−0.3%	−3.9%
3	1.7%	−1.1%	1.4%	−0.6%	−2.8%	−0.6%	1.6%
4	3.2%	−0.2%	−0.7%	2.3%	−2.3%	0.1%	1.2%
5	2.1%	−1.5%	0.1%	0.3%	−0.9%	0.2%	2.0%
6	−0.9%	1.3%	2.1%	4.0%	1.4%	−0.8%	−1.4%
7	3.0%	−2.8%	4.0%	−0.7%	0.7%	−1.1%	1.2%
8	3.3%	0.5%	3.4%	1.8%	−2.3%	−2.3%	−1.1%
9	3.2%	−1.6%	−0.8%	2.3%	−0.5%	−1.2%	2.4%
10	2.1%	0.7%	3.1%	2.8%	0.9%	−2.1%	3.8%
Average	2%	−1.3%	1.6%	1.5%	−0.8%	−0.6%	0.7%

Source(s): Authors' computations

declined, while in others, they increased substantially. Figure 4 presents the cumulative average abnormal returns for all the stocks.

For the majority of the observed period, with the notable exception of day t−9, the cumulative average abnormal returns showed positive values. In particular, on the event day (t+0), the cumulative average abnormal returns peaked at 2%, whereas the lowest value recorded was −0.21 on t−9. These observations carry several positive implications. Firstly, it indicates that the markets and corresponding stock prices can be considered highly efficient, as the information regarding merger decisions was absorbed by the market with little to no delay. Additionally, the days leading up to the decisions reflected a generally positive market
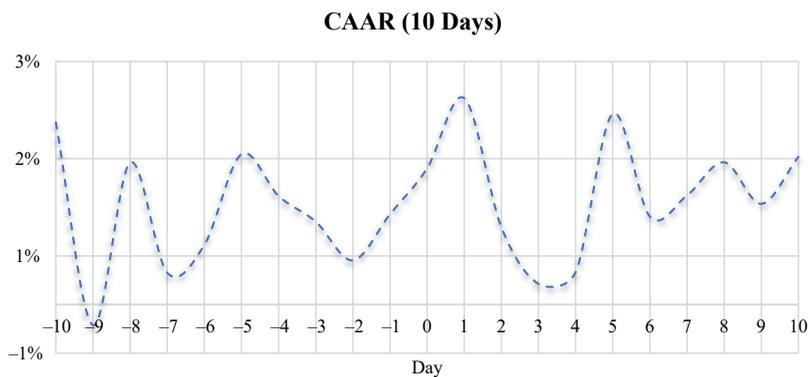

CAAR (10 Days)

Figure 4. Cumulative average abnormal returns (10 days). Source: Authors' computations

sentiment. Secondly, the market's response to the respective merger decisions was predominantly favourable, suggesting that the news, specifically about the decisions, was well received.

It is important to note that there may be some bias in this analysis, as the merger decisions selected for this study were either approved unconditionally or subject to conditions. The findings might be different had prohibited mergers been included in the sample. Nevertheless, our findings are consistent with those of Pandey and Kumari (2020), who demonstrated that cumulative average abnormal returns in the Indian stock market were quite significant on most days within the designated event window period, continuing into the post-event window as well. In a more recent study, Marisetty and Koluru (2024) also found that stock prices tend to fluctuate, reaching a peak on the announcement day, and gradually declining as the market processes the information and makes adjustments. This observation supports the semi-strong form of the Efficient Market Hypothesis, suggesting that stock prices rapidly reflect publicly available information, including announcements related to mergers and acquisitions.

5.1 Robustness checks

To enhance the reliability of our findings, we implemented several additional robustness checks. In an event study approach, these checks can be performed by changing the length of the event window, utilising either shorter (-1 t $+1$) and/or longer periods (-30 t $+30$). In this instance, we opted to include shorter periods (-5 t $+5$), and the findings are detailed in Table 6. Over the ten-day timeframe, Shoprite experienced an average cumulative abnormal return contraction of 0.1%, indicating a negative market reaction to the event. During the longer event window (-5 t $+5$), Shoprite recorded a contraction of 3.3% on the event day (t+0), consistent with the 3.3% contraction observed over the shorter event window (-1 t $+1$). This consistency underscores the robustness of the results across different timeframes. In contrast, Impala exhibited a similar stock market reaction on the event day (t+0), with a contraction of 4.1%. Conversely, the stock prices of Sanlam, Maersk, Afrimat and Sea Harvest responded positively to the merger decisions on the event day (t+0), although Maersk's gains were relatively short-lived.

Table 7 below summarizes the cumulative abnormal returns for several companies over a 10-day period (-5 t $+5$). The results indicate that the cumulative abnormal returns observed during the shorter time frame (-5 t $+5$) align with those recorded over the longer period (-10 t $+10$). Notably, all companies, including Standard Bank, Clicks, FirstRand, Sunside, Redefine,

Table 6. Individual company cumulative abnormal returns over a 10-day period

| Day (t)	Shoprite	Sanlam	Maersk	Sea harvest	Afrimat	Impala
-5	0.3%	3.5%	-5.4%	7.1%	0.8%	-0.8%
-4	1.1%	3.1%	-6.9%	2.6%	2.4%	1.9%
-3	2.2%	2.1%	0.4%	3.8%	-3.0%	-1.8%
-2	-0.7%	0.4%	-4.6%	5.0%	2.3%	-2.2%
-1	-0.1%	2.0%	-4.2%	1.9%	1.3%	0.2%
0	-3.3%	1.1%	1.3%	3.8%	4.2%	-4.1%
1	0.5%	3.6%	-0.4%	5.3%	5.1%	-0.4%
2	0.1%	1.6%	-5.5%	2.3%	3.4%	-0.7%
3	-0.4%	1.2%	-7.4%	5.4%	0.5%	-2.2%
4	-2.8%	2.9%	-5.6%	3.8%	-1.3%	-0.3%
5	2.3%	4.8%	3.0%	3.6%	0.8%	2.3%
Average	-0.1%	2.4%	-3.2%	4.1%	1.5%	-0.7%

Source(s): Authors' computations

Table 7. Individual company cumulative abnormal returns over a 10-day period

Day (t)	Standard bank	Clicks	FirstRand	Sunside	Redefine	Sanlam*	Santam
−5	1.0%	−2.7%	5.2%	−0.7%	3.4%	1.1%	3.8%
−4	0.8%	−1.1%	3.6%	1.5%	−0.2%	0.4%	0.2%
−3	2.3%	−1.1%	5.5%	−1.0%	1.7%	−1.2%	1.5%
−2	0.5%	−3.9%	2.3%	−1.3%	−0.2%	1.4%	1.9%
−1	0.5%	−0.9%	2.4%	−1.1%	2.9%	1.8%	1.4%
0	0.6%	1.2%	4.3%	0.2%	1.0%	0.7%	0.4%
1	−0.7%	0.2%	3.6%	−0.1%	4.1%	0.6%	−1.5%
2	−0.5%	1.3%	2.6%	−1.4%	3.3%	0.7%	−2.8%
3	0.4%	−0.5%	2.5%	−2.7%	−0.4%	0.3%	2.7%
4	2.0%	0.4%	0.4%	0.2%	0.0%	1.1%	2.2%
5	0.8%	−0.8%	1.2%	−1.8%	1.5%	1.2%	3.1%
Average	0.7%	−0.7%	3.1%	−0.8%	1.6%	0.7%	1.2%

Source(s): Authors' computations

Sanlam and Santam experienced positive cumulative abnormal returns on the event day (t+0), signifying a favourable market response to the acquisitions. However, the cumulative abnormal returns for certain companies, including Standard Bank, Sunside and Santam, proved to be short-lived. On average, all companies recorded positive cumulative abnormal returns over the shorter period, with the exceptions of Clicks and Sunside.

Figure 5 depicts the trend in cumulative average abnormal returns for all stocks over the 10-day event window. Throughout the entire event window (−5 t +5), the cumulative average abnormal returns exhibited positive gains, indicating that the South African stock market reacted favourably to the decisions made by competition authorities as they relate to mergers and acquisitions. Notably, on the event day (t+0), the cumulative average abnormal returns gained momentum, peaking at 1.5% the following day (t+1). This trend mirrors the findings presented in Figure 5 over a longer event window (−10 to +10), highlighting the robustness of these results. Furthermore, these observations suggest that the South African stock market is highly efficient in absorbing information. Additionally, the days leading up to these decisions reflected a generally positive market sentiment.

CAAR (5 Days)
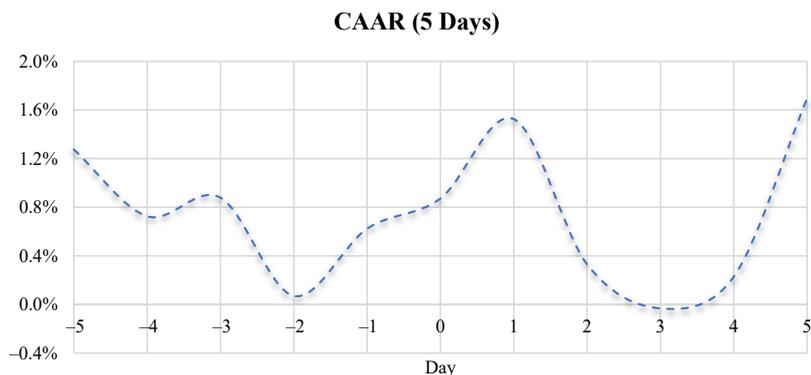
Figure 5. Cumulative average abnormal returns (5 days). Source: Authors' computations

6. Conclusion

The primary objective of this study was to examine stock market responses to merger decisions made by South African competition authorities. The sample consisted of thirteen significant mergers and acquisitions that took place in the aftermath of the COVID-19 pandemic, specifically focusing on decisions made between 2020 and 2025. The data was analysed using an event study approach, which is particularly relevant to the study's objectives. Various elements of the event study methodology were taken into account, including abnormal returns, cumulative abnormal returns, and cumulative average abnormal returns. Overall, the cumulative average abnormal returns exhibited positive trends throughout the event window, suggesting that, at an aggregate level, the markets reacted favourably to the merger decisions, especially for those mergers that received approval from South African competition authorities.

Notably, on the event day (t+0), cumulative average abnormal returns peaked at 2%, indicating that the markets were highly efficient as information regarding the merger decisions was incorporated swiftly and with minimal delay. These observations support the semi-strong form of the Efficient Market Hypothesis, suggesting that stock prices rapidly reflect publicly available information, including announcements related to mergers and acquisitions. It is important to highlight that the current study is based on a sample size of merely 13 M&A events, which significantly limits the generalizability of the findings. As such, policy-makers should be cautious in applying a one-size-fits-all strategy to all M&As. Future research studies could benefit from employing different methodologies, increasing the sample size and extending the time frames.

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