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Article

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The influence of corporate financial events on selected JSE-listed companies

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Abstract: In South Africa, corporate finance events receive extensive coverage in the media. However, there are only a few studies examining the behaviour of share prices in response to such events. Using the event study methodology commonly used in corporate finance research, the reaction of a sample of large- and small-cap stocks to selected corporate finance events (such as dividend and earnings announcements, stock splits and accounting policy changes) was analysed. Results show that there is a rapid stock price adjustment immediately post-announcement, but the time taken varies depending on the nature of the event and company size. This may have profound implications on discretionary portfolio management: fund managers should find it beneficial from a diversification standpoint. Exiting from heavy concentrations in large-cap stocks and diversifying into smaller cap stocks could offer the stability of portfolio returns against adverse events like Steinhoff's accounting fraud.

Subjects: Statistics for Business, Finance & Economics; Corporate Finance; South Africa

Keywords: total/free-float; market capitalisation; corporate finance events; semi-strong EMH; size anomaly

JEL classification: G3; G14

1. Introduction

In South Africa, corporate finance events receive extensive media coverage. However, studies examining the behaviour of share prices in response to such events are very few. While investors operate within a framework dominated by ratios and financial statements, to the extent that they cannot predict the future, a part of their decision-making framework is founded on perception. This

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PUBLIC INTEREST STATEMENT

Large corporations can no longer have corporate scandals without it going unnoticed. Due to globalisation and the speed that information travels at, the slightest event will receive extensive media coverage. After a corporate scandal, the share price of a company can plummet affecting the profitability of a firm. Usually, the extent of the drop in a share price will depend on the nature and the size of a company. Such a large fall in share price can have profound implications on discretionary portfolio management, challenging portfolio fund managers from a diversification standpoint. Exiting from heavy concentrations in large-cap stocks and diversifying into smaller cap stocks could offer the stability of portfolio returns against adverse corporate finance scandal events.

perception is a function of the disposable, available information (Sharma & Chander, 2009, p.120). Exchange-listed companies are usually compelled by legislation to make such information publicly available to lend external efficiency to the market (Barnes, 2016). Section 14 of the Financial Markets Act (19 of 2012) in South Africa is an example of such legislation.

A well-functioning stock market should be externally efficient (Goodspeed, 2017, p.65). This implies that stock prices adjust rapidly to new information, ensuring that current market prices are fair (i.e. reflect all the publicly available information about a stock) (Marx, Mpofu, de Beer, & Nortje, 2013, p.54). This important branch of market theory is known as the efficient market hypothesis, proposed by Fama (1965) to explain the behaviour of stock prices. Of its three forms, the semi-strong form of efficient markets has received most attention in the literature. In a study observing the impact of dividend announcements on share prices of a sample of shares, Onoh (2016, p.30) sought to test the semi-strong form of efficient markets. In a similar study, Khurana and Warne (2016, p.254) found evidence of the semi-strong form of market efficiency from the share price reaction of 34 Indian companies to bonus announcements.

Under the assumption of semi-strong efficient markets, announcements of changes in corporate finance amidst economic uncertainty are signals delivered by the management of a company. These influence investors' perceptions as vicariously reflected in rapid adjustments in stock prices. While there is substantial empirical evidence in support of the efficient market hypothesis, its validity remains questionable (Malkiel, 2003, p.70). The dynamism of financial markets has an influence on the relevance of the efficient market hypothesis and thus efficiency research is important (Hamid, Suleman, Ali Shah, Akash, & Shahid, 2017, p.130)

A significant factor to recognise when considering the external efficiency of the stock market is company size, as measured in stock markets by a metric of total/free-float market capitalisation. In South Africa, the top five companies listed on the Johannesburg Stock Exchange All Share Index (JSE ALSI) make up slightly more than 40% of the free-float market capitalisation. This is disproportionately high in relation to other prominent share indices like the Nikkei 225 (22.2%) and the S&P 500 (12.4%). This is suggestive of a large-cap bias in the domestic stock market, which avails opportunities to make abnormal stock returns on some mid-cap and most small-cap stocks. This is because such stocks are largely overlooked by most market participants. Of the 1584 unit trusts listed by the Association for Savings and Investments, only 10 focus on small- and mid-cap shares (Zaidy, 2018). Corporate announcements and actions may thus not elicit the anticipated share price adjustment under the assumption of a semi-strong efficient share market. The remainder of this paper proceeds as follows. Section 2 elaborates on the efficient market hypothesis and the various corporate event types. Section 3 defines the methodology used for this study, while Section 4 represents the results. Section 5 concludes and make recommendations for future research studies.

2. Efficient market hypothesis

Capital markets, which include the equity market, are efficient when security prices adjust fully to reflect all the available and relevant information of component securities (Malkiel & Fama, 1970, p.395). This hypothesis was initially posited by Fama (1965, p.61) who endeavoured to provide intuitive explanations for the security price behaviour. Under this premise, investors are unable to outperform the market as they all have access to the same information. Because at any one time there are many buyers and sellers in the market, price movements occur efficiently and timeously. This implies that securities trade at the fair market value. It is thus impossible to buy undervalued securities or sell overvalued securities to extract additional profits from the market. Furthermore, returns on the security based on the prevailing market price are consistent with the level of risk underlying the security (Titan, 2015, p.447).

Malkiel and Fama (1970, p.400) acknowledge that markets are not perfectly efficient and thus identify three forms of the efficient market hypothesis (EMH). These forms of EMH are summarised in Table 1.

Table 1. Forms of the efficient market hypothesis

Form of EMH	Assumption	Examples of information
Weak	Prices reflect all past returns and any other security market information.	Historical sequence of prices Rates of return Trading volumes
Semi-Strong	Prices adjust rapidly to the release of all public information (Encompasses the weak form)	Earnings and dividend announcements Stock splits Other corporate actions, e.g. Accounting policy changes, IPOs, new listings News about the economy and political events
Strong	Security prices reflect all information from public and private sources	All the above

Source: Reilly and Brown (2015, p.80)

The literature on stock splits, dividend and earnings announcements as well as changes in accounting policy is discussed below. In attempting to understand the response of large-cap stocks in relation to small-cap stocks, the literature on the size anomaly is also discussed. Should there be a difference between how small- and large-cap shares react to corporate announcement and events, this anomaly may offer some intuition.

2.1. The size anomaly

The relationship between the total/free-float market capitalisation of a company and its risk-adjusted returns has been the subject of much interest in finance literature. The earliest documented study empirically examining this relationship was that of Banz (1981, p.16) who observed the relationship between New York Stock Exchange (NYSE) common stocks and their market values even when their riskiness is equal. Fama and French (1996, p.70) came to a similar finding in a cross-sectional study on expected returns. There are numerous explanations for this phenomenon.

The most important explanation was that of Roll (1981, p.882) who suggested that the riskiness of small firms was improperly measured due to the relative infrequency of trading by investors in such shares. When markets are inefficient, abnormal returns may accrue to investors. The reason small firm shares were relatively under traded was because the information about such small firms was largely inaccessible in relation to that of larger firms (Barry & Brown, 1984, p.291). Information and knowledge sharing have since evolved facilitated by broadened access to the Internet. Therefore, a more realistic assumption to explain why small firms outperform larger companies is the phase within the business cycle (Switzer, 2010, p. 340). During expansion which makes investors optimistic about the growth opportunities for small firms or investors' bias towards price rather than value. This suggests that the size anomaly is a long run phenomenon.

2.2. Corporate finance events and announcements

2.2.1. Share splits

Maloney and Mulherin (1992, p.52) defined a stock split as no more than an accounting change which leaves investors no better or worse off than they had been prior to the split. They are used by management to improve the liquidity of the company by lowering the price of the share and in so doing attracting demand. An example of a share split would be when Investec Ltd announced a 5:1 share split on 4 September 2006 which resulted in existing shareholders receiving five shares for every one share they held (Investec, 2007, p.70). High growth companies tend to undergo more share splits than slow-growing companies (Goodspeed, 2017). The impact of share split on the behaviour of share prices has been a conundrum for finance theorists (Baker & Powell, 1993)

The first study of this nature was performed by Dolley (1933, p.64) who endeavoured to examine the price effects of stock splits by analysing price changes in the stock at the time of the split.

Using a sample of 95 share splits, Dolley found that the price rose in 57 of the cases while in 26 cases the price declined. Following improvements over the period 1930–1960 including removing general stock price movements and isolating confounding events, the level of sophistication in these studies rose dramatically (Mackinlay, 1997, p.30).

The seminal study performed by Fama, Fisher, Jensen, and Roll (1969, p.19), referred to as the FFJR, and posited no significant change in the price of a stock following a split. This is because all the information that lead to the stock split would have already been discounted. Using a market model and monthly returns after 940 stock splits over the period of 1927–1959 the FFJR study (1969, p.17) analysed abnormal price fluctuations around the time of the split. They found an abnormal excess return of (34.07%) over 29 months preceding the split date for the splitting companies that increased or held their dividend constant. However, after the split, splitting companies that did not increase their dividend experienced abnormal price declines, while those that increased dividends experienced no abnormal stock returns following the announcements.

Most subsequent studies have largely arrived at similar findings. Using the mean-adjusted returns methodology developed by Masulis to measure excess-returns, Grinblatt, Masulis, and Titman (1984, p.480) presented evidence that stock prices, on average, reacted positively to stock dividend or split announcements that were unfettered by any other simultaneous firm-specific announcements for the period between 1967 to 1976. Lakonishok and Lev (1987, p.926) found an average of 53% excess returns in total over 5 years preceding the announcement of a split. According to the authors, the implications of these findings suggested that stock splits were mainly aimed at restoring stock prices to what was considered a normal range after management of a corporation were convinced that the price of a share has risen substantially owing to exceptional financial performance of the underlying company or the market itself may have risen substantially (Marx & de Swardt, 2013, p.67).

Further proof of the studies that have been performed, Asquith, Healy, and Palepu (1989, p.392) found statistically significant risk-adjusted excess returns of 56.8% for a 240-day period prior to the announcement of a split between 1970 to 1980. An analysis of 34 Indian companies performed by Patel, Dave, and Shah (2016) found that investors cannot gain an abnormal return from the announcement of stock splits. These results indicate that investors cannot gain from information on a stock split after the public announcement which is consistent with the semi-strong form of the efficient market hypothesis.

2.2.2. Changes in accounting policy

The relationship between changes in accounting policy and the behaviour of stock prices has been the subject of numerous studies over time. Studies of this nature had tended to follow two broad theoretical frameworks, the first is based on valuation theory, while the second is based on capital market equilibrium model (Sunder, 1975, p.317). Taking from the work of Fama et al. (1969, p.21) on stock returns prior to and post numerous stock splits announcements over the period of between 1927 to 1959, the capital market equilibrium model was used by Kaplan and Roll (1972, p.230) to examine the relationship between movements in stock prices and various changes in accounting policy that would have a material impact on the earnings of a company. They also incorporated tests of statistical significance on the estimated relationship after accounting for the distribution of share prices. Their findings revealed no statistically significant relationship existed between accounting changes and stock price movements. The findings, however, suggest a moderate increase in the price of a stock after the release of financial statements in which earnings have risen by making an accounting change.

In a similar study, Archibald (1972, p.27) analysed 65 companies that had made alterations to their accounting methods for depreciation from a reducing balance method to a straight-line method. The findings reveal that there was no substantial effect on the behaviour of stock prices even though firms should experience an increase in reported earnings. Much of the research has attempted to establish why companies alter their accounting methods rather than the

implications of such alterations. Bird (1969, p.329) found that companies that experienced falling revenues were more likely to alter their accounting policy than companies that experienced increasing revenues. Reilly and Brown (2015, p.80) argue that the absence of any material impact of changes in accounting policy on stock prices support the efficient market hypothesis. Also, the presence of negative price changes in response to changes in accounting policy can be expected by proponents of the efficient market hypothesis. This is because companies that change their accounting policy are generally underperforming and thus maintaining investment in such companies is not justified from a risk and return perspective.

2.2.3. Dividend and earnings announcements

The reaction of stock prices to dividend and earnings announcements has drawn much interest among accountants and financial economists. If corporate insiders possess more information about the prospects of a company, they have various means at their disposal of conveying such information to investors. According to Aharony and Swary (1980, p.7) the two most important means through which managers convey such information is through dividends and earnings figures. The use of cash dividend announcements by corporate managers to indicate changes in the prospects and expectations of companies is known as the information content of dividends hypothesis or the dividend signalling hypothesis (Abbas, 2015, p.132).

The hypothesis has been tested and confirmed by Michaely, Thaler, and Womack (1995, p.590) who asserted that the impact of dividend and earnings announcements on stock prices depended on the information content. Thus, it can generally be accepted that if a firm increases its dividends the market price of its shares will increase, whereas a decrease in dividends will cause a decrease in the share price. However, an alternative perspective is provided by Marsh and Merton (1987, p.17) who concede that a company that cuts its dividends may be experiencing cash flow difficulties. They also assert that a dividend cut may only be a temporary dividend policy alteration imposed by the management of a corporation who have plans of expanding the business. Furthermore, an increase in dividends could make investors sceptical of the ability of the business to sustain the new higher dividend in the future. The inference then is that the reaction of investors to dividend or earnings announcement is a matter of perception.

Genodes (1978, p.50) found that if dividend changes are unanticipated, it will cause little reaction to stock prices. A similar finding was made by Watts (1973, p. 204). However, Benartzi, Michaely, and Thaler (1997, p. 1021) documented evidence that the announcement of a dividend increase resulted in positive and abnormal returns, while the announcement of a dividend decrease elicits an equal but opposite reaction. Lonie, Gunasekarage, Power, and Sinclair (1996, p.48) took this analysis a step further by also examining the share prices of companies for which there was no dividend increase around the announcement of dividend changes. They found that investors' abnormal average returns prior to the announcement were statistically significant. Grullon, Michaely, and Swaminathan (2002, p.390) found that on average, a 10% increase in dividends caused a 1.34% increase in stock prices, while a 10% decrease caused a 3.71% decline in stock prices. These studies are all consistent with the information content of dividends hypothesis.

2.2.4. EMH studies on the JSE

One of the major challenges in the South African economy, since the dawn of a democratic dispensation, has been to regulate the conduct of financial markets (Van Heerden *et al*. 2013). There are numerous studies that have been performed to test the efficiency of the stock market in the context of both developed and emerging economies. Generally, the research indicates the presence of the weak-form of stock market efficiency in more mature stock markets in developed economies whereas the evidence from South Africa and other emerging economies is inconclusive. Njanike (2010, p.3) concluded that the JSE is an efficient market that is able to correct itself from 1992 to 2007. Furthermore, performing a mean reversion test as performed throughout the study on small or larger portfolios may yield different results. Grater

and Struweg (2015) conclude that the logarithmic returns of JSE stock returns contain a unit root and are hence non-stationary. This implies that the weak form of market efficiency is not present in the JSE between 1999 and 2014.

While the length and significance of the periods, as well as the methodology followed by the respective studies, may have a bearing on their results, it is worth posturing the size of firms and portfolios, as intimated above as well as the liquidity of the market at a certain time. Markets that are small and relatively illiquid are generally thought to be inefficient because of insufficient trading activity. This is a problem almost exclusive to emerging market stock markets (Mahlope, Ncanywa, & Matlasedi, 2017, p.45). This problem has been exacerbated by the positioning of global interest rates in the aftermath of the subsequent recovery to the global economic recession. Emerging economies, including South Africa, have experienced persistent capital outflows owing a monetary policy normalisation in the major advanced economies (Mahlangu, 2019).

3. Data and methodology

3.1. Research sample data

All small- and large-cap shares listed on the JSE that exhibited variable stock returns following the occurrence of a stock split, a change in accounting policy or dividend and earnings announcements were considered for the research sample. Small-cap shares are companies whose market capitalisation of less than R2.5bn while large cap companies have a market capitalisation exceeding R10bn (JSE, 2018). A sampling period of 2 years was selected for this study. Because of the large volume of the sample announcements and events as well as the fact that some stocks were neither not listed nor large-cap 5–10 years ago, the best sampling period is the last 2 years. Over this sampling period, three stock splits, one change in accounting policy and four dividend and earnings were identified.

Information on the announcements or events for the sampled companies were obtained from INET BFA, Thomson Reuters and Bloomberg and were as follows:

- The first announcement sampled occurred when Imperial Logistics declared a decrease in its headline earnings per share of 4.6% and an increase in its dividends of 14.8%.
- Naspers announced a change in its accounting policy with respect to the recognition of put options as liabilities instead of off-balance sheet items.
- Brait announced a 1.013:1 forward stock split
- MMI holdings announced that it would be suspending its dividend for the year ended 31 December 2017 and it realised a decline of 21.07% in its diluted headline earnings per share.
- Aveng Group initiated a 2.315:1 forward stock split.
- York Timber declared no dividends but announced an increase in its headline earnings per share for the year ended 31 December 2017 from 7 cents to 11 cents.
- Transpaco announced a (47%) decrease in its headline earnings per share and a 6.25% decline in its dividends from the previous year.
- MC Mining initiated the only reverse stock split in the sample of 1:20.

This study excludes private companies because they are not compelled by Section 14 of the Financial Markets Act (19 of 2012) to disseminate price sensitive information to the market (Goodspeed, 2017).

Considering the nature of the event as well as determining and comparing how small- and large-cap shares react to these events, the paper endeavours to provide some useful intuition in terms of the execution of discretionary portfolio management in the South African context. As seen in Table 2

Table 2. Summary of sample companies and corporate finance events and announcements

Company	Market capitalisation (ZAR bn)	Category (cap)	Corporate finance event or announcement	Event date
Naspers	1 380	Large	Change in Accounting Policy	13/06/2018
MC Mining	0.53	Small	Reverse Stock Split	28/11/2017
Brait	19	Large	Forward Stock Split	02/08/2017
York Timber Holdings	0.65	Small	Earnings increase	09/03/2018
Imperial	39	Large	Dividend/Earnings Increase	23/08/2016
MMI Holdings	26	Large	Dividend Suspension/ Earnings decrease	07/03/2018
Transpaco	0.76	Small	Dividend/Earnings Decrease	20/02/2018
Aveng Group	0.21	Small	Forward Stock Split	13/06/2018

Sources: IRESS INET BFA, Thomson Reuters and Bloomberg

announcements were obtained through the Stock Exchange News Service (SENS), Thomson Reuters, INET BFA and Bloomberg. Data in the pre- and post-event window were collected from INET BFA.

3.2. Methodology

The event study methodology was designed to analyse the effect of an event on a specific dependent variable (Ferreira, 2015, p.184). In other words, the intent of the event study is to observe abnormal rates of return surrounding significant corporate and economic information (Binder, 1998). According to this methodology, information signals announced by the selected companies in the stock market is estimated by replacing the calendar date into an event date which is treated as an announcement date (Suwanna, 2012, p.723).

Although its assumptions are not always valid, to lend cogency and reliability to the results, the assumptions of the efficient market hypothesis had to be followed (Malkiel & Fama, 1970, p.396). It could be that investors respond in a random fashion to price-sensitive corporate information, or corporate insiders possess and act on such information and thus share prices may not always reflect all the pertinent information (Laffont & Maskin, 1990, p.71). Furthermore, as part of its theoretical objectives, this paper seeks to investigate the validity of the semi-strong form of efficient markets across the spectrum of total/free market capitalisation on the JSE.

3.2.3. Selection of pre- and post-event window

Many similar studies that have made use of event studies to analyse the reaction of stock prices dividend announcements, stock splits, mergers and acquisitions as well as other price-sensitive corporate finance events select a single event-window in their analysis. The event window should consider t_1 days before and t_2 days after the announcement or event had been made or initiated (Ferreira, 2015). According to Getz and Page (2016) a post-event window too short would be unable to capture the total economic effects and a post-event window longer than 20 days would begin to capture elements unrelated to the underlying announcement and event. The announcement or event date itself is considered as day 0 in the study. With this in consideration and for purposes of exploring the extent of market efficiency across different shares and market capitalisations, the underlying study makes use of three event-windows:

- Five days before and three days after the event.
- 10 days before and 10 days after the event.
- 15 days before and 15 days after the event.

The reason for selecting three event windows is because investors take varying periods of time to react to price sensitive information across different companies depending on the fundamentals of the underlying company (Schwert, 2003, p.950). This speaks to the theoretical imperative of this paper, to observe how efficient or otherwise different segments of the JSE main board are and determining the potential presence of a size anomaly in this market.

3.3.3. Estimation of parameters within the event-window

Contrary to previous event studies in this field, the spread of historical returns as well as the historical changes in these around a designated event date within an 8-, −20- and −30-day event-window were examined. The intention is to determine the influence or otherwise of the sampled corporate finance event or announcement also the speed of adjustment to new price sensitive information and events. In other words, the underlying study intends to compute the standard deviations of daily stock returns both before and after the announcement to compare the dispersion of daily stock returns from their pre and post-event window expected returns.

The difference between the price of a company's stock over a set number of days relative to its initial price constitutes a return (Bacidore, Boquist, Milbourn, & Thakor, 1997, p.18). There are different ways of measuring stock returns. Momcilovic *et al* (2012, p.20) identify three measures of stock returns, namely:

- absolute
- log
- relative

The underlying study uses relative stock price returns because unlike absolute stock price returns they do measure the price change with respect to a given price level. Therefore, consistent with the study of Gladysek and Chipeta (2012, p.434), the relative stock price return for each company will be calculated in terms of (1):

$$R_{it} = \frac{P_t - P_{t-1}}{P_{t-1}} \tag{1}$$

where R_{it} is the stock return for each company i on day t P_t is the share price for the company on day t and P_{t-1} is the share price for the bank on day $t-1$.

For event studies the most generally accepted asset pricing model is the market model (Mackinley, 1997, p.37). Because the market model is a variance model and the underlying study is interested in the variance of stocks over different event-windows, it is appropriate that it be used as an asset pricing model rather than the Capital Asset Pricing Model which is a linear model and makes some unrealistic assumptions (Stapleton & Subrahmanyam, 1983, p.1640). Under the market model, a stock's return is dependent on the stock's sensitivity to the market portfolio as given by the market beta as well as the market portfolio return (Campbell, Lo, & MacKinlay, 1997, p.160). The determinants of expected returns are not clear since the value of alpha varies across different assets. Expected returns generated by the market model are given in (2) as:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_t \tag{2}$$

where R_{mt} is the market return for day t, α_i is the intercept term, β_i is the slope-coefficient and ε_t is an error term.

The standard deviation is the most widely used measure of the spread of returns around their expected (average) value (Chunhachinda & Li, 2010, p.430). Standard deviation serves well as a metric for the relative variability of stock returns. The standard deviation of these both before and after a corporate finance event or announcement could provide some useful intuition with respect to changes in the risk perceptions of investors following the release of information that could have a material influence on earnings. Standard deviation is expressed in (3):

$$\sigma_i = \sqrt{\frac{1}{N-1}} \sum_{N=1}^{N} (R_t - \bar{R}) \tag{3}$$

where R_t are the daily relative returns on day t, $\bar{R}$ is the expected (average) of the daily relative returns and N is the sample size. The variance of stock returns can be derived by taking the square root of the standard deviation (Lane, 2015). This work analyses both the stationarity of the variance by means of an eye test from a diagram of the returns before and after the event or announcement.

3.3. Hypotheses

The aim of this event study is to determine whether stock returns at the time of a selected corporate finance event or announcement are different (abnormal) from their expected returns. Instead of observing abnormal returns explicitly, this paper analyses the change in the variance of normal stock returns before and after the event as a proxy for the presence of abnormal stock returns (Giacotto & Sfridis, 1996, p.19). The null hypothesis is provided by (4):

$$H_0: \sigma_1^2 \leq \sigma_2^2 \tag{4}$$

The t-test also indicated whether the variance was either higher or lower after the event or announcement within the (+3, +10 and +15) post-event window. The underlying null hypothesis is that the variance of the stock is no different after the event or announcement than before the event. This implies that the event had no material impact on the stock returns. The alternative hypothesis expressed in (5) indicated that the variance of stock return is different after the event than before the event or announcement and thus the event had a material impact on stock returns.

$$H_1: \sigma_1^2 \geq \sigma_2^2 \tag{5}$$

The null hypothesis has been rejected if the test statistic exceeds the 5% level of significance as this is the convention of statistical finance. A normal t-test will be performed as expressed in (6) where the basic returns are divided by their standard deviation (Ruspantini & Sordi, 2011, p.17):

$$T = \frac{[\bar{R}_{it}(\tau_1, \tau_2) - \mu_x]}{\frac{\sigma_x}{\sqrt{N}}} \tag{6}$$

where $\bar{R}_{it}$ is the sample mean of daily stock returns i, τ_1 is the stock returns in the event window, μ_x is the expected mean ($= 0$), σ_x is the sample standard deviation and $\sqrt{N}$ is the square root of the sample size.

4. Results and discussion

The variance over an 8-day, 20-day and 30-day event window was observed for all companies. A summary of the results generated from the t-test has been provided in Table 3. For illustrative purposes, the graphs plotting the pre-and post-event window over the three event windows standard deviations for Aveng have been included in the results.

4.1. Aveng

While the stock price had generally trended down and appeared to have stabilised to around R9 and R10 following the announcement of a stock split, Stock returns exhibited violent fluctuations

Table 3. Test statistics on relative stock returns over an 8, 20, 30-day event window

	Aveng	York Timber	MC Mining	Transpaco	Naspers	MMI	Brait	Imperial
5-day pre- and 3-day post-event window: sample size 8, 95% t-statistic: 9.01								
σ 5-day pre-event	6.10%	5.83%	5.58%	1.12%	3.46%	1.56%	1.34%	0.90%
σ 3d after event	18.52%	1.43%	854.25%	0.31%	0.70%	1.61%	2.27%	3.50%
t-test	9.23	0.06	23472.41	0.08	24.4	0.94	0.35	15.21
10-day pre- and post-event window: sample size 20, 95% t-statistic: 2.98								
σ 10 day pre-event	5.25%	5.25%	4.81%	2.23%	2.92%	1.30%	2.68%	1.56%
σ 10-day after event	21.47%	1.49%	471.37%	0.54%	2.46%	2.30%	2.53%	2.38%
t-test	16.47	0.14	9595.55	0.06	1.4	3.13	1.12	2.32
15-day pre- and post-event window: sample size 30, 95% t-statistic: 2.40								
σ 15-day pre-event	7.71%	3.91%	4.78%	3.93%	2.57%	2.15%	2.27%	1.80%
σ 15-day after event	19.61%	1.84%	384.87%	0.53%	2.84%	2.33%	2.10%	2.29%
t-test	6.47	0.22	6470.85	0.02	1.17	1.17	1.18	1.61

around the announcement reaching a maximum of 41.18% from an all-time low of −34.62%. The daily returns were generally negative, averaging −2.52% over the entire event window. The event appears to have elicited a larger than anticipated reaction in stock returns. The price decline is attributable to the fact that Aveng did not declare a dividend in the prior or following the stock split and hence there is such an erratic reaction in the stock returns as some investors sell off the share and others buy because it is cheap. This is consistent with the findings of the Fama et al. (1969, p.21) study.

Table 3 illustrates that for all the event windows observed, the t-test on the daily stock returns of Aveng produced test statistics that exceeded the 95% critical values at the 8-day, 20-day and 15-day event window. This implies that the variance of daily stock returns was statistically different after Aveng announced a 2.315:1 forward stock split than before this announcement. The standard deviations in the post-event windows in all three instances were greater after the event than before and it was thus inferred that the variance was higher after the stock split than before. Figure 1–3 confirm this. The change in the variance of Aveng's stock returns persisted into the 20-day and 30-day event window. This implies that stock price had not yet adjusted fully to the stock split.

4.2. York Timber

The market for York Timber's shares was found to be consistent with the semi-strong form of efficient markets as investors could not extract returns beyond expectation on the announcement of an increase in earnings, given that this information is already priced in York Timber's stock price. This is in direct opposition to the majority or previous studies examining the reaction of stock returns to earnings announcements and suggests that the earnings performance was consistent with market forecasts (Mukora, 2013, p. 20).

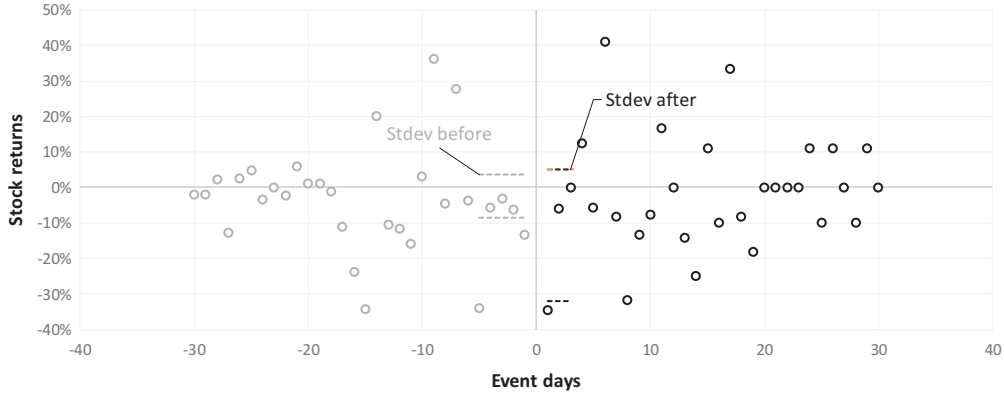

Figure 1. Standard deviation of Aveng stock returns in the 8-day event window.

Source: Author compilation

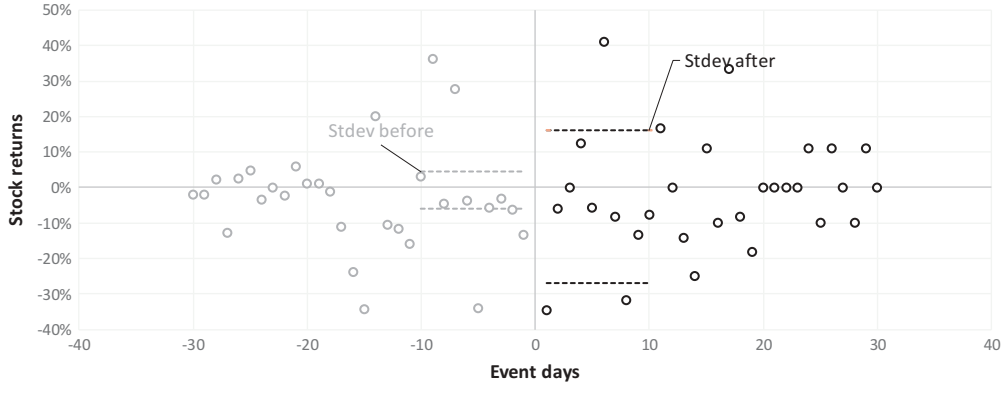

Figure 2. Standard deviation of Aveng stock returns in the 20-day event window.

Source: Author compilation

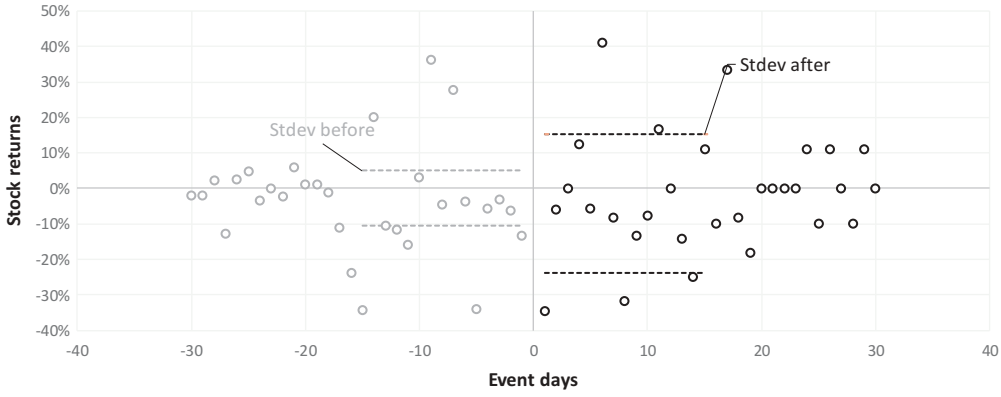

Figure 3. Standard deviation of Aveng stock returns in the 30-day event window.

Source: Author compilation

Table 3 illustrates that the t-tests on the daily stock returns for all the event windows under observation for York Timber produced test statistics which were below the respective 95%-critical values. The null hypothesis has therefore been rejected at the 5% level of significance over the three event windows and it was thus inferred that the variances in the three instances were no different after the announcement of a 57% increase in headline earnings per share than before. There is no statistically significant variation between the pre-event standard deviation of and the post-event window standard deviations across the three event windows observed. Investors could not derive abnormal returns on the announcement of an increase in earnings, given that this information is already priced in York Timber's stock price. This was in direct opposition to the majority or previous studies examining the reaction of stock returns to earnings announcements and suggests that the earnings performance was consistent with market forecasts (Mukora, 2013, p.15).

4.3. MC-mining following reverse stock split

Preceding the reverse stock split on event date [0], the share price of MC mining lost 96% of its value falling from R10.20 to 44c in the space of 20 days reflecting the arrival of new price sensitive information. Following the reverse stock split, the MC Mining shares recovered 91% of its value from its initial maximum closing price of R10.20 on event date [−21] and grew by slightly more than 20-fold from 44c to R9.25 on event date [1]. A reverse stock split should increase the share price in direct proportion to the split ratio (El Ansary & El-Azab, 2017, p.96).

The split ratio was 1:20 in this instance, implying that this assertion holds and explains the dramatic increase in the share price following the event. Reverse share splits are normally initiated when a company is of the view that its share price has fallen well below what corporate managers consider a normal range (Marx & Swart, 2013, p. 50).

The t-tests performed over the three selected event windows all generated test statistics that were larger than their respective 95%-critical values which meant that the null hypothesis that the variances were the same in the pre- and post-event window could be rejected. Thus, the variances of MC-mining's returns were statistically different after the reverse stock split for all event windows.

Furthermore, the t-tests also indicate that the variance after the event was greater before the event, as can be discerned from the standard deviations, which were in all three event windows larger following the 1:20 reverse stock-split than before. Once again in conflict with the assertions of the semi-strong form or efficient markets which requires share returns remain independently distributed as this means stock prices are efficient (Fama et al., 1969).

4.4. Transpaco

Table 3 shows that the t-tests performed across the three event windows selected produced test statistics well below their respective 95%-critical values.

The null hypothesis was rejected and thus the variance of Transpaco's stock returns was no different after the announcement of a 6.25% decrease in dividends and a 47% decrease in headline earnings per share than before. The standard deviations were smaller after the event windows, these variations could have not been statistically significant and may reflect corrections in the share price. Transpaco's stock returns appear to be informationally efficient, consistent with the semi-strong form of efficient markets as the variance of stock returns appears to be constant over three distinct event windows (Malkiel & Fama, 1970, p.415). This affirmed the dividend signalling hypothesis eluded to in the literature which states that a dividend can signal information to investors about the future of the firm (El Ansary & El-Azab, 2017, p.97). A decrease in dividend tends to reduce a stock's price, as seen in the instance of Transpaco because of the dividend signalling hypothesis and thus above average returns cannot be extracted. This happens as the dividend yield of the share decreases in relation to its history and similar firms in the industry which points to overpricing and prompts investors to sell-down the stock. This could also indicate that future dividends may be higher. (Broberg, 2012, p.15)

4.5. Naspers

There does not appear to be a notable reaction in the price of the Naspers' shares following the announcement as the price remained firmly within a range of R3 000 and R3 500 although it had remained close to the upper end of this band in the post-event window. However, returns exhibited great volatility. The market for Naspers' shares is consistent with the semi-strong form of efficient markets as changes in accounting policy generally do not have a material impact on the share price (Lambert, Leuz, & Verrecchia, 2007, p.30). But this would have depended on the nature of the accounting policy change. In other words, whether it would have a material impact on earnings or holdings.

In the case of Naspers, the method of accounting for put options changed due to a decision to settle these options by cash instead of the issuance of ordinary shares. This meant that put options would be recorded on the balance sheet as liabilities for cash settlement. This prevented the dilution of existing shareholders earnings, but the offsetting effect would be cash settlement of put options on earnings (Goodspeed, 2017, p. 30).

Table 3 shows that the variances of Naspers' stock returns were significantly different after the announcement of the change in accounting policy in the 8-day event window as the test statistic 24.40 was larger than the 95%-critical value. In the 20-day and 30-day, the variance of stock returns reverts to consistency as the null hypothesis was rejected in both instances, suggesting that the standard deviations of the stock returns were no different after the event than before. This suggests that the opportunity to extract returns significantly beyond expectations dissipated much later.

4.6. MMI holdings

The t-test in Table 3 revealed that the null hypothesis could not be rejected only in the 8-day and 30-day but could not be rejected in the 20-day event window. Therefore, the variance of MMI stock returns following the announcement of a decrease in earnings and suspension of its dividends was no different after the event than before in the 8-day event window and there was no significant variation from the average daily returns. In the 20-day event window, the daily returns exhibited a change in the variance and there was thus an opportunity to extract above average returns during the 20-day event window. While this subsequently dissipated in the 30-day event window, this finding is inconsistent with the efficient market hypothesis as well as the dividend signalling hypothesis, of which evidence was found in the stock returns of Transpaco which also experienced a decrease in earnings and a decrease in dividends (Anwar, Singh, & Jain, 2015, p.31).

4.7. Brait

In Table 3 the test statistics generated for all the event windows were all below their respective 95%-critical values suggesting that the null hypothesis was rejected over all the event windows. Therefore, the variance of Brait's stock returns was no different after the 1.013:1 stock split than before implying that no returns more than the daily average over each event window could be extracted. This is because all price changes were anticipated and explained by the information conveyed by the stock split itself; that the price of the share in the period leading up to the split was perceived to be too high by the corporate managers of Brait (Marx & de Swardt, 2013:56). While this finding is in opposition with many of those in the literature (Grinblatt et al., 1984; Lakonishok & Lev, 1987) it was consistent with those of Patel et al. (2016, p.1036) and affirms the efficient market hypothesis.

4.8. Imperial

The t-test performed over all the event windows shows that the null hypothesis was only rejected in the 8-day event window as the test statistic was larger the 95%-critical value. However, in the 20-day and 30-day event windows the null hypothesis was not rejected as the test statistics in these instances were smaller than the 95%-critical values. The standard deviation in 8-day event window was greater after the announcement of a decrease in headline earnings and an increase in dividends than before. This suggests that the variance was greater after the event than before and there were opportunities to extract above average returns. However, in the subsequent such opportunities dissipated as the t-test was revealed no statistically significant difference between the standard deviations in the pre- and post-event window. This may suggest that investors are weary over Imperial's ability to sustain this new higher dividend and are thus consistent with the dividend signalling hypothesis (Abbas, 2015, p.132).

5. Conclusion

This study empirically examined the influence of corporate finance events and announcements on stock returns of selected large-cap and small-cap shares on the JSE main board. In so doing the importance of market capitalisation in portfolio construction would be highlighted owing to the different levels of risk across the spectrum of market capitalisation. The following conclusions can be drawn. Aveng and MC Mining exhibited increasing variance over all the event windows tested. Albeit Aveng initiated a 2.315:1 stock split and MC Mining also initiated a reverse stock split of 1:20 which has a significant impact on holdings in future earnings. This was tantamount to an overreaction of the market as even after the market price adjusted in proportion to the split ratio within the 8-day event window the variance of stock returns persisted to change over the 10-day and 20-day event window.

These findings are also in contradiction with the efficient market hypothesis as it suggests that market prices are not reflective of all the information conveyed by a stock split (forward or reverse). York Timber and Transpaco did not show any change in the variance of their respective stock returns following the announcement of an earnings increase as well as dividend and earnings decrease, respectively. This means that the price was at a level reflective of the information content within these announcements and thus there was no opportunity to extract above average returns hence the variance of the daily stock returns for these two shares was constant over all the event windows.

Naspers and Imperial exhibited a decrease and increase in the variance of their daily stock returns after the announcement of a change in accounting policy and an increase in dividends and earnings per share, respectively. This suggests that while there is an immediate reaction to the news, investors adjust within the 20- and 30-day event windows. MMI holdings only exhibited changes to the variance of its daily stock returns only in the 20-day event window and thus it took investors slightly longer to react to the announcement of a dividend suspension and a decrease in earnings. Brait's share price adjusted to reflect the stock split but over the event windows, there was no significant change in the variance of daily stock returns. These findings suggest that the reaction to corporate finance events and announcements varies based on market capitalisation and the nature of the event as well as over time horizon. This has profound implications for portfolio diversification as the absence of market efficiency across the board in the small-cap

segment of the market avails opportunities to extract above average returns. Such opportunities are seldom with respect to large-cap stocks whose sheer volume of trading suggests that information travels fast and prices are quickly adjusted.

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