

**Gordon Institute
of Business Science**
University of Pretoria

**Equity issuance and share price performance on the Johannesburg Stock
Exchange**

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Abstract

A rights issue is a term used to describe the process of providing existing shareholders with a preferential option to purchase shares in proportion to their holding of existing shares. This enables publicly traded companies to raise funding for further development, without taking on more debt. When companies implement a rights issue, share prices tend to react to both the announcement and the rights issue event itself. The purpose of the research was to determine the effect on share returns for these two events. An event study methodology using 12-factor abnormal return estimates was conducted. A bootstrap analysis of cumulative abnormal returns was used to determine statistical significance.

The research was conducted on companies who initiated and completed a rights issue on the Johannesburg Stock Exchange between 2005 to 2022. Approximately 150 companies were categorized according to the relative size of the rights issue (a function of the capital raised and the market cap of the company); their core business functionality (resource vs. non-resource); and value vs. growth companies (if applicable).

The results indicate that the share price reduces to below the 5th percentile after the occurrence of a rights issue announcement and remains below the 5th percentile for 30 days after the announcement. Conversely, share prices increase beyond the 95th percentile once the rights issue event itself has occurred. The research also indicates that the relative size of the rights issue does not affect the magnitude of the cumulative abnormal returns for either the announcement or the rights issue event itself. Finally, resource companies are more severely influenced by rights issue activities (the announcement date and the rights issue) when compared to non-resource companies, whilst growth companies are more negatively influenced than value companies according to the announcement date; and value companies are more negatively affected according to the rights issue.

These findings have implications for investors.

Keywords: announcement, equity issuance, rights issue, share price

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Dirk Johan van Vuuren

Date

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Abbreviations

AAR	Average Abnormal Return
ALSI	All Share Index
ANC	African National Congress
ANOVA	Analysis of Variance
B/M	Book-to-Market
BBEEE	Broad-Based Black Economic Empowerment
BSE	Boston Stock Exchange
CAAR	Cumulative Average Abnormal Return
DCA	Dollar-Cost Averaging
DIV/P	Dividend-to-Price
EPS	Earnings per Share
ESG	Environment, Social, and Governance
E/P	Earnings-price ratio
EY	Earnings Yield
GI	Growth Investing
IP	Intellectual Property
IPO	Initial Public Offering
JSE	Johannesburg Stock Exchange
NASDAQ	National Association of Securities Dealers Automated Quotations
NYSE	New York Stock Exchange
P/B	Price-to-Book
P/C	Price-to-Cash
P/E	Price-to-Earnings
R&D	Research and Development
S&P	Standard & Poor's
SENS	Stock Exchanges News Services
VI	Value Investing

1 Introduction to the Research Problem

1.1 Introduction

The purpose of this section is to provide a brief description of the research topic. In identifying the problem, a background section is provided, followed by the problem statement.

1.2 Background

A publicly traded company is a corporation whose ownership is distributed between the general public shareholders. With the company issuing stock, shareholders can partially own a company. This will ensure that the company can raise cash to fund future growth, albeit under public ownership (Keller & Siegrist, 2006).

The decision for companies to go public has been well documented. One of the earliest reasons given was that it is seen as a stage of growth for a company. However, this has been debunked whereby it was found that companies choose to utilize funding from the public (Pagano, Panetta, & Zingales, 1998) or to provide venture capitalists (an investor who provides capital to a private company with high growth potential in exchange for equity) an opportunity to exit the company through the use of a stock exchange. In line with the former, Atanassov, Nanda and Seru (2007) found that companies that create innovative developments, tend to rely more on financing from the public sector, either through equity or public debt, as opposed to bank-based financing or debt (commonly found in private companies). The reason for this is that banks do not have the resources to evaluate new developments, subsequently discouraging companies from investing in those developments by withholding funding. Since companies utilize public funding, they can invest in R&D (Research and Development) projects or innovative ideas with greater ease. When those ideas achieve success in the market, the firm value tends to increase accordingly (Atanassov et al., 2007).

Companies experience a reduction in the cost of debt when they decide to go public through an IPO (Initial Public Offering). Pagano et al. (1998) concluded that one of the main reasons for this is because banks leverage public knowledge from the stock exchange listing, or due to the increased bargaining power of the company in acquiring funding. Another reason is that it tends to increase the prestige of the

company; inferring that investors are more prone to invest in the company (Focke, Maug, & Niessen-Ruenzi, 2017). Either way, it enables the company to attain funding at a reduced cost.

When companies go public, a new IPO of equity is made available (Gustafson & Iliev, 2017). The price of new shares is generally determined as a function of the value of the company and the number of shares to be issued. An outsourced investment bank would utilize various financial metrics and multipliers to determine the value of the company; thus, enabling them to determine the value of the shares. Generally, the process of listing a new company on a stock exchange is associated with various barriers. Gustafson and Iliev (2017) concluded that by removing those barriers, firms can double their reliance on public equity – meaning that they have more funds to invest in new projects.

Newly accepted public companies provide an opportunity for investors to attain a comparatively large short-term return on the stock markets. One tactic an investor utilizes involves buying a new IPO at a reduced price in the hope that the price will increase over time. However, the major disadvantage is that this high-risk approach leaves the investor susceptible to permanent investment loss – mainly because the future growth of the company is not well defined. One approach to mitigate this is by investing in various IPOs and diversifying their investment portfolio (Leković, 2018). Conversely, research conducted by Fu, Hamilton, Lian, Tang and Wang (2021) suggests that although it is appealing to invest in a new IPO, investors who invest in post-IPO (i.e. a defined period after the initial public offering) see better returns. The reason for this is that those investors tend to buy based on publicly available information as opposed to sentiment.

Existing public companies can raise additional capital by issuing new equity, in a process known as a rights offering or rights issue (also known as equity issuance). Given that the company is already in the ownership of the public, additional shares can only be issued through 1) the process of issuing outstanding authorised shares (the number of shares a company is legally allowed to issue to investors but was not available for trade) and then subsequently changing those to issued shares (shares that are available to the public for trade), or 2) essentially diluting the existing shares through a rights issue. A rights issue is a term used to describe the process of

providing existing shareholders with a preference of buying shares at a discount rate in proportion to their holding of old shares. If those shareholders do not want to purchase those shares, they can sell their rights to purchase, thus enabling other investors to buy the shares (Marsh, 1979). However, if an investor sells his right to purchase, he will be subject to share dilution, thus reducing their stake in a company (Calomiris, Larrain, & Schmukler, 2021; Cotterell, 2011; Rijdsdijk, Nehring, Kizil, & Roosta, 2022; van der Merwe, 2016).

Companies are often reluctant to implement a rights issue to fund new internal investments (Houston & Ryngaert, 1997). Amongst the other outcomes, those firms generally experience a reduction in their share price when announcing that they are implementing a rights issue, and experience negative abnormal returns in the short term (Zhou, Armitage, & Michou, 2019). Further to this, Daniel and Titman (2006) hypothesized that companies might issue equity based on intangible information that is not known to the public, as opposed to tangible accounting-based measures. They summarized the different reasons as follows:

1. Managers issue shares after realizing intangible information that may reduce the future value of the shares, and then repurchase those same shares after the value has decreased and are underpriced (with a prospect of future value increase);
2. Similar to the abovementioned, historic performance (based on intangible information) might indicate a foreseeable future growth or mispricing, but due to inaccurate market interpretation, stock values might decrease; and
3. Issuing shares will decrease the demand for shares, inferring that the trade price of those shares will then decrease. Subsequently, it could then enable the company to buy more shares at a reduced price in a process known as a share buyback.

Very little research exists that investigates the effect of equity issuance on companies in South Africa. According to Zhou et al. (2019), it is important to conduct such investigations that are country-dependent. Firstly, since most research is conducted on the American stock exchanges (NYSE, Nasdaq, BSE), generalisations between them and the Johannesburg Stock Exchange (JSE) may occur. Secondly, asset pricing tests are sensitive to different methods – the support for a given factor or

anomaly variable depends on other factors that are included in their analysis model (Zhou et al., 2019). Furthermore, the effect of a rights issue is industry and company-dependent. For example, do companies issue shares for internal investment due to potential growth avenues, or do they do so because they don't have sufficient internal capital to continue with operational activities? Very little research exists that investigates how different market segments behave according to a rights issue. As such, there is a clear business rationale in South Africa to conduct such research.

1.3 The business rationale in South Africa

Founded in 1887 during the first South African gold rush, the JSE offers five financial markets for trading purposes, namely equities; bonds; financial derivatives; commodities derivatives; and interest rate derivatives where securities can be traded freely under a regulated procedure (Johannesburg Stock Exchange, 2021). This enables investors to invest in equity for investment purposes.

Although the number of companies listed on the JSE reduced from 418 to 318 between July 2012 and July 2022, albeit due to factors such as the consolidation of smaller companies and smaller companies opting to leave the environment (BusinessTech, 2021), the market capitalisation of those companies has increased to R18.28 trillion (Johannesburg Stock Exchange, 2022). As a result, investors have utilised the JSE to invest in equity as there is a potential in making an investment profit.

Initiated in 1997, investors refer to the JSE SENS (Stock Exchanges News Services) for news relating to a specific company. This JSE listing requirement obliges companies to publish any corporate news or price-sensitive to promote market transparency and investor confidence. Some announcements may include board meeting feedback, declaration of dividends, financial statement releases, and rights issue information (JSE Client Portal, 2022b).

Very little recent research exists that discusses the effect of a rights issue on share prices on the JSE. Existing research, however, dates back to at least 10 years ago, when market environments differed.

1.4 Research problem

Companies are often reluctant to implement a rights issue to fund new internal investments (Houston et al., 1997). Amongst others effects, those firms generally experience a reduction in their stock price when announcing that they are selling stock, and experience abnormal returns in the short term when related to the share price from preceding years (Zhou et al., 2019). This was highlighted by Winn, Parente and Porter (2016) who concluded that companies and buyers tend to withhold information when transactions occur under conditions of stress. In essence, the stakeholders in transactions are not always fully transparent when they are either buying or selling part of a business.

Therefore, the research will be based on data from the JSE to determine how company share prices react to a rights issue and its announcement over a given period. The scope of the study will include approximately 150 companies (including All Share Index (ALSI) companies and delisted companies who issued equity) while small companies will be avoided to ensure that outliers do not skew the results. Additionally, the top 140 companies tend to represent 97.8% of the total market of all companies listed on the JSE (Johannesburg Stock Exchange, 2022).

A detailed discussion of the scope is presented in section 3.

1.5 Purpose statement

The purpose of the research is to determine the announcement and rights issue effect on companies trading on the Johannesburg Stock Exchange (JSE). Very little research exists that investigates how announcements, and the rights issue, affect the share price of a company. Subsequently, the research aims to identify the effects of a rights issue, albeit positive or negative through statistical analysis of historic share prices.

1.6 Research question

The study aims to determine the short-term and long-term effects on share price after a rights issue and its announcement on the JSE SENS occurred. Therefore, the research question is as follows (note that this question will be re-evaluated after the literature review has been conducted):

- What effect, both short-term and long-term, is present on the share price of listed companies on the JSE after those companies have issued equity?

Given that this is a quantitative study, the research question will be utilized as a foundation from which the different hypotheses will be derived. As such, the document will follow the structure according to the different hypotheses.

1.7 Document layout

This research document is structured according to seven sections, followed by the relevant appendices. The sections can be summarized as follows:

- Section 1 includes an introduction to the problem;
- Section 2 encompasses a literature review, whereby investor sentiment, the factors that influence share price, and past research concerning a rights issue are discussed;
- Section 3 presents the different hypotheses that were developed according to the findings from the literature review;
- Section 4 outlines the methodology followed in applying the research;
- Section 5 depicts the results obtained from the research, and includes the interpretation results;
- Section 6 discusses the results according to the hypotheses; and
- Section 7 concludes the research findings.

Once completed, the various literature utilized in the document is presented in section 8, followed by depicting all the companies according to each hypothesis in the appendices.

1.8 Conclusion

This section provided background regarding the study. In essence, the research aims to investigate the effect of a rights issue and its announcement on the share price of current and past companies listed on the JSE. The following chapter provides a literature review regarding the various factors that must be considered concerning equity issuance.

2 Literature Review

2.1 Introduction

The purpose of this literature review is to provide background on equity issuance and its subsequent effect on share pricing, including the announcement, and the rights issue itself. A rights issue is a term used to describe the process of providing existing shareholders with a preference for buying shares at a discount rate in proportion to their holding of old shares. This enables publicly traded companies to acquire funding for further development or according to their objectives, without taking on more debt. Due to the various complexities related to investing, the literature review must be structured and synthesized to complement the objectives of the research. Therefore, the literature review is structured such that a top-down approach is applied, as illustrated in Figure 1.

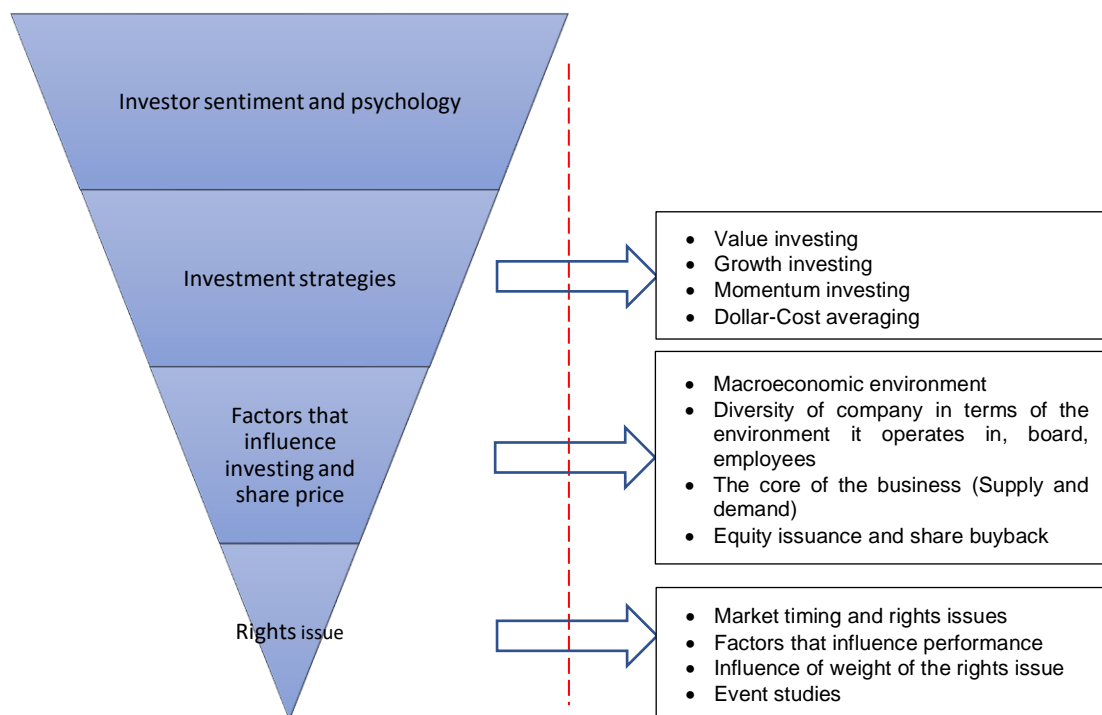


Figure 1: Flow diagram depicting the structure of the literature review

The first section of the literature review will focus on investor sentiment and psychology. Literature indicates strongly that investing is as much psychological, as it is financial. It is therefore important to briefly discuss the various factors that influence investor behaviour. Secondly, a discussion of the various investment

techniques will occur. This discussion will focus on the financial and non-financial metrics that investors use to guide their investment decisions. In addition to the aforementioned, secondary factors exist that influence the share price of a given company. Therefore, the third section of the literature review will focus on those factors, including the macroeconomic environment of the said company; how diversity (albeit at different hierarchical levels) influences the share price; the core business of the firm; and a brief discussion of how exogenous events influence share prices. Relating to the latter, rights issues and the methodology used in determining returns can be categorized accordingly and will be discussed in the final section of the literature review.

2.2 Investor sentiment

Various mechanisms are utilized for investment purposes. One such example includes where investors invest in equity through stock exchanges to increase their net worth or their clients', with the aim being to obtain "...desired liquidity, maturity dates and desired risk and return expectations" (Mankuroane, van Heerden, Ferreira-Schenk, & Dickason-Koekemoer, 2022, p. 19). In comparison with other investing mechanisms (buying property assets and developing intellectual property), stock exchanges provide a platform that enables comparatively fast transactions while enabling annualized returns of greater than 10% (examples include investing in the Nasdaq 100 and the S&P 500); and the potential of earning dividends on the investments (Keller et al., 2006). Coincidentally, various investors do not want to earn dividends because it is seen that the company does not have a portfolio in which they can reinvest their money. By implementing an investment-based approach, stockholders can hold companies accountable for their actions (Keller et al., 2006; Woolridge & Snow, 1990).

One primary assumption is that "...investors are rational in their decision-making process in the stock market about risk-return trade-offs and maximizing utility" (Bakar & Yi, 2016, p. 319). However, behavioural finance studies (the process of examining how decision-makers integrate knowledge to make a decision) indicate that human beings do not behave rationally, as decisions are affected by psychological feelings, personality traits and characteristics (Brooks & Williams, 2021).

Buccioli and Zarri (2017) attempted to determine if personality traits affect investors' portfolios. They concluded that "two individuals who do not differ in income, gender, educational attainment, wealth, background risk, cognitive ability, age, and even genetic makeup may still significantly differ in their financial decisions: due to differences in personality attributes" (Buccioli et al., 2017, p. 2). The reason for this is that investors' rationale differs around the concept of risk.

Risk can be associated with any investment. Various descriptions exist of the term, but most researchers agree that it can be defined as the probability of the investor permanently negating their initial investment (Marks, 2011). Research suggests that risk is subjective and may differ based on the individual. For example, Sachse, Jungermann and Belting (2012) attempted to define what is meant by the term risk by analysing various investors. Their results indicate that each investor constructs risk differently based on factors such as predictability, volatility, liquidity, transparency, and knowledge (Sachse et al., 2012). From this, a conclusion can be made that the market behaves differently and that the term also includes past returns (although not explicitly, past experiences may also be integrated).

Stock markets can be volatile and risky, especially when investing in commodities. The latter was investigated by Creti, Joëts and Mignon (2013) who concluded that the oil and coffee industry has been the most volatile, especially considering the effects of a black swan event (an event that is beyond what is normally expected and that has severe consequences) like the 2007/08 financial crises. A similar result was observed by Wen, Cao, Liu and Wang (2021) who noted the effect of the Covid-19 pandemic on stocks, especially when trading with commodities.

Personality traits, demographic variables and biases affect an investor's risk tolerance. Alquraan, Alqisie and Al Shorafa (2016) researched the behavioural finance factors that influence the stock market investment decision-making process. Their experiments included performing ANOVA (Analysis of Variance) and Multiple Linear Regression tests to test their hypotheses – that behavioural finance factors don't affect the investment decisions of individual investors. They concluded that overconfidence, risk perception and loss averseness all influence stock market decision-making processes. Additionally, they also conclude that Herd behaviour has a significant effect on investment decisions, even though it may not be

substantiated by financial metrics. This was observed by Muller (2020b) who found that momentum investing, which is a function of herd behaviour, can increase returns by as much as 16% on hedge funds.

Bakar and Yi (2016) attempted to derive a correlation between geographical location and demographic profile. They concluded that overconfidence, conservatism and availability bias may influence investor decisions making processes. However, unlike Alquraan, Alqisie and Al Shorafa (2016), their results indicate that herd behaviour does not have a significant impact on decision-making processes. Various other research (Aren & Zengin, 2016; Brooks et al., 2021; Bucciol et al., 2017; Gambetti & Giusberti, 2019) suggest personality affects the decision-making process of investors. However, the purpose of the is section is to highlight the importance of recognizing how personality affects investing, as opposed to examining the different frameworks.

It is commonly thought that one mechanism in mitigating the volatility and risk (although two separate constructs) is by diversifying the investment portfolio – in essence, the investment manager invests in multiple companies to normalize the effect. To choose the appropriate company, investors apply investment strategies that enable them to select companies based on certain metrics. These metrics are generally driven by mathematical analysis and are compiled together to form an investment portfolio (Defau & De Moor, 2021; Zaimovic, Omanovic, & Arnaut-Berilo, 2021).

2.3 Investment strategies

Investment strategies are implemented to assist individual investors to achieve their financial and investment goals. There are two approaches commonly applied in investing, namely the *active* approach and the *passive* approach (Anadu, Kruttli, McCabe, & Osambela, 2020), and four common investment strategies, namely: Value Investing (VI); Growth Investing (GI); Momentum Investing; and Dollar-Cost Averaging (Alfonso Perez, 2017; Battisti, Miglietta, Salvi, & Creta, 2019; Damodaran, 2012; Issakainen & Collan, 2022; Singh & Walia, 2022).

2.3.1 Passive investing vs. active investing

The first method involves categorizing investment strategies according to two approaches: passive and active. Passive investing encourages buying and holding stock, and not frequently engaging in transactions to avoid high transaction costs. Investors following this approach believe that they cannot outperform the market due to factors such as volatility and unpredictability. These transactions are thought to be less risky in comparison to active transactions (Warren, 2019).

Active transactions involve frequently buying and selling shares where investors believe that they can outperform the markets and gain higher returns. In essence, the active approach involves continuously trading shares based on short-term information (Roca, 2021). According to Anadu, Kruttli, McCabe and Osambela (2020), a shift towards a passive strategy has taken prominence. The reason for this is that passive strategies utilize rule-based investing that enables them to track an index by holding all of its constituent assets or a sample of those assets. Subsequently, it allows the investor to track the performance of a company based on its tangible results, similar to that of value investing (Anadu et al., 2020). When utilizing the passive approach, four different strategies can be applied.

2.3.2 Value Investing

Value Investing (VI) is the first approach encompassed under passive investing. VI entails analysing a company according to a quantitative approach that focuses on various financial metrics, including its balance sheet, income statements and cash flow (Battisti et al., 2019). Subsequently, financial indicators such as the price-to-earnings (P/E) ratio and the earnings-per-share (EPS) ratio are then calculated to determine the historic performance of the company (Battisti et al., 2019). According to the VI theorem, the price quote of a share (a value that is readily available and assigned by the market) frequently diverges from the underlying value of the company. The underlying value of the company is known as the intrinsic value of the company and is defined as a function of the discounted value of its future cash flows. It is worth noting that the market value of a company does not coincide with the intrinsic value of the same company, but can rather be seen as a volatile approach to measuring the company's value. Therefore, a conclusion can be made that there will always be some degree of disparity between the intrinsic value of a

company and the market price of the company. Generally, companies who fall within the category have a low P/E ratio or a price-to-book (P/B) ratio (Penman & Reggiani, 2018).

One other important aspect to consider is the difference between the market value of a company and the book value of a company. Book value is defined as the net difference between the company's total assets and total liabilities, whereas the market value is defined as the total market cap (calculated by multiplying the number of shares in circulation by the price of the shares) of the company, or at least a multiplier thereof (Battisti et al., 2019).

VI theory relies on the integration of various ratios to guide decision-making. Research that dates back to the 1970s indicates that investing in companies that have a low P/B value; a low P/E ratio; a low price-to-cash flow (P/C) ratio; or a high dividend-to-price (DIV/P) ratio yields greater long-term returns as opposed to companies that have high ratio values of the same metrics (S Basu, 1977; Oppenheimer, 1984; Petrie, 2007; Woolridge et al., 1990). Additionally, Fama and French (1992) developed the Three-Factor model which is a statistical model designed to describe stock returns. Integrated within the model, companies that comply with the three-factor model tend to outperform the market. The model includes the following variables: 1) market access return; 2) the superior performance of small versus big companies; and 3) the outperformance of a high B/M ratio versus a low B/M ratio. Following their model, they published research indicating that companies who comply with the model tend to yield higher returns of approximately 7.68% to investors who follow growth investing (Fama & French, 1998).

One important element to consider is the effect of a high B/M ratio on the investment return. Various researchers (Daniel et al., 2006; Piotroski, 2000) have used this metric for determining how companies are influenced by factors such as equity issuance. Once an analysis has been conducted, investors will apply a long-term approach (making choices with a performance of 10 years or more in mind) in growing their portfolio. This method has been seen as an effective tool in growing investments where various research has yielded annual returns greater than 15% internationally over the last 20 years (Alfonso Perez, 2017; Issakainen et al., 2022).

Therefore, using mathematical approaches to making investment decisions seems beneficial.

2.3.3 Growth investing

Growth investing (GI) is an investment style that focuses on capital appreciation. In essence, investors apply a high-risk and high-reward approach whereby they invest in growth stocks, such as small or young companies, whose earnings are expected to increase in the foreseeable future. Those companies are identified based on individual characteristics that rivals lack, including customer loyalty, brand, or competitive advantage. Additionally, the stocks tend to hold promising positions in emerging industries that show potential for future growth (Cronqvist, Siegel, & Yu, 2015; Hardin & Bischof, 2021; Penman et al., 2018).

2.3.4 Value stock vs. growth stock

One differentiator between the GI and VI is that VI tend to focus on stocks that have fallen out of favour, while GI focuses on the stocks that show potential. For that reason, companies can be categorized as either value stock or growth stock companies. Regarding growth stock, the annualized rate is expected to increase above average compared to their industry sector or even the overarching market. Investors who apply this approach tend to invest in companies that have high P/E ratios (Penman et al., 2018).

It is worth noting that value investing tends to outperform growth investing, especially over the long term (Damodaran, 2012). The reason for this is that it is very difficult to estimate the future returns of companies, inferring that it is difficult to choose the appropriate company to invest in.

Historic returns can be used to guide an investment portfolio. If the 'winner' stocks can be predicted accurately in advance, then superior returns can be expected. In essence, past share prices are analysed and used as a foundation for future investment decisions. Figure 2 illustrates the accumulative returns of a value portfolio against growth portfolios on the Nasdaq, and dates back from 1926 to the present (Hardin et al., 2021).



Figure 2: Value investing portfolio performance relative to growth investing portfolio (Hardin et al., 2021)

Before analysing the graphs, it must be noted that value stocks generally consist of financial, healthcare, industrial and energy industries (companies that have generally low P/E ratios, high dividend yield, and low P/B values). Conversely, growth stocks consist of companies that compete in technology-related industries, including technology companies, communication services and discretionary with high P/E ratios, low dividend yield, and high P/B values (examples include Amazon® and Tesla®) (Hardin et al., 2021).

When considering Figure 2, it's seen that the VI approach has outperformed growth investing, especially between the 1970s and the early 2000s. However, this return is mostly due to the foundation generated by investments from the early periods (the 1920s to the 1970s). The accumulation of the investments means that returns over the subsequent periods are precluded. However, since the early 1990s, GI has taken prominence over VI. This was illustrated by historic data over the last 30 years on the Nasdaq where GI outperformed VI, as illustrated in Figure 3 (Hardin et al., 2021).

Cronqvist, Siegel and Yu (2015) researched to ascertain the reasons why investors prefer the GI approach. They found that most investors are shaped by their past experiences: investors with adverse macroeconomic experiences (such as growing up in poverty) tend to have more value orientation later on in life. Subsequently, those

investors have portfolios within companies that have lower P/E ratios in comparison with investors from a more affluent background.

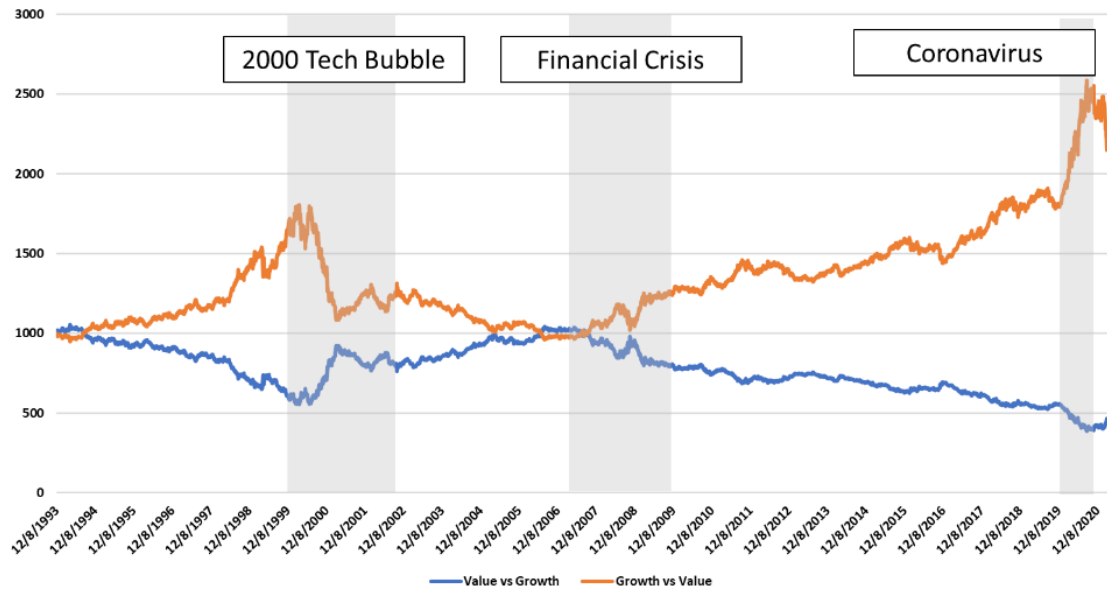


Figure 3: Historic returns of growth vs value investing (Hardin et al., 2021)

Relating to Figure 3, a relationship was drawn between growth investing and value investing. When considering the legend description of the graphs, 'Value vs Growth' (the orange line) indicates the relative performance of value stocks as opposed to growth stocks. The 'Growth vs Value' (the blue line) graph indicates how growth performed against value stocks. Essentially, the charts are inverses of each other. When analysing the data, it can be seen that the returns of a growth stock outperformed that of a value stock. The first influx of growth stocks occurred in the mid-1990s to reach a maximum in 1999. However, a reduction was then observed to eventually reach a similar value of value stocks in 2006. However, the growth stocks then increased and continued to do so, until 2020.

To understand why the stocks fluctuated in terms of their value relative to each other, the data were categorized into three major events that influenced the share price of either GI or VI. The first relates to the collapse of the tech bubble (due to market conditions at the time, various investors gambled on making profits in the technology sector. However, those investors then subsequently realised that the amount of money they invested exceeded the returns they would get back). Due to this event, the growth stocks underperformed in comparison with the value stock. Over the subsequent period, value stocks outperformed growth stocks, until the financial crisis

of 2008/09. However, after the effects of the financial crisis subsided, investors have been constantly preferring growth stocks. It is worth noting that growth stocks are susceptible to market shocks, especially considering the economic challenges caused by the Covid-19 pandemic. This is evident where the average value of growth stocks has decreased in comparison with value stocks.

2.3.5 Momentum and Dollar-Cost Averaging investing

Momentum investing is an approach followed in which stocks are bought or sold based on recent historic performances. In essence, the presence of investor psychology means that investors can use this phenomenon as a mechanism for making investment decisions. Generally, those stocks yield comparatively high returns over the last year. In short, this method can be described as the "...continuation with the trend" (Singh et al., 2022, p. 88). This has been an effective mechanism to use, especially in hedge funds where momentum stocks are longed before recalibration occurs (Muller, 2020a)

Lastly, Dollar-Cost Averaging (DCA) is a mechanism used to reduce the impact of volatility on an overall portfolio for investors who have lower risk tolerance. When an investor invests a single lump sum into stock, there exists a risk that the stock being bought is near its peak. To mitigate this, an investor divides the total investment across periodic purchases to gradually attain the full amount. Using mathematical analyses, Kirkby, Mitra and Nguyen (2020) attempted to determine if the DCA method is superior to the single lump sum method. They concluded that, depending on the tolerance to risk and the portfolio objectives, a strategy that integrates both methods may offer the best trade-off between risk and return.

The aforementioned approaches are commonly found when analysing different investment strategies. However, it is important to note that other factors influence investment return. The next section aims to discuss some of those factors that commonly influence investors' returns, especially in South Africa.

2.4 Factors that influence investment return

The previous section focussed on the various strategies investors employ in selecting a stock. The strategy relies on criteria that the investor applies for stock selection. However, stock prices are susceptible to external factors. This section of

the literature review will briefly discuss the various factors that may influence share price and is categorized according to 1) primary factors and 2) secondary factors. Although both of the categories will affect share price, the general effect of primary factors will be greater than the effects of secondary factors. Additionally, no activity will have inadmissible effects on share prices and they are interconnected with each other.

2.4.1 Primary factors

Primary factors are those that have the greatest influence on the share price. 6 common factors fall within this category, namely: 1) supply and demand; 2) fundamental factors; 3) economy, government policies and political scenario; and 4) the declaration of dividends.

2.4.1.1 Supply and Demand

Commonly referred to as the technical factors, the single biggest factor that influences share price relates to the supply and demand of the shares. Supply and demand can include two variables: firstly, the supply and demand of the product the company produces or sells to consumers; and secondly, the supply and demand of the shares available for trade.

Relating to the former, if a company is seen to supply a product which is in high demand, investors would tend to buy the shares of the company. For example, Rijdsdijk, Nehring, Kizil and Roosta (2022) utilised the Lasso curve to determine how the share price of gold companies varies. Their research indicates a correlation between the production of a material and the share price. In essence, while the share price of a company traded comparatively low, once the given company discovered the raw material, the share price increased by as much as 700%. This is indicative of how the supply of the product influenced the share price of the company. Various other research (Buchholz & Brandenburg, 2018; Martin, Rentsch, Höck, & Bertau, 2017) exist on how these phenomena influence share pricing. Finally, the presence of substitutes (either investment substitutes such as corporate and government bonds, or product substitutes of a company) may result in a reduction in share price.

Relating the latter, the supply and the demand for a given stock also affect its price. It is considered that a dynamic interaction between buyers and sellers occurs. If more buyers move into the market, then demand will grow for the share price; resulting in that share prices will increase – especially if there is a limited supply. Research by Orosel (Orosel, 1997) concluded that market participants can result in ‘...noninformational volatility of share prices.’ Conversely, if the market participation declines to eventually reach a critical value, then a crash can be expected. Other factors such as share issues and share buyback (as will be discussed later in the literature review) will also affect the share price.

2.4.1.2 Fundamental factors

Fundamental factors include variables that will influence the financials of a given company. The methodology utilises various ratios to determine share prices. When an assumption is made that an efficient market is valid, share prices would be determined by metrics such as earnings base (such as financial metrics that include the EPS) and a valuation multiple. These factors are reliant on the value investing

2.4.1.3 Country economy, political scenario and government policies

It is common knowledge that the macroeconomic environment of a country and the world tend to influence the returns on a stock market. Some examples include inflation; interest rates; taxes; and government spending (Chan & Lin, 2017; Salisu & Vo, 2021; Uddin, Rahman, Shahzad, & Rehman, 2018). Generally, when interest rates and inflation increase, the economic outlook of a country is poor. Conversely, low inflation has had a strong inverse correlation with valuations; the reason for this is that low inflation tends to promote high multiples. Subsequently, it can be expected that the demand for a stock will decrease, resulting in a share price reduction (Uddin et al., 2018).

South Africa has been plagued with political instability for the last couple of decades. Factors such as the segregation policy known as Apartheid and the instability within the ruling party (African National Congress - ANC) have all contributed to constricted economic activity (Rapanyane & Ngoepe, 2020). One argument is that political instability has decreased economic activity and the coinciding electricity demand;

meaning that investor sentiment has reduced for the power generation industry (Andersen & Dalgaard, 2013).

2.4.1.4 Declaration of dividends

Dividends are a sum of money paid by a company to its shareholder from its profits. These amounts are paid regularly and can be seen as a reward the company gives to its shareholders. It is generally considered that if a company declares a dividend, share prices would increase. Conversely, if no dividends are declared, then share prices would decrease. An example of this was illustrated by Rosario and Chavali (2016) who found that share price increases such that a positive abnormal return is seen post the dividend declaration period. Various other research (Kadioglu, Telceken, & Ocal, 2015; Zahan & Rana, 2020) indicate that dividend declaration announcement affects the share price of companies.

2.4.2 Secondary factors

The second group of variables that affect share price are those that are categorized under the secondary factors segment. There are 4 secondary factors (with equity issuance being discussed in detail in the next section) worth noting, including 1) share buyback; 2) market sentiment and news; 3) BBEE (Broad-Based Black Economic Empowerment), company diversity, and ESG (Environmental, Social and Governance) integration, and 4) equity issuance through a rights issue. Although some cases may be sensitive, the key takeaway from this section is that share prices are influenced, either positively or negatively, by these factors.

2.4.2.1 Share buyback

A share buyback is defined as the process where a company buys back a proportion of its shares from investors. By doing so, the amount of shares is reduced to minimize supply, thus increasing the share price. Once the process has been conducted, the shares are either kept for future redistribution, or they are cancelled. This is common practice amongst publicly traded companies where it is estimated that approximately 75% of firms engage in such a process (Alquhaif, Al-Gamrh, & Abdul Latif, 2020)

Akhigbe, Kim and Madura (2007) conducted research to determine how the share price of a closed-end fund would vary after the announcement of a share-repurchase program. They found a significant yield for up to three years after the announcement of such a program. In their analysis, they found that the share price would increase by 1.63% on the date of such an announcement and would continue to grow to 2.72% for the quartile of funds that have the largest per-announcement price discounts.

2.4.2.2 Market sentiment and news

Market sentiment and the presence of news (also known as the discovery phase) relate to investor psychology and behavioural finance. As stated earlier, by utilising the momentum investing strategy, investors utilize investor psychology to favour them in making investment decisions. Investors attempt to make predictions on the future value of a stock based according to future growth prospects. These prospects are driven by events such as news or by analysing the current conditions of the market.

The effect of this can be large on the share price of a company. The continuation of the literature review will discuss how rights issue announcements tend to decrease share price. For this to be valid, an assumption must be made that the markets are inefficient. The inefficiency is explained by psychological and social science disciplines (Kadioglu et al., 2015; Marisetty, Marsden, & Veeraraghavan, 2008).

2.4.2.3 BEE, company diversity ESG integration

Another factor to consider is the effect of BBBEE which was designed to address the inequalities caused by the Apartheid system. However, it has been observed that the system has decreased investor annualized returns by as much as 6% (Ward & Muller, 2010). Another example relates to companies integrating ESG policies into their company. Moikwatlhai, Yasseen and Omarjee (2019) have noted that there are various short-term effects on share prices if ESG policies are implemented. As such, investors must be aware that returns can be affected to have a company that attains a higher ESG score.

The last secondary factor includes a rights issue. Given that the scope of the research relates to it, a new section will be initiated.

2.5 Equity issuance through a rights issue

A rights issue is an option-based financing approach where existing shareholders are given the option to purchase additional new shares of a company at a discount rate. The shareholders are not obliged to participate in the financing approach and only allows the shareholder to purchase a proportionate number of shares that is equal to a fraction of their current holding (Goet, 2021; Holderness & Pontiff, 2016; Wang, Wei, & Pruitt, 2006). Critically, the existing shareholders of the company have a preferential right to participate in the new issue, thus preventing share dilution (Shahid, Xia, Mahmood, & Usman, 2010). The latter is important in the event of a significant discount on new shares since the existing shareholders would be unable to mitigate the negative effect otherwise (Cotterell, 2011). It is also worth noting that shareholders may want to sell their rights if they do not want to participate in the event. The mechanics of a rights issue can be illustrated in the following example::

*If an investor owns 100 shares of **company X**, and the shares are trading at R10 a share, then the total value of the shares is R1000.00 (R10 x 100). The company announces a rights issue with a ratio of 1 to 5. That means that each investor who holds 5 shares will be eligible to buy 1 share. Additionally, the company announces a discounted price of R8 per share. That means for every 5 shares held by the shareholder, one share will be offered at a discount price of R8 (20% below its value). The key takeaways are as follows:*

- *The investor portfolio value before the rights issue = R1000.00*
- *Number of right shares received = $100 \times 1/5 = 20$*
- *The price that must be paid for the rights shares = $20 \times R8 = R160.00$*
- *The number of shares after the right issue = $100 + 20 = 120$*
- *The new portfolio value = $R1000.00 + R160 = R1160.00$*
- *Expected price of share after rights issue = $R1160.00/120 = R9.66/\text{share}$*

From the example given, it can be seen that the share price is expected to decrease. This is due to the addition of extra shares at a reduced price. However, the rights issue is communicated to shareholders through a formal announcement. That

means that given no rights issue has occurred, any change in share price is bought about by market reaction.

There are three elements on the share price to consider: firstly, the effect on the share price after the announcement of the JSE SENS; secondly, the short-term effect on the share price; and lastly, the long-term effect on the share price.

2.5.1 Share price variation due to rights issue announcement

The adverse effects on the share price of equity issuance are driven by two hypotheses. The first hypothesis states that there is negative information associated with a rights offering. One of the first studies was conducted by White and Lusztig (1980) who attempted to identify the thoughts of investors when such an event occurs. They implemented a cross-section time-series model and found that there is a statistically significant variance in the value of share prices after the conduction of such an event. The second hypothesis relates to market efficiency. It states that capital markets are inefficient, and assumes that "...management and investors' expectations differ and that investors require time to assimilate information" (Goet, 2021, p. 98).

Hansen (1988) first analysed the effects on share prices after the announcement of a rights issue occurred. They concluded that the average share price of a company tends to decrease by as much as 4%. They also concluded that rights offerings are not always preferred as transaction-cost conditions may render the value proposition of the transaction less. Similar to the last conclusion, research conducted by Gustafson and Iliev (2017) found that by removing barriers, the ability to raise equity can be increased by as much as 49% when deregulation of the market environment is seen. Furthermore, a reduction in equity issuance costs, increased investment, and a decrease in leverage can all promote the process of a rights issue. They concluded that a reduction in equity issuance barriers will benefit issuers in all markets, including highly developed ones. Research by Batista and Mariko (2017) indicates that although share prices are subject to a reduction when a rights issue announcement occurs, the effect is statistically insignificant, with p-values being 0.66 and $t=-0.44$. This behaviour was also observed by Susanto, Banani and Laksana (2020) in Indonesia. They found that no statistically significant effect can be seen on the share price after companies announced a rights issue. Conversely, research by

Asquity and Mullins (1986) seems to indicate that the issue announcement represents a 30% reduction in the value of equity issued. That being said, research by Nangia, Rangnekar, Bamel, Thenmozhi, Kumar, & Prasad (2012) indicates that rights issue announcements vary according to industry. For example, they found that "...rights issue announcement yields a positive return in the case of textile, IT and finance sectors, whereas, in the case of the chemical sector, the rights issue announcement yields a negative reaction." (Nangia et al., 2012, p. 11)

In terms of a South African context, research by Cotterell (2011) indicate that share price reduction between -2.33% and -3.30% based on the CAARs can be expected on the announcement date and continues to decrease to between -5% and -6% for the following 5 days. Furthermore, companies that were categorized as unhealthy suffered CAARs for the same period of -9.17% (Cotterell, 2011). Similarly, van der Merwe (2016) found that the CAARs of companies who made rights issue announcements experienced a 2.90% reduction in share price, while Setati (2014) observed a statistically significant share price reduction of 12.79%.

2.5.2 Share price variation due to rights issue

Internationally, various research exists that investigate equity issuance of a specific stock exchange. For example, McLean, Pontiff and Watanabe (2009) conducted research relating to the returns of various companies after a rights issue has taken place. Their findings concluded that share issuance can predict cross-sectional returns for international countries. Furthermore, their findings indicate that share creation is measured according to the low returns after share issuance, whereas in the USA, it is driven by positive returns following share repurchases. They also concluded that the share issuance effect is related to the ease with which the companies can issue and then, subsequently, repurchase their shares. Lucas and McDonald (1990) made the observations that some companies are subject to an abnormal positive return on stock before the rights issue, while others experience a reduction in share price. They also observed that share prices tend to reduce according to the announcement of a rights issue.

Additionally, research conducted by Zhou et al. (2019) indicates that the share equity effect is higher for small and midsize stocks, but comparatively low for large stocks.

Similarly, research by Ong, Ooi and Kawaguichi (2011) indicates that an increased level of equity issuance is likely to enhance the likelihood of offerings.

The underlying driver behind the implementation of a rights issue is a company's capital structure. Companies have the choice to fund their operations and acquisitions through a combination of debt and equity. This is known as leverage whereby the appropriate debt-to-equity and amount of short-term and long-term debt is driven by the company objectives (Cotterell, 2011).

The aforementioned company objectives are set according to various trade-offs. For example, one benefit of debt is the associated tax deductibility of interests. Conversely, this will expose the company to potential bankruptcy and financial distress – higher equity enables companies to reduce the risk of bankruptcy and financial distress. That being said, the cost of equity generally exceeds the cost of debt (meaning that firms may choose to mitigate the risks but at increased capital costs) (Cotterell, 2011; Fama & French, 2005). Companies can reduce their leverage by adding equity to their capital structure by foregoing the payment of dividends, or by issuing new shares. However, this may be restrictive due to transaction costs.

That being said, it has been observed that share prices tend to reduce just before the rights issue announcement (Cotterell, 2011). Finally, research is limited in investigating the effect of a rights issue according to a market segment. Therefore, an investigation into different sectors is required.

The next section will cover the theory relating to this occurrence.

2.5.3 Signalling theory

Signalling theory states that signallers are stakeholders within a company (insiders) who have access to confidential information about the business (Yasar, Martin, & Kiessling, 2020). The information can either aid the business functionality, or be detrimental to share pricing; whereby the intangible information can be shared by management through signalling. Asquith and Mullins (1986) suggest that the addition of new equity can be considered a negative signal, since company management may issue equity if they believe that the share price is overvalued, or if they can't perform daily activities. Relating the former, companies tend to issue

equity when the share price is overvalued and then initiate a share buyback when the shares are undervalued.

Daniel and Titman (2006) recognized this and developed a model to assist investors in determining the effect on share price based on tangible and intangible information. Relating to the research, tangible information is defined as the "...stock return that would be expected based solely on the past fundamental-growth measures" (Daniel et al., 2006, p. 1607). Intangible information was defined as the returns on an unexplained stock. An example of this is the investor response to information that was not captured in the existing accounting growth measures, such as equity issuance. The following mathematical log function was used to discuss the framework, based on the B/M ratio approach:

$$i(t - \tau, t) = \log\left(\frac{ME_t}{ME_{t-\tau}}\right) - r(t - \tau, t) \quad (1)$$

Where $i(t - \tau, t)$ is the growth of the market value of the firm not attributed to stock returns; ME_t is the total market equity at time t ; τ is the period ago (time before measurement).

In this framework, the intangible information would be considered as equity issuance whereby a relationship between equity issuance and stock return would be calculated. The author verified this model based on information from their stock exchange.

The following section will discuss the method used in calculating abnormal returns.

2.6 Event studies and Measuring Abnormal Returns

Event studies is an analysis tool that measures the impact of a specific event on the value of a firm according to changes in its share price obtained from financial market data (MacKinlay, 1997). Event studies have taken prominence over traditional accounting measurement tools given that they are less prone to manipulation by companies. An event study is initiated by calculating the expected return and then comparing that to the actual return (this process will be explained in the methodology section). Once completed, the average returns must be calculated. Mushidzi and Ward (2004) have identified three underlying assumptions that must be considered when calculating the abnormal returns of share prices:

1. The market is efficient and integrates all available information;
2. The market becomes aware of unanticipated events through an official announcement; and
3. There are no confounding events that occur during the study period.

The abnormal returns can be calculated according to the theory by Mackinlay (1997), whereby the event is described as the "...actual ex-post return of the security over the event minus the normal return of the firm over the event window. The normal return is defined as the expected return without conditional on the event taking place." (MacKinlay, 1997, p. 15). The abnormal return for a firm i and event date t can be depicted according to the following equation:

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

Where:

- AR_{it} = Abnormal return for the period t
- R_{it} = Actual return for the period t
- $E(R_{it}|X_t)$ = Normal returns for the period t
- X_t = Is the conditioning information for the normal return model

Utilizing the aforementioned equation, the Average Abnormal Returns (AARs) can be calculated for each day, whereby it aims to calculate the average of all abnormal returns for each company for a particular period/day t . Similarly, the Cumulative Average Abnormal Returns CAARs for the same period that integrates all the average returns for the days preceding day t in the event window must also be calculated (Cotterell, 2011; Stevens, 2008).

The Market Model and the Control Portfolio model, as outlined by Cotterell (2011) and Mackinlay (1997), will be utilized for this study. Relating to the Market Model, an assumption is made that a linear relationship between the market return and the return of the individual security exists. The equation used to calculate the abnormal return for a company is as follows (Cotterell, 2011; MacKinlay, 1997):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (3)$$

Where:

- R_{it} = The return of a firm i as a function of time t
- α_i = The intercept of firm
- β_i = The risk factor of the firm
- R_{mt} = The period return on the market portfolio
- ε_{it} = The Zero mean disturbance term

The Control Portfolio Model must be used with the Market Model, given that the latter relies on a linear relationship and that the former improves the Beta by integrating various factors. These factors explain the cross-section of expected returns and integrate factors such as leverage, B/M ratios, and P/E ratios (Smit & Ward, 2007). The equation that was used can be depicted as follows:

$$E(R_i) - R_f = b_1[E(R_m) - R_f] + S_1E(SMB) + h_1E(HML) + \varepsilon_{it} \quad (4)$$

Where;

- $E(R_i)$ = The expected return of firm i (%)
- R_f = The risk-free rate (%)
- b_1 = The Market Beta (β)
- $E(R_m)$ = The expected return on the market portfolio (%)
- S_1 = The tilt factor coefficient from large to small company shares
- $E(SMB)$ = The expected difference in return between small and large company shares
- h_1 = The tilt factor coefficient to value growth companies
- $E(HML)$ = The expected difference in return between value companies and growth companies
- ε_{it} = The error term (Cotterell, 2011; Smit et al., 2007)

Utilizing this equation underlies the 12-factor control portfolio introduced by Ward and Muller (2010), and will be utilized in the completion of this research.

2.7 Conclusion

The literature review aimed to provide fundamental background into investor sentiment and strategies when deciding on an investment approach. One of the strategies that were identified was the passive value investing approach where investors utilize past accounting measures, amongst others, to predict the future growth of a company. Additionally, the investors would also consider secondary factors (such as intangible information) as part of determining the feasibility of investing in a company. One of those factors is equity issuance through a rights issue. The literature review examined past research relating to equity issuance, and how it affects various markets across the world. One key factor was that there is little research relating to the subject matter within a South African context. As such, there exists an opportunity for research to be implemented on more recent information, and that investigates the behaviour according to market segments. Therefore, the same research can be conducted where companies are categorized according to different metrics, as will be discussed in section 4.

Section 3 provides the different hypotheses that were used in conducting the research.

3 Research Hypotheses

3.1 Introduction

The study aims to determine the short-term and long-term effects on share price and company Cumulative Average Abnormal Returns (CAARs) after equity has been issued, through a process known as a rights issue. Therefore, the research question from section 1 can be further elaborated as follows:

- What effect, both short-term and long-term, is present on the share price of listed companies on the Johannesburg Stock Exchange (JSE) after those companies have issued equity?

This is an overarching question that can be narrowed. As such, different hypotheses were developed in line with the aforementioned question and research objectives.

3.2 Hypotheses

Given that the research is quantitative, hypotheses must be derived. The hypotheses can be broken down according to the announcement date and the rights issue. The five hypotheses are as follows:

3.2.1 Hypothesis 1

The first hypothesis seeks to determine the effect of a rights issue announcement on the share price and CAARs of a company. Therefore, the null hypothesis states that the announcement of a rights issue does not influence the share price of a company. Conversely, the alternative hypothesis states that the occurrence of a rights issue announcement harms the share price of a company. The latter hypothesis is driven by research by Zhou, Armitage and Michou (2019) who found that share prices are prone to rights issue announcements.

The hypothesis can be represented by the following equations:

$$H_{01}: CAAR_{ARI} = 0 \quad (5)$$

$$H_{A1}: CAAR_{ARI} < 0 \quad (6)$$

Additionally, the rationale behind this hypothesis is based on the research conducted by Pascoe, Ward and Mackenzie (2005), whereby they seek to confirm a negative

share price response to rights issues. Unlike their research, this research is applied over 17 years with more recent results applicable to this study. Subsequently, the scope is enlarged which enables the testing of additional variables.

3.2.2 Hypothesis 2

The second hypothesis aims to determine the effect of a rights issue on the share price and CAAR of a company. Therefore, the null hypothesis states that the occurrence of a rights issue does not affect the share price and CAARs of the company. The alternative hypothesis states that the occurrence of rights issues will negatively influence the share price of a company. These hypotheses can be represented by the following equations:

$$H_{02}: CAAR_{RI} = 0 \quad (7)$$

$$H_{A2}: CAAR_{RI} < 0 \quad (8)$$

3.2.3 Hypothesis 3

The third hypothesis seeks to determine if the relative size of the rights issue categorically affects the share price and CAARs of the company. In other words, will the CAARs be influenced if the relative size of the rights issue is increased? The null hypothesis states that the effect on the CAARs is not affected by the relative size of the rights issue. Conversely, the alternative hypothesis states that the effect on CAARs increases as the relative weight (which is categorized according to percentile) of the rights issue is increased. The hypotheses can be represented by the following equations:

$$H_{03}: CAAR_{1st\ qua} = CAAR_{2nd\ qua} = CAAR_{3rd\ qua} = CAAR_{4th\ qua} = CAAR_{5th\ qua} \quad (9)$$

$$H_{A3}: CAAR_{1st\ qua} < CAAR_{2nd\ qua} < CAAR_{3rd\ qua} < CAAR_{4th\ qua} < CAAR_{5th\ qua} \quad (10)$$

3.2.4 Hypothesis 4

The fourth hypothesis aims to determine the effect of a rights issue on resource and non-resource companies. Although limited research could be found that investigates the effect of a rights issue on different sectors, evidence suggests that sectors segmentation influences various financial metrics, including the cost of capital, leverage ratios, P/E ratios and revenues (Crivelli & Gupta, 2014; Jayanthakumaran & Bari, 2021). According to this, the hypothesis will be broken down into three sections. The first section will focus on resource companies, while the second

section will focus on non-resource companies. Finally, the last section will focus on comparing resource companies to non-resource companies.

3.2.4.1 Hypothesis 4A

This section will focus on the announcement date and rights issues of resource companies. Concerning the announcement of the rights issue, the null hypothesis states that there will be no influence on the share price of resource companies, while the alternative hypothesis states that the occurrence of a rights issue announcement harms the share price of a resource company. The equations of these hypotheses are depicted as follows:

$$H_{04AA}: CAAR_{A4A} = 0 \quad (11)$$

$$H_{A4AA}: CAAR_{A4A} < 0 \quad (12)$$

Concerning the rights issue, the null hypothesis states that the rights issue does not influence the share price of resource companies. Conversely, the alternative hypothesis states that the occurrence of a rights issue harms the share price of a resource company. The equations of these hypotheses are depicted as follows:

$$H_{04ARI}: CAAR_{RI4A} = 0 \quad (13)$$

$$H_{A4ARI}: CAAR_{RI4A} < 0 \quad (14)$$

3.2.4.2 Hypothesis 4B

This section will focus on the announcement date and rights issues of non-resource companies. The null hypothesis states that the announcement of a rights issue does not influence the share price of non-resource companies. The alternative hypothesis states that the occurrence of a rights issue announcement reduces the share price of a resource company. The equations of these hypotheses are depicted as follows:

$$H_{04BA}: CAAR_{A4B} = 0 \quad (15)$$

$$H_{A4BA}: CAAR_{A4B} < 0 \quad (16)$$

Concerning the rights issue, the null hypothesis states that the rights issue does not influence the share price of non-resource companies. Conversely, the alternative hypothesis states that the occurrence of a rights issue harms the share price of a non-resource company. The equations of these hypotheses are depicted as follows:

$$H_{04BRI}: CAAR_{RI4B} = 0 \quad (17)$$

$$H_{A4BRI}: CAAR_{RI4B} < 0 \quad (18)$$

3.2.4.3 Hypothesis 4C

This final section will focus on comparing resource and non-resource companies to each other based on the announcement date. The null hypothesis states that the announcement of a rights issue equally influences the share price of resource and non-resource companies. The first alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on resource companies. Conversely, the second alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on non-resource companies. The equations of these hypotheses are depicted as follows:

$$H_{04CA}: CAAR_{RC} = CAAR_{NRC} \quad (19)$$

$$H_{1A4CA}: CAAR_{ARC4C} > CAAR_{ANRC4C} \quad (20)$$

$$H_{2A4CA}: CAAR_{ARC4C} < CAAR_{ANRC4C} \quad (21)$$

The following set of hypotheses will focus on comparing resource and non-resource companies to each other based on the rights issue. The null hypothesis states that the rights issue equally influences the share price of resource and non-resource companies. The first alternative hypothesis states that the occurrence of a rights issue has a greater impact on resource companies, while the second alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on non-resource companies. The equations of these hypotheses are depicted as follows:

$$H_{04CRI}: CAAR_{RC} = CAAR_{NRC} \quad (22)$$

$$H_{1A4CRI}: CAAR_{RC4C} > CAAR_{NRC4C} \quad (23)$$

$$H_{2A4CRI}: CAAR_{RC4C} < CAAR_{NRC4C} \quad (24)$$

3.2.5 Hypothesis 5

The fifth hypothesis aims to determine the effect of a rights issue on value and growth companies. Similar to the above, evidence suggests that sector segmentation influences various financial metrics (Crivelli et al., 2014; Jayanthakumaran et al., 2021). Under this, the hypotheses will be broken down according to three sections. The first section will focus on value companies, while the second section will focus on growth companies. The last section will focus on comparing value and growth companies to each other.

3.2.5.1 Hypothesis 5A

This section will focus on the announcement date and rights issues of value companies. Concerning the announcement of the rights issue, the null hypothesis states that the announcement of a rights issue does not influence the share price of value companies. Conversely, the alternative hypothesis states that the occurrence of a rights issue announcement devalues the share price of a value company. The equations of these hypotheses are depicted as follows:

$$H_{05AA}: CAAR_{A5A} = 0 \quad (25)$$

$$H_{A5AA}: CAAR_{A5A} < 0 \quad (26)$$

Concerning the rights issue, the null hypothesis states that the rights issue does not influence the share price of value companies. Conversely, the alternative hypothesis states that the occurrence of a rights issue negatively affects the share price of a value company. The equations of these hypotheses are depicted as follows:

$$H_{05ARI}: CAAR_{RI5A} = 0 \quad (27)$$

$$H_{A5ARI}: CAAR_{RI5A} < 0 \quad (28)$$

3.2.5.2 Hypothesis 5B

This section will focus on the announcement date and rights issues of growth companies. The first null hypothesis states that the announcement of a rights issue does not influence the share price of growth companies. The alternative hypothesis states that the occurrence of a rights issue announcement devalues the share price of a growth company. The equations of these hypotheses are depicted as follows:

$$H_{05BA}: CAAR_{A5B} = 0 \quad (29)$$

$$H_{A5BA}: CAAR_{A5B} < 0 \quad (30)$$

Concerning the rights issue, the null hypothesis states that the rights issue does not influence the share price of growth companies. Conversely, the alternative hypothesis states that the occurrence of a rights issue negatively influences the share price of growth companies. The equations of these hypotheses are depicted as follows:

$$H_{05BRI}: CAAR_{RI5B} = 0 \quad (31)$$

$$H_{A5BRI}: CAAR_{RI5B} < 0 \quad (32)$$

3.2.5.3 Hypothesis 5C

This final section will focus on comparing value and growth companies to each other based on the announcement date. The null hypothesis states that the announcement of a rights issue equally influences the share price of value and growth companies. The first alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on value companies. Conversely, the second alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on growth companies. The equations of these hypotheses are depicted as follows:

$$H_{05CA}: CAAR_{VC} = CAAR_{GC} \quad (33)$$

$$H_{1A4CA}: CAAR_{AVC5C} > CAAR_{ARC5C} \quad (34)$$

$$H_{2A4CA}: CAAR_{AVC5C} < CAAR_{ARC5C} \quad (35)$$

The following set of hypotheses will focus on comparing value and growth companies to each other based on the rights issue. The null hypothesis states that the rights issue equally influences the share price of value and growth companies. The first alternative hypothesis states that the occurrence of a rights issue has a greater impact on value companies. Conversely, the second alternative hypothesis states that the occurrence of a rights issue announcement has a greater impact on growth companies. The equations of these hypotheses are depicted as follows:

$$H_{05CRI}: CAAR_{VC} = CAAR_{GC} \quad (36)$$

$$H_{1A5CRI}: CAAR_{VC5C} > CAAR_{GC5C} \quad (37)$$

$$H_{2A5CRI}: CAAR_{VC5C} < CAAR_{GC5C} \quad (38)$$

3.3 Conclusion of section

This section focused on the development of the different hypotheses on which the research is based. Five hypotheses were derived based on the effect on the share price and CAARs of an announcement concerning equity issuance, followed by the rights issue. Three additional hypotheses were developed that aim to determine the effect of the equity issuance size on the CAARs of companies; followed by developing hypotheses that focus on resource vs. non-resource companies, and value vs. growth companies.

The next section will describe the methodology used in categorizing companies according to a criterion, followed by the methodology used in analysing the results.

4 Research Methodology and Design

The purpose of this section is to discuss the process used in conducting the research. Given that a quantitative analysis process was used, the hypotheses will be accepted or rejected according to the results and conclusions from the research.

This section is structured as follows:

- Section 4.1 introduces the research design
- Section 4.2 discusses the key assumptions and prerequisites associated with the data acquisitions
- Section 4.3 provides all information relating to the selected population
- Section 4.4 outlines the methodology used in statistically analysing the data
- Section 4.4 provides a summary of the limitations
- Section 4.5 concludes this section.

4.1 Research methodology and design

The investigation into the effect of equity issuance on the share price of listed companies on the Johannesburg Stock Exchanges (JSE) involves making statistical observations in line with the positivist philosophy (Alharahsheh & Pius, 2020). This was conducted by utilizing generalisations (Saunders & Lewis, 2017) and applying the deductive approach to ascertaining the validity of the hypotheses.

The descripto-explanatory process was used in the research to describe a relationship between equity issuance and the share price of companies, while a secondary data analysis approach was utilized to reject or accept the various hypotheses. In line with this, a quantitative mono-method was used to address the hypotheses (Saunders et al., 2017). Subsequently, the research was based on deductive reasoning whereby existing content was tested against new frameworks (Kyngäs & Kaakinen, 2020).

Anomalies, such as other 'shock' events that may influence the results, may be present in the results of the research. However, these are mitigated through the use of increased sampling and research designs that model the effect of economic factors on other economic prices (Susanto Basu & Bundick, 2017). The

determination of a causal relationship was assessed according to the strength of the correlation and trendlines, and the various variables.

4.1.1 Time horizons and unit of analysis

A longitudinal study was applied to ascertain correlations according to selected variables over a short-term period after the event has occurred (Caruana, Roman, Hernández-Sánchez, & Solli, 2015). The main advantages of this method can be summarized as follows:

- It provides the ability to relate events to a particular occurrence
- The events are in sequence, and
- Change over time was observed.

The unit of analysis includes listed companies on the JSE that announced a rights issue between 1 January 2005 and 30 September 2022. Unlike previous research (Cotterell, 2011; Setati, 2014), which was limited to a shorter unit of analysis, the 17-year period of this research allowed the addition of variables that were not previously tested; mainly due to limited data.

4.1.2 Population and data collection

The research population includes all companies that initiated a rights issue within the said unit of analysis. The companies that initiated a rights offering were identified according to two methods:

4.1.2.1 *Announcement date*

The first method includes conducting algorithmic searches on the JSE SENS (Stock Exchange News Services) (JSE Client Portal, 2022b). The JSE SENS provides historic announcements that were made to investors and includes information such as management meetings, declaration of dividends and the initiation of rights issues. Given that various announcements occur daily, identifying announcements can become time-consuming and irregular. To mitigate this, an algorithm was utilized to search for specific announcements. The algorithm conducted various iterations, and utilized the following keywords as part of screening the samples:

- “Rights”

- “Rights” AND “offering”
- “Rights” AND “declaration”
- “Equity” AND “Issuance”

In some instances, a rights issue was found in the JSE bulletin without obtaining the announcement date in the SENS. Therefore, desktop research was conducted to determine the dates of the announcement manually.

4.1.2.2 Rights issue

The occurrence of a rights issue was obtained from the JSE bulletin. The JSE bulletin is a database of all historic transaction data that occurred on the JSE (JSE Client Portal, 2022a). In the case of the research, historic share prices of approximately 150 companies, in addition to companies that have been subject to delisting (JSE Client Portal, 2022a), were utilized.

Finally, all of the data had to adhere to certain key assumptions and prerequisites. If they did not comply with the requirements, they were removed from the results.

4.2 Key assumptions and prerequisites

According to Saunders and Lewis (2017), the method according to which a sample is selected depends, to a certain extent, on the research question. The research aims to interrogate the extent to which the share price changes according to shares being issued. To determine the aforementioned, companies who comply with the given independent variable must be analysed and, similarly, those who complied with a different independent variable must also be analysed. Therefore, stratified sampling was used.

The primary data was collected from the JSE using a structured observation process to determine if a rights issue had occurred. Given that publicly listed companies were analysed, data from those companies can be obtained from the JSE SENS (Johannesburg Stock Exchange, 2022). Once the data had been obtained, it was reorganised according to the predetermined independent variables. To ensure that the companies complied with the variables, historic data relating to equity issuance were gathered.

Following this, the next section will be categorized according to the population and the different hypotheses. The first two sections focus on all announcements and rights issues, following the requirement of categorizing each variable according to a percentile. The last two sections discuss the selection process in determining if the companies are resource vs. non-resource and value vs. growth.

4.3 Population

Approximately 150 JSE-listed companies were utilized in the research. The biggest 150 companies (in terms of market capitalisation) were used in an attempt to mitigate the effect on small companies that may cause outliers and skew the results. When categorizing the companies accordingly, the effect of a major event (announcements, economic activity and acquisitions) may influence the results. However, it would not affect the results since those events would have occurred in any case, irrespective of the size of the rights issue. Finally, each of the relevant companies was reorganised according to company size and industry.

4.3.1 All announcement and rights issue requirements

While there is no unique structure according to which an event study can be conducted, MacKinlay (1997) motivates why a selection criterion must be applied when selecting companies. Pascoe, Ward and MacKenzie (2005) presented an acceptance criteria for selecting companies on which a rights issue analysis must be conducted. The same criteria were applied to the research (Pascoe et al., 2005):

1. Only ordinary shares were included.
2. Only rights for shares in the issuing company were considered.
3. Only companies where data in the bulletin are available were used in analysing the results.
4. Announcements with less than 80 daily returns in their estimation period (the period used to create the bootstrap analysis) were discounted.
5. Announcements, where data of less than 40 and 80 days before and after the announcement occurred, were excluded.
6. Rights issues with less than 80 daily returns in their estimation period (the period used to create the bootstrap analysis) were discounted.

7. Rights issues where data of less than 40 and 80 days before and after the announcement occurred were excluded.
8. Only Rand-denominated shares were utilized

There were additional requirements included as part of the selection criteria by Pascoe, Ward and MacKenzie (2005). These requirements were however excluded from the selection criteria given that the scope increased for this research. That being said, they must be considered when analysing the results as they may influence the results. The requirements can be summarised as follows:

1. Any significant transactions outside the normal course of business, including the signing of a major contract, an impending merger, new product announcements, and the filing of a large lawsuit, were excluded from the research.
2. Simultaneous announcements of annual or interim financial announcements were excluded as they will act as confounding events.
3. Rights issue announcements that were anticipated before the formal announcement must be excluded. Examples of this include where the press publishes an announcement before the formal announcement has been made.

4.3.2 Percentile classification

The third hypothesis aims to determine the effect of relative rights issue size on the share price of companies. To determine the relative rights issue size, the following equation was utilized:

$$W_{RI} = \frac{N_{CR}}{N_{MC}} \times 100 \quad (39)$$

Where:

- W_{RI} = Weight of rights issue
- N_{CR} = Capital raised in the rights issue
- N_{MC} = Market capitalisation of the company at the time of the rights issue

Once calculated, each company was categorized according to a quantile, which is a function of percentile. This was achieved by ranking the companies from small to large according to their weight. Once completed, each company was then classified according to the following equations (Taylor, 2019):

$$0 \leq P_{1st} < \frac{P_1}{100} \times \sum N_{RI} \quad (40)$$

$$\frac{P_1}{100} \times \sum N_{RI} \leq P_{2nd} < \frac{P_2}{100} \times \sum N_{RI} \quad (41)$$

$$\frac{P_2}{100} \times \sum N_{RI} \leq P_{3rd} < \frac{P_3}{100} \times \sum N_{RI} \quad (42)$$

$$\frac{P_3}{100} \times \sum N_{RI} \leq P_{4th} < \frac{P_4}{100} \times \sum N_{RI} \quad (43)$$

$$\frac{P_4}{100} \times \sum N_{RI} \leq P_{5th} \leq \frac{P_5}{100} \times \sum N_{RI} \quad (44)$$

Where:

- P_n = nth Percentile
- $\sum N_{RI}$ = Sum of rights issues

4.3.3 Resource and non-resource classification

Companies were categorized according to their core functionality. Desktop research was conducted into each company to determine its business environment. If their function relates to resource-based products, they would be classified as a resource. Conversely, if they are not resource-based, they were classified as non-resource.

4.3.4 Value vs. growth classification

Each company was categorized by utilizing the earnings yield (EY) of the company on the date of the announcement, followed by comparing that value to the median earnings yield of all the companies on the All Share Index at the time. The earnings yield for the company on the announcement date was acquired through the JSE bulletin.

For a company to be classified as a value, its earnings yield must be lower than the median earnings yield on the all-share at the time. Conversely, growth companies yielded a higher-than-median earnings yield at the time. A requirement was enforced

that the company had a positive earnings yield. Companies that consisted of negative earnings yield were excluded from this section, as they were making a loss. In essence, they didn't qualify to be classified as either value or growth companies.

Their classification can be depicted as follows:

$$\text{Value companies: } EY < \tilde{x}_{EY: All-share} \quad (45)$$

$$\text{Growth companies: } EY \geq \tilde{x}_{EY: All-share} \quad (46)$$

Where:

- EY = Earnings yield (%) > 0
- $\tilde{x}_{EY: All-share}$ = Median EY on All Share Index (%)

4.3.5 Data integrity

Given that the data was obtained directly from the JSE (2022), an assumption was made that the quality of the data is accurate. However, the biggest risk relates to the quality control of interpreting the data. Since the historic data was analysed using an algorithm, the validity of the results must be verified. To ensure the results are reliable, a validity process (similar to engineering calculations being compared to simulation results from FEA) was implemented. That means that both the results from the algorithm must fall within a certain range. Various research (Kosar, Bohra, & Mernik, 2018; Thornton & Thornton, 2004; Wan, Wang, Liu, & Tong, 2014) suggest that a margin of error of between 0-6% is acceptable. For the research, errors were reduced to below 2%. Finally, to test the accuracy of the algorithm, a repeat of the research was implemented in a study where the results are known. That means that the results of the algorithm can be verified in a process known as predictive validity (Clemens, Ragan, & Pricket, 2018).

Some companies were rejected if abnormal data or the absence of share price data were seen. Relating the former, outlier share prices were set at 20%, whereby any daily share price variation above the said value was excluded from the study.

4.3.6 Event window

The event window relates to the data before and after the announcement and the rights issue that had occurred. For data integrity and statistical analysis, Mackinlay

(1997) recommends that all data must be captured. The event window can be summarised as follows:

- 40 workdays before the announcement occurred.
- 80 workdays after the announcement occurred.
- 40 workdays before the rights issue occurred (this may overlap with the announcement date).
- 80 workdays after the rights issue occurred.
- Any set of 120 consecutive workdays that falls outside the period surrounding the announcement and rights issue date (this will be used for the statistical analysis).

4.4 Data analysis

A deductive analysis approach was used for the research. The data was categorized as numerical ratio data whereby variances were determined using the appropriate ratio for comparison purposes. In analysing the data, the results will be depicted using diagrams and graphs to identify possible relationships in the findings. Statistical analysis was conducted to describe the data and to examine and assess any relationships (Saunders et al., 2017).

Historical data was captured and statistically analysed using a style analysis and events study approach (similar to that applied by Ward and Muller (2010)) for variations in share price. An event study methodology using 12-factor abnormal return estimates was conducted. To capture the data, a non-participant observation method was implemented. According to Saunders and Lewis (2017) and Yaya (2014), it is advised that the goal of the research is clearly defined before conducting the research; preliminary observations be carried out to identify certain behaviours; and constructing or summarizing those behaviours through a mechanism. Relating to the latter, statistical analysis was conducted through means (weighted and non-weighted) and graphs whereby Microsoft Excel was utilized.

4.4.1 Calculation of means and standard deviation

The first requirement was to calculate the means of the descriptive statistics. Means were calculated by summing the observations and dividing them by the number of

observations. This assisted in depicting overarching observations and tendencies concerning relationships and patterns. Depending on the requirement, the means were calculated at least once for every variable (announcements, rights issue, percentile, resource vs. non-resource and value vs. growth).

In some cases, the presence of outliers was observed. To determine which value is more applicable for analysis purposes, the mean or median, and the standard deviation was calculated.

The daily average returns were depicted using a column and line graph (whichever, would be more appropriate according to state). Additionally, the CAARs were calculated on account of the information in the event (Ward, 2010). The total return, R_{it} , (also known as the CAARs), on the average shares was calculated for a given time using the log function (Ward, 2010):

$$R_{it} = \ln\left(\frac{P_1}{P_0}\right) \quad (47)$$

Where:

- P_1 = The average share price at the time interval
- P_0 = The average share price at the original time interval.

A graphical depiction of the results was implemented to illustrate the effect of equity issuance on the share price. In doing so, the Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) were calculated for each day according to the event window, and then plotted as a function of time. In line with that, statistical graphs were also plotted to depict significance according to a multi-method statistical approach.

4.4.2 One-sample t-tests

One-sample t-tests were conducted to determine significant variations of single values from a given constant. This was conducted on the AARs measured against a benchmark of zero at the beginning of each day (by inference, that would be the last results from the previous day).

In addition, two-tailed (positive and negative) testing was conducted for both the AARs and the CAARs, with the expectation that this would enable testing of the

hypotheses, while also providing additional statistically significant results for analysing purposes. A p-value of 0.05 for both directions was obtained and used to indicate the point of statistical significance.

4.4.3 Boot-strapping analysis

Since the data are noisy and volatile by nature, traditional parametric statistics are not possible since the data is unlikely to be normally distributed. Consequently, a bootstrap distribution approach was applied where a metric is tested that utilises random sampling. In essence, it is expected that daily abnormal returns on each of the shares will be seen. Subsequently, a bootstrap for one day of annualized returns for each sample must be created. This will then allow for the abnormal returns over the event period to be tested against this distribution for significance. Finally, a new distribution will be created and that will be used as a reference for statistical testing (such as calculating standard errors) (Ward et al., 2010).

By using a window of 40 days before and 80 days after the announcement and rights issue occurred, the distribution of 100 abnormal return observations was randomly created. The random observations were then used as a reference according to which significance values were generated for 120 days, with the aim being to create the 5th and 95th percentile boundaries. According to Ward and Muller (2010), this method is superior to the one-sample t-tests as there are no assumptions of normality.

4.5 Limitations

The first limitation relates to the announcement of rights issues. Due to the convoluted nature of the data on the SENS, some announcements were not found (refer to Appendix A for a summary of all the companies analysed). Subsequently, the sample size was reduced.

Secondly, confounding simultaneous announcements were not excluded from the research. That means that the effect of the simultaneous announcements may be integrated into the results used for analysing.

Further to the second limitation, the interpretation of the results may be skewed. To gain an understanding of the possible limitations that may be encountered in the study, research must be conducted into the possible limitations relating to

quantitative research. According to Queiros, Faria and Almeida (2017), one of the major limitations of the proposed research method is that no direct cause can be inferred. That means that it may become difficult to validate or discredit the hypotheses as it is difficult to deduce correlation (i.e. is the change in share price due to increased efficiency or because of a different external occurrence?).

The fourth limitation relates to externalities that were not communicated through an announcement. Subsequently, this may result in share price variation within the scope of the research. For example, research conducted by Wesson, Muller and Ward (2018) has identified that standard errors limit certain conclusions about whether the price changes are temporary or permanent. Although the statistical interpretation method aims to mitigate the effect of external occurrences, some factors might not be accounted for.

The fifth limitation relates to the repurchase of shares. It can be expected that companies might want to enforce a share buyback. This means that shares are bought back by the company to limit supply. In theory, this will conclude the process of a rights issue. However, this study focuses solely on the process of a rights issue. For future research, it is advised that share buybacks be investigated and compared to a rights issue.

The last variable relates to trading costs. Trading costs, such as brokerage costs, were not considered as part of the research. This means that the cost of the rights issue is higher in comparison with the result obtained in the research.

4.6 Conclusion

This section provided the methodology utilized in conducting the research. All of the relevant characteristics that must be considered were integrated into this section, including depicting the various mathematical models used in analysing the data. Finally, expected limitations to the research were identified but will be expanded in the conclusion section. The next section will depict the results of the study.

5 Results

The purpose of the results section is to depict the fundamental findings from the research. Due to the extensive analysis conducted (as seen in the discussion section), a brief discussion of the underlying results is presented in this section. This section is categorized into seven subsections according to the objectives of the research question and hypotheses.

The first section, titled 'summary of event occurrence', provides fundamental descriptive statistics relating to the various rights issues; followed by section two which describes the process of how the data was interpreted. The subsequent five sections are categorized according to the descriptive statistics based on the five different hypotheses.

5.1 Summary of event occurrence

This section aims to provide a summary of the frequency at which a rights issue occurred over the study period. The summary is provided according to the information obtained from the JSE bulletin and does not integrate information about the announcement date. Therefore, Figure 4 depicts the yearly frequency at which each rights issue occurred (depicted in the column graph), and the average weight for each rights issue (denoted by the first line graph). Average weight was denoted as a function of the capital raised through the rights issue and the market capitalisation of the company at the given time. This value would then be used to categorize each company according to a quantile.

Another important statistic is the standard deviation of the weight for each rights issue; with the aim being to determine the presence of possible outliers in the data that may skew the results. The result of the latter is denoted by the grey line.

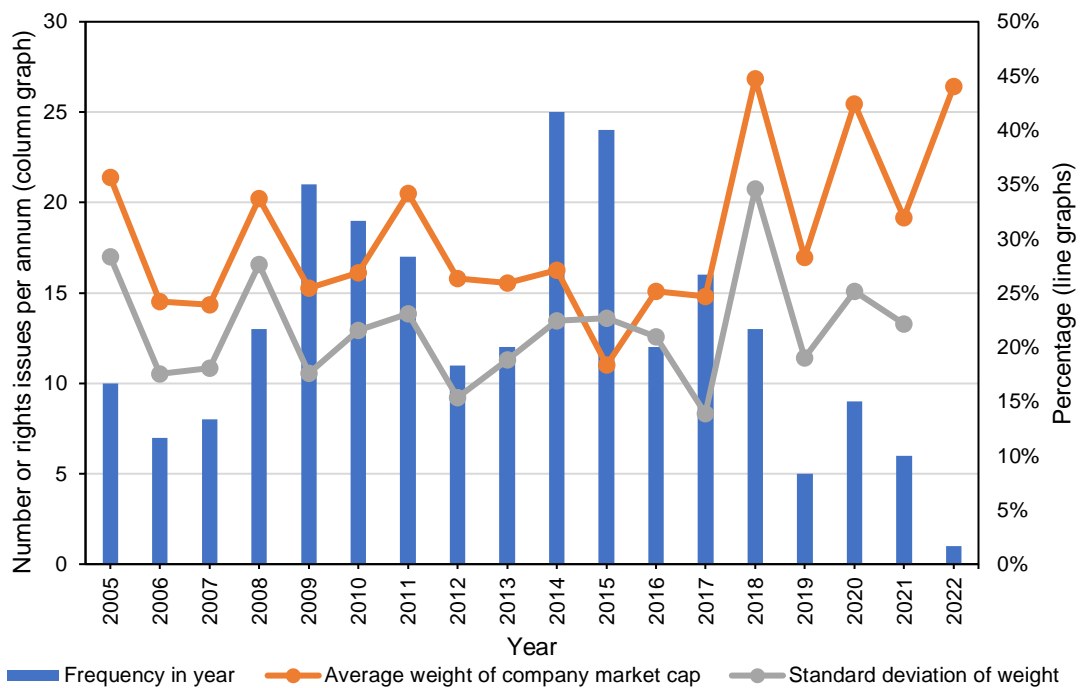


Figure 4: Descriptive statistics of rights issues over the study period

From January 2005, 229 rights issue events occurred until the end of February 2022 to attain an average of 12.72 events per annum. Table 3 in Appendix A is a summary of all the event studies that occurred in the research scope. The data was sourced from the JSE bulletin (JSE Client Portal, 2022a); and includes variables such as the different companies; the date on which the rights issue occurred; the number of shares; and the discount rate. However, the dates when the announcements on the bulletins were made were not available. Therefore, the announcement dates were acquired from the JSE SENS using an algorithmic model (JSE Client Portal, 2022b). However, due to the intricacies in analysing the data, only 180 announcement dates of the allotted 229 rights issue events were captured. As such, the scope for research that investigates announcement days was reduced to 180, excluding other events due to insufficient data. The average working days (given that the JSE does not operate during weekends or public days, the data must be analysed in terms of the working days) between the announcement date and the rights issue was 30.19 days, ranging between 11 and 158.

Previous research by Cotterell (2011) and Setati (2014) have all implemented sampling selection criteria according to which exceptions were made. The main reason for that is that the studies did not include sufficient data before and/or after

the event occurred. Similarly, certain rights issues were also excluded from the results, as per the process discussed in section 4 – and the effect thereof would be explained in the discussion section.

As stated earlier, the relative size of the rights issue is important, given that share price changes according to the size of the company and the number of shares in circulation. For this research, the relative size was calculated by determining the value of the rights issue and then dividing that by the market capitalisation of the company at the time. Similarly, the standard deviation of the same data is important to note. Due to company size (market capitalisation) variations, the expected standard deviation is higher as it is easier to obtain comparatively large funding for a small company as opposed to a large company.

Concerning the announcement date, the average amount raised was 70.38% of the market capitalisation for each company, ranging from a minimum of 4.35% to a maximum of 1666.67%, with a standard deviation of 166.19% and a median of 27.17%. This is indicative of outliers that affected the results where nine companies issued equity that equates to 200% or more of the market cap at the time. Conversely, the average amount was 28.55% on the rights issue, ranging from 3.09% to 11.95% and a standard deviation of 22.49% and a median of 21.52%.

Three additional variables were chosen according to which the events were compared. The first variable focuses on determining how the size of the rights issue affects share price (depicted through quantile); and will be addressed through hypothesis 3. The second variable seeks to determine the effect of companies that focuses on resources as opposed to non-resources, with hypothesis 4 addressing the issue. The final variable examines how equity issuance affects growth and value companies through the implementation of hypothesis 5.

Table 1 summarizes the descriptive statistics of the aforementioned variables according to the announcement date and the event date.

Table 1: Summary of descriptive statistics based on categories

Category	Based on announcement date		Based on event	
	Mean	Standard deviation	Mean	Standard deviation
All companies	70,38%	166,19%	28,55%	22,49%
Percentile 1	10,02%	4,16%	7,42%	2,28%
Percentile 2	17,21%	6,60%	13,93%	1,78%
Percentile 3	33,76%	19,14%	22,45%	3,51%
Percentile 4	78,80%	48,04%	37,72%	4,34%
Percentile 5	138,38%	87,43%	63,67%	17,41%
Resource	110,00%	232,35%	29,40%	23,36%
Non-resource	61,06%	147,28%	28,29%	22,32%
Value	33,29%	59,02%	20,43%	14,28%
Growth	38,13%	37,90%	24,32%	20,08%

Concerning resource vs. non-resource, approximately 19% of the rights issue events were performed by resource companies, while 81% of the rights issue events are by non-resource companies. Resource companies required the highest average weightings at 110.00% of the market cap at the announcement date, as opposed to 61.03% for non-resource companies. However, the values decreased to 29.40% and 28.29% at the event, respectively.

Value and growth companies were the final variables chosen in the research. To categorize the companies, the earnings yield for the company at the announcement date was compared to the median earnings yield of the All Share Index at the same time. Additionally, the company had to yield a positive earnings yield ratio such that $E/P > 0$ (a negative value is indicative of a loss or that it is spending more money than its income). Companies that yielded E/P ratios lower than the median were categorized as 'value' while, conversely, companies with a higher than median E/P ratio were categorized as 'growth'. Consequently, only 118 companies qualified to be classified as either value or growth, with only 42.37% of that being classified as a value, and the remaining 57.63% being classified as growth.

The next requirement is to provide the results of equity issuance announcements and the rights issue on the returns of companies within the different categories. To effectively illustrate the results, a brief discussion of the interpretation method is presented.

5.2 Data interpretation

The effect on the share price is the main metric that will be analysed before or after the event has occurred. As such, the Average Abnormal Returns (AARs) were calculated for all of the companies that are classified according to each of the variables (i.e., the portfolio of companies that fall within the predetermined variable category such as resources, non-resources, etc.). The data is depicted as a function of time whereby time was defined as the period before or after the event occurred. For this study, day 0 is defined as the day on which the event occurred, while day -40 and day 80 refer to the period before and after the event occurred, respectively. Figure 5 is an example of the AAR for all of the companies that issued equity over the entire case study period.

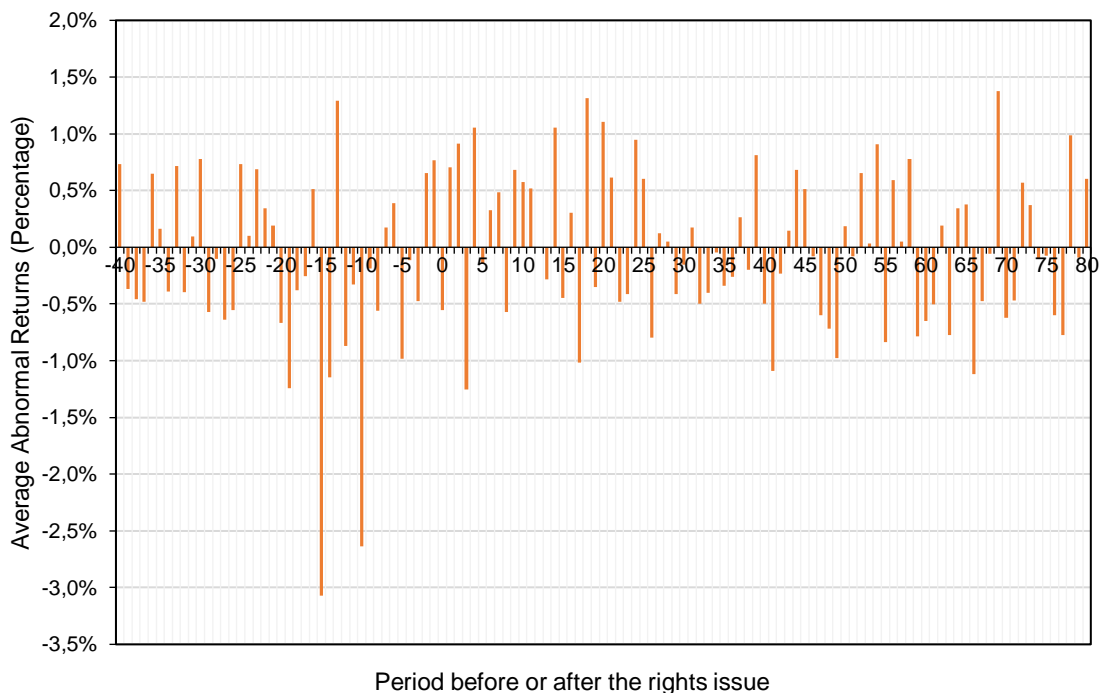


Figure 5: AARs before and after the rights issue

When referring to Figure 5, it can be seen that the data are evenly spread over the period, with exceptions seen on days -15 and -10. Due to the convoluted nature of the data, it is very difficult to reach conclusions. As such, the Cumulative Average Abnormal Returns (CAARs) must be calculated – abnormal returns relate to unexpected returns, on account of the information in the event (Ward, 2010). The total return, R_{it} , (also known as the CAARs), on the average shares was calculated

for a given time using the log function $R_{it} = \ln\left(\frac{P_1}{P_0}\right)$; where P_1 is the average share price at the time interval, and P_0 is the average share price at the original time interval.

Once calculated, significance tests must be conducted. To test for significance, a “boot-strap” analysis was conducted based on a Monte Carlo approach (Ward, 2010). Bootstrapping is a test that relies on a random sampling of the same portfolio of companies as a replacement. To perform this methodology, a random set of dates were selected for the same portfolio for a period of between 80 to 200 days before the event occurred (i.e., if the event occurred on 1 June, then a random set of 120 consecutive dates until a minimum period of 40 days from the event were selected for the same portfolio), with the intention being that the statistical test does not fall within the window of the actual event window. The CAARs were then calculated randomly 100 times to construct the confidence limits, followed by testing them against the random 100 iterations to determine if it lies between the 5% and the 95% confidence levels: thus, enabling the determination of the significance levels through two-tailed statistical analysis. It must be noted that significance can vary as a function of time. For example, the initial reaction to the announcement may result in a CAAR value less than the 5th percentile but can then recover as time continues beyond the 95th percentile.

To serve as an illustration, Figure 6 depicts the results of the AARs and CAARs with the 95th and 5th percentile intervals for all of the companies that issued equity throughout the study period. A similar process will continue for the subsequent analyses.

It is worth noting that the CAARs of the different variables all converge at day -1 to be 0%. The model was designed to take the day before the announcement occurred as the reference date – this is driven by the assumption that the announcement occurred on day 0. This means that response will be immediate on the share price and that any fluctuations on the day will be excluded from the analysis if the data converged at day 0. For example, there is a possibility that the effect would be seen on day 0, especially if the announcement was made at say 13:00.

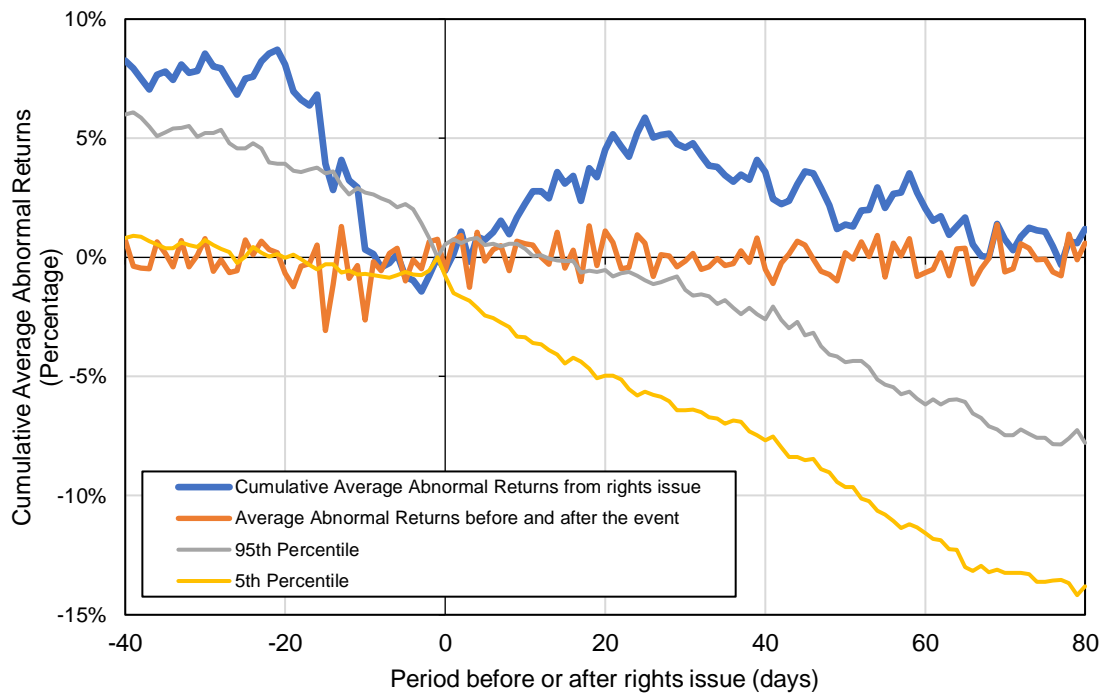


Figure 6: Example of the CAARs and the AARs with the various percentile functions for statistical tests

The subsequent sections will provide the results for the various hypothesis stated in section 3.

5.3 Hypothesis 1

The first hypothesis focuses on how the announcement date influences the share price. This test aimed to determine if the share price would significantly vary according to the announcement date. Therefore, Figure 7 depicts the AARs of all the companies within the research scope according to the announcement date.

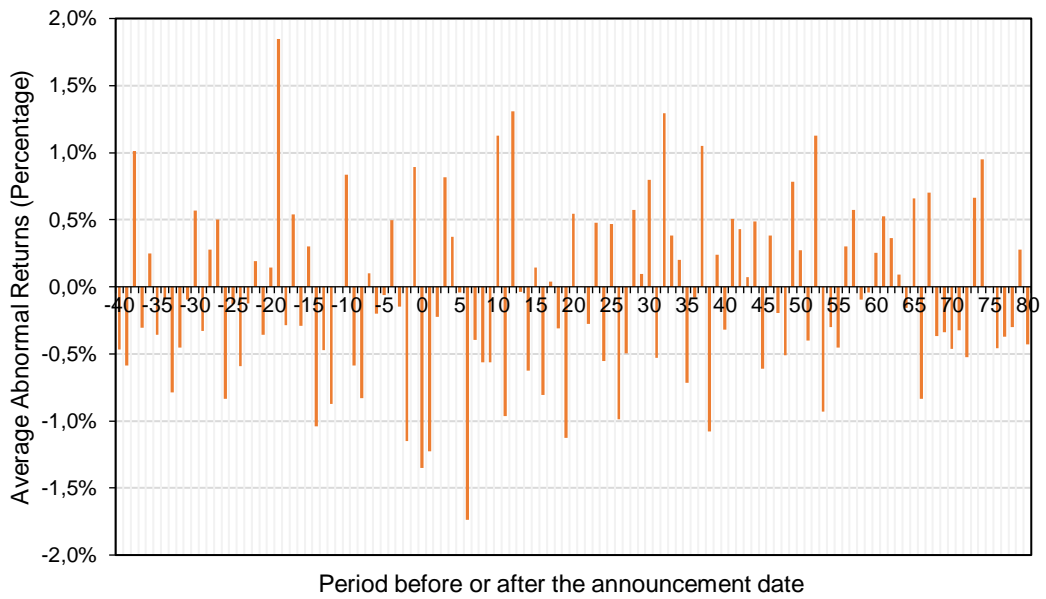


Figure 7: AARs for all companies according to the announcement date

Additionally, Figure 8 illustrates the results of the CAARs of all the companies that issued equity according to the announcement date, with the relevant statistical results included.

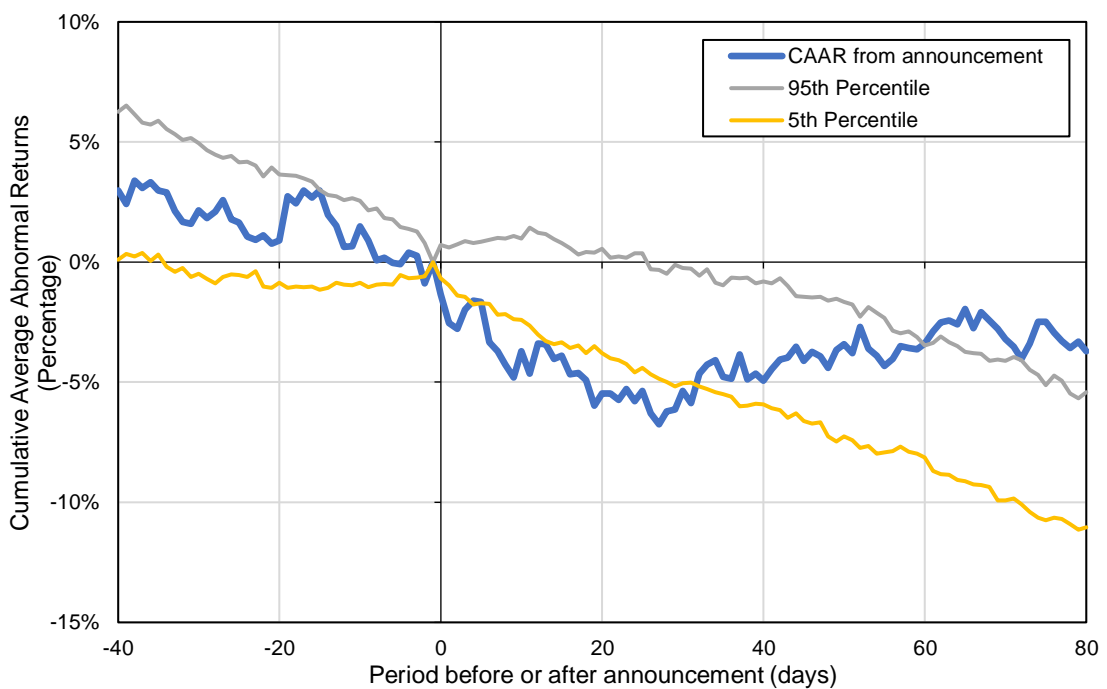


Figure 8: CAARs of all the companies based on the announcement date

5.4 Hypothesis 2

The second hypothesis focuses on how the rights issue influences the share price of the company. This test aimed to determine if the share price would significantly vary

according to the date on which the event occurred. Therefore, Figure 5 (depicted in section 5.2) presents the AARs for all of the companies that issued equity over the entire case study period. Additionally, Figure 9 illustrates the results of the CAARs of all the companies that issued equity according to the event date.

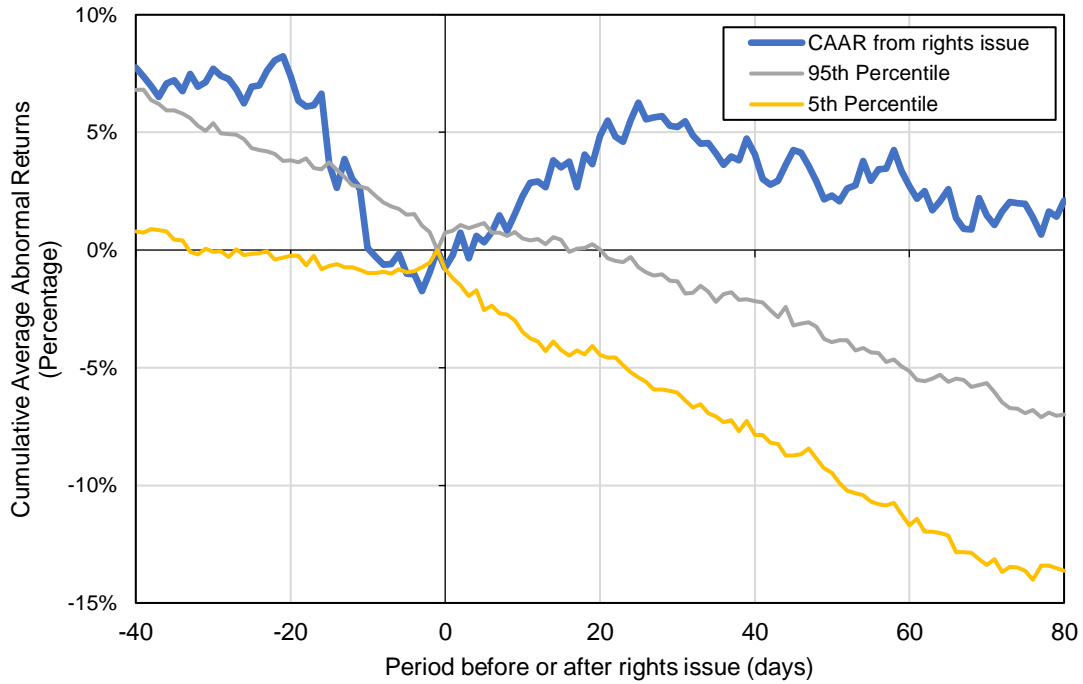


Figure 9: CAARs for all companies that issued equity for a period before or after the rights issue

The following sections provide the results for hypothesis 3 to 5, which was created using data from hypothesis 1 to 2. In essence, the overarching results were analysed whereafter a selection criterion was applied according to the remaining hypotheses.

5.5 Hypothesis 3

Hypothesis 3 seeks to determine the effect of relative size on the share price of companies that 1) announced equity issuance and 2) performed the rights issue. As such, the results will be categorized according to quantile.

5.5.1 The relative size according to the announcement date

Figure 10 depicts the results of the CAARs according to the different quantiles of the funds raised. Table 1 provides a summary of the different weightings according to each percentile whereby quantile 1 includes the lowest 20% of the different weightings. Each quantile spans 20% (from the lowest percentage to the highest

percentage), to eventually reach 100% for quantile 5, where 100% represents the highest weighting percentage. A summary of all the percentiles can be found in Table 4 and Table 5 of Appendix B.

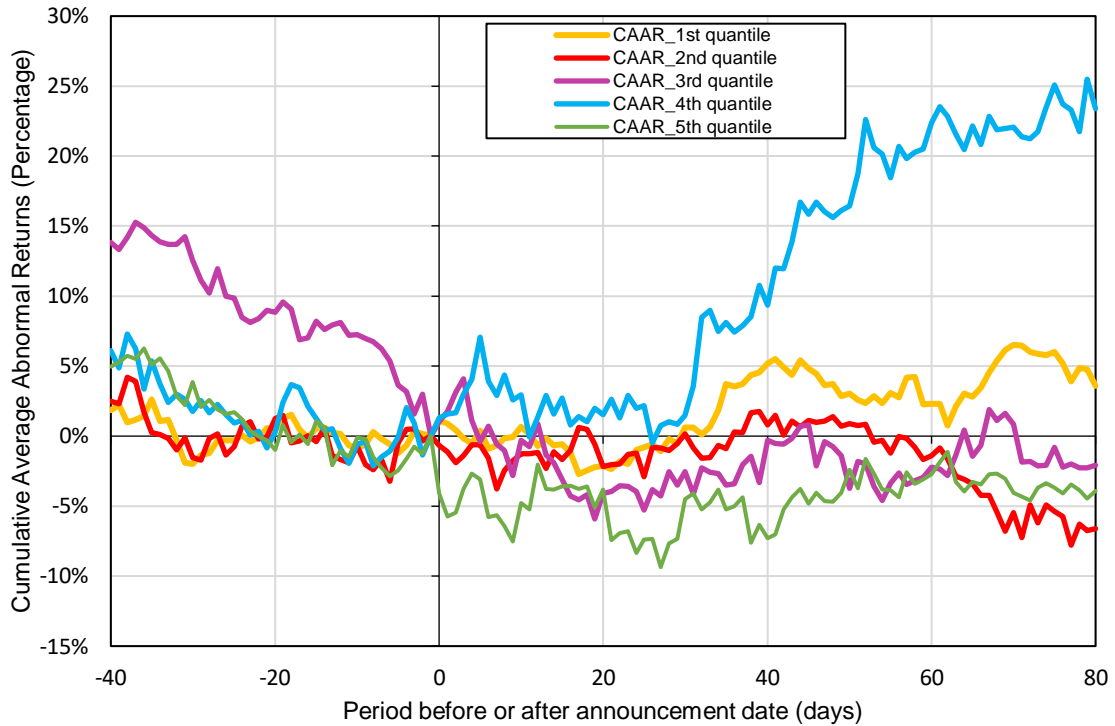


Figure 10: CAARs according to the weight on the announcement date

The next section provides the results on the event date.

5.5.2 The relative size of the event based on the rights issue

Figure 11 depicts the results of the CAARs according to the different quantiles and the rights issue. A summary of all the quantiles can be found in Table 6 and Table 7 of Appendix B.



Figure 11: CAARs according to the weight according to the rights issue

The following section illustrates the results obtained for resource and non-resource companies.

5.6 Hypothesis 4

Hypothesis 4 seeks to determine the effect of equity issuance for companies that are resource-based as opposed to non-resource companies. Similar to the above, both the announcement date and the rights issue were considered. A summary of all the companies that were classified as resource and non-resource can be found in Table 8 and Table 9 of Appendix C.

It must be noted that the structure according to which the data is presented is not exactly according to that stated in hypothesis 4. This was done for continuity and to allow comparisons to occur.

5.6.1 Resource vs. non-resource based on the announcement date

The first objective is to determine the effect of a rights issue announcement on the AARs. Therefore, Figure 12 and Figure 13 depict the result for a specified period

before and after the announcement occurred for resource and non-resource companies, respectively.

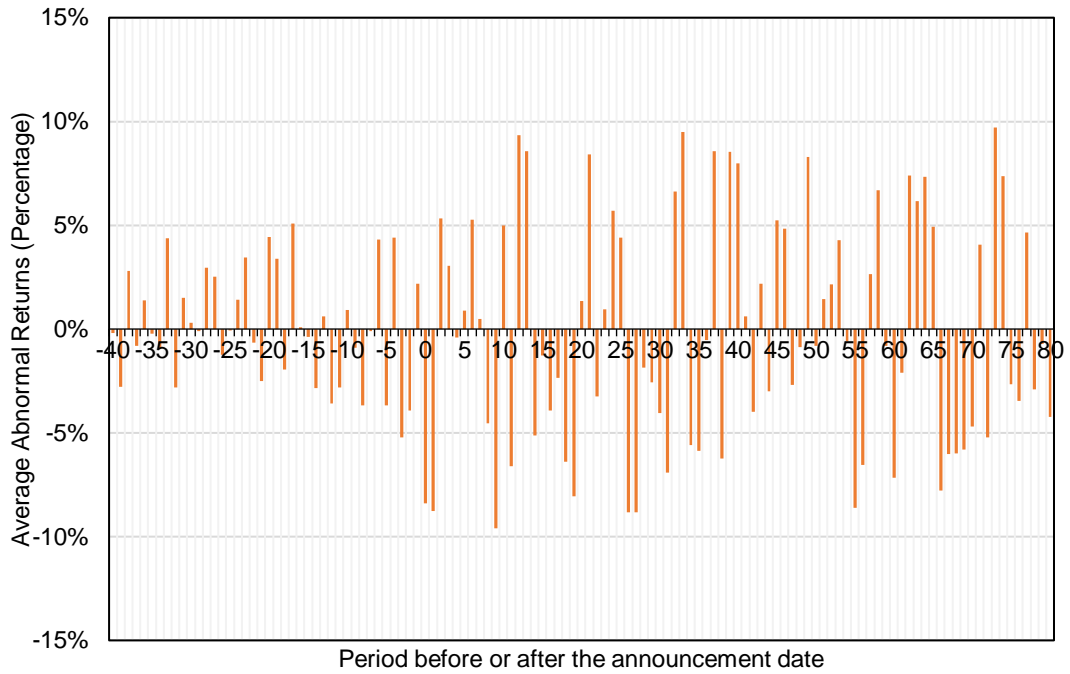


Figure 12: AARs for resource companies according to the announcement date

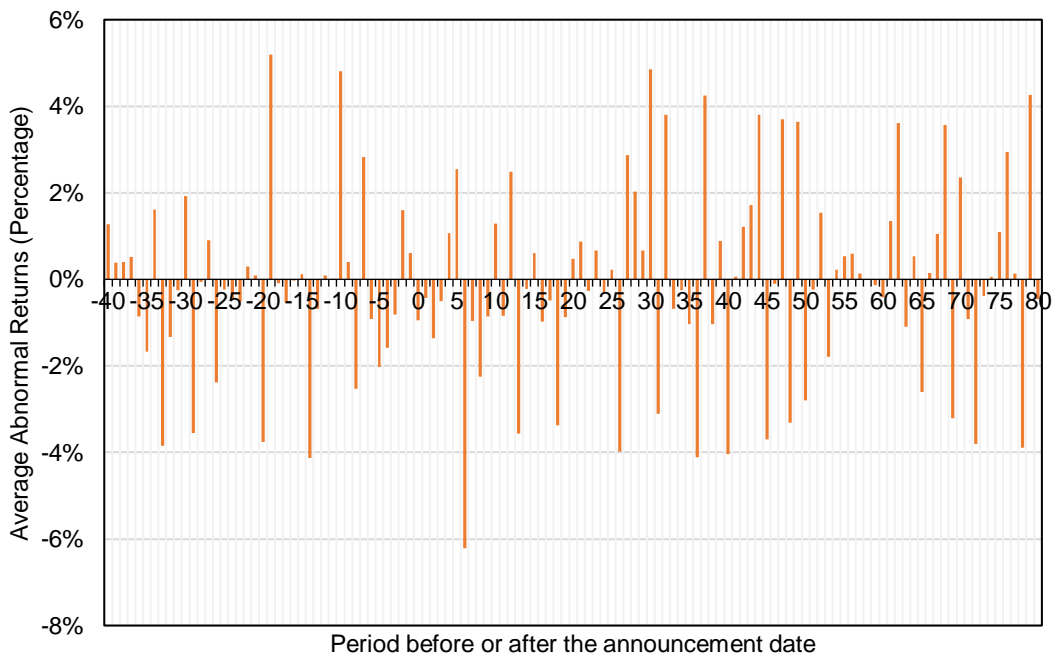


Figure 13: AARs for non-resource companies according to the announcement date

Figure 14 and Figure 15 depict the CAARs results from resource and non-resource companies according to announcement dates, respectively.

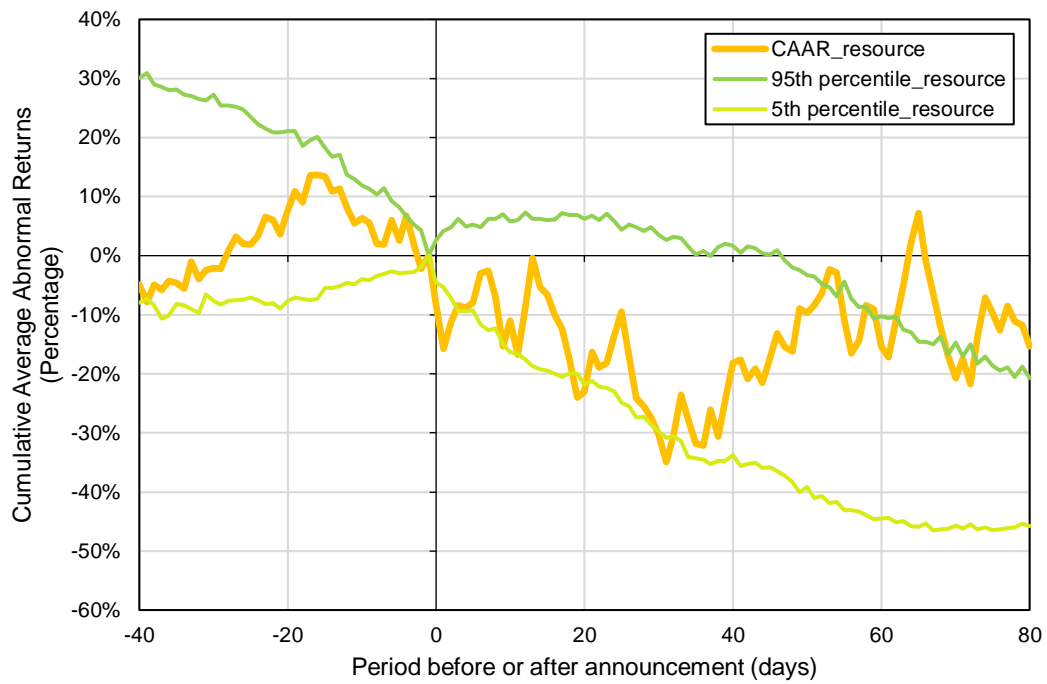


Figure 14: CAARs of resource companies on the announcement date

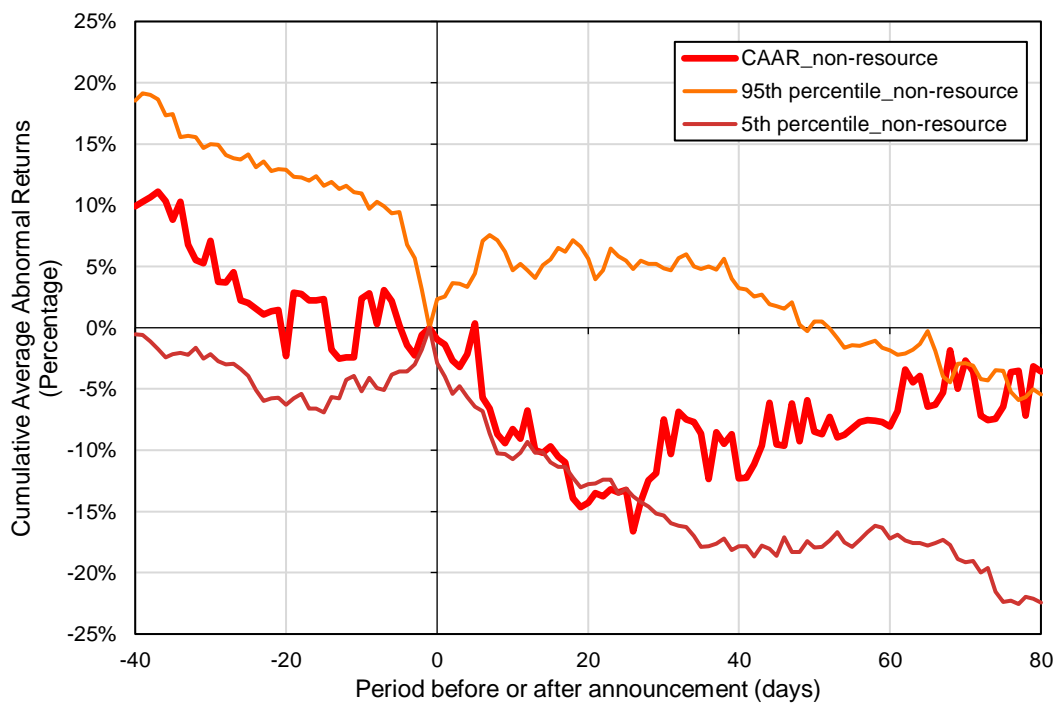


Figure 15: CAARs of non-resource companies on the announcement date

5.6.2 Resource vs. non-resource based on the rights issue

Figure 16 and Figure 17 depict the AARs result for a specified period before and after the rights issue occurred for resource and non-resource companies, respectively. A

summary of all the companies that were classified as resource and non-resource based on the rights issue can be found in Table 9 of Appendix C.

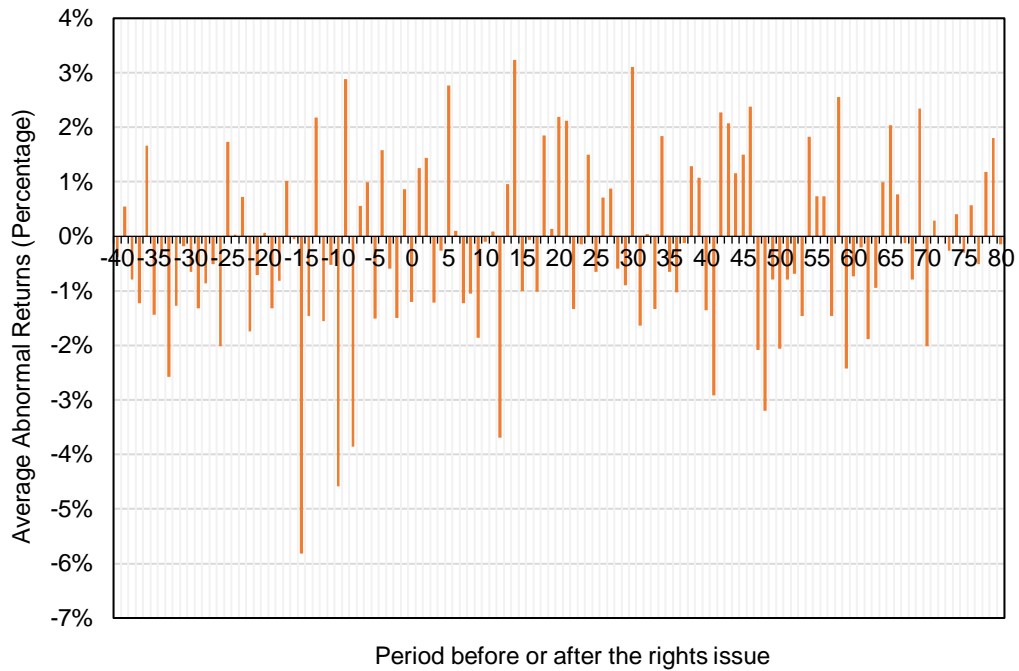


Figure 16: AARs for resource companies according to the rights issue



Figure 17: AARs for non-resource companies according to the rights issue

Figure 18 and Figure 19 depict the results of the CAARs from resource and non-resource companies according to the rights issue, respectively.

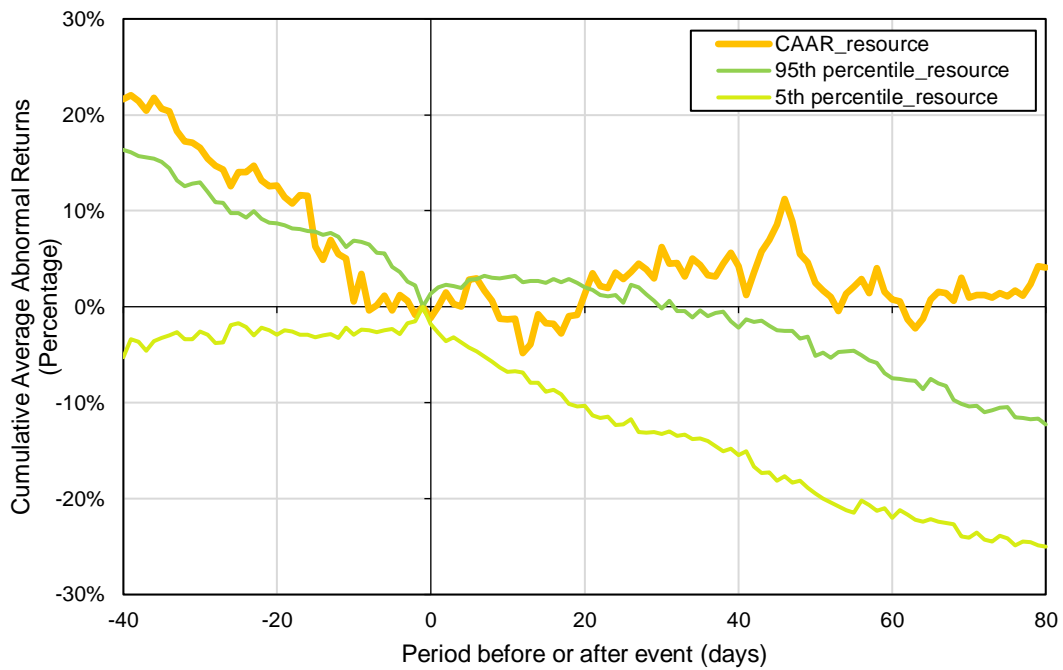


Figure 18: CAARs of resource companies based on the rights issue

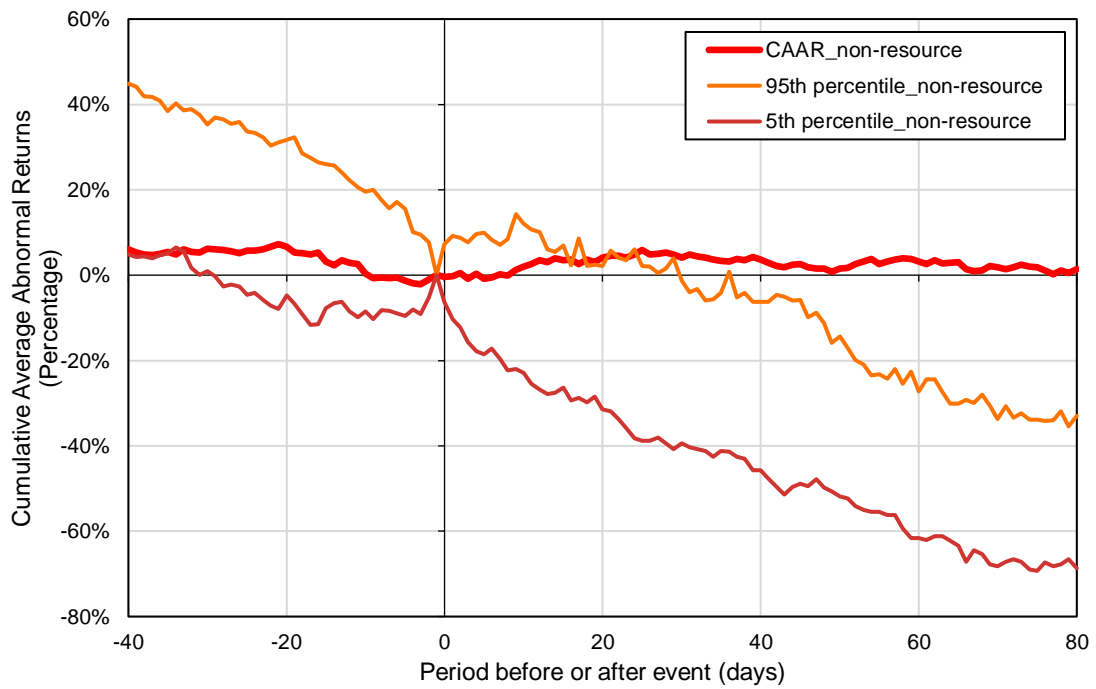


Figure 19: CAARs of non-resource companies based on the rights issue

The next section seeks to address hypothesis 5, whereby the effect on value and growth companies is examined.

5.7 Hypothesis 5

Hypothesis 5 seeks to determine the effect of equity issuance for companies that are classified as either value or growth companies. As stated earlier, the All Share Index was used in categorizing the companies. Accordingly, not all of the companies utilized in hypotheses 1 and 2 were utilized in this section as they did not meet the selection criterion. A summary of the companies that were utilized can be found in Appendix D.

Similar to hypotheses 3 and 4, both the announcement date and the rights issue date were considered. As such, the results will be categorized accordingly.

5.7.1 Value vs. growth companies based on the announcement date

The last hypothesis relates to value and growth companies. Similar to the above, the AARs according to the announcement date, followed by the CAARs according to the same metric must be presented. Figure 20 and Figure 21 present the AARs of value and growth companies, respectively.

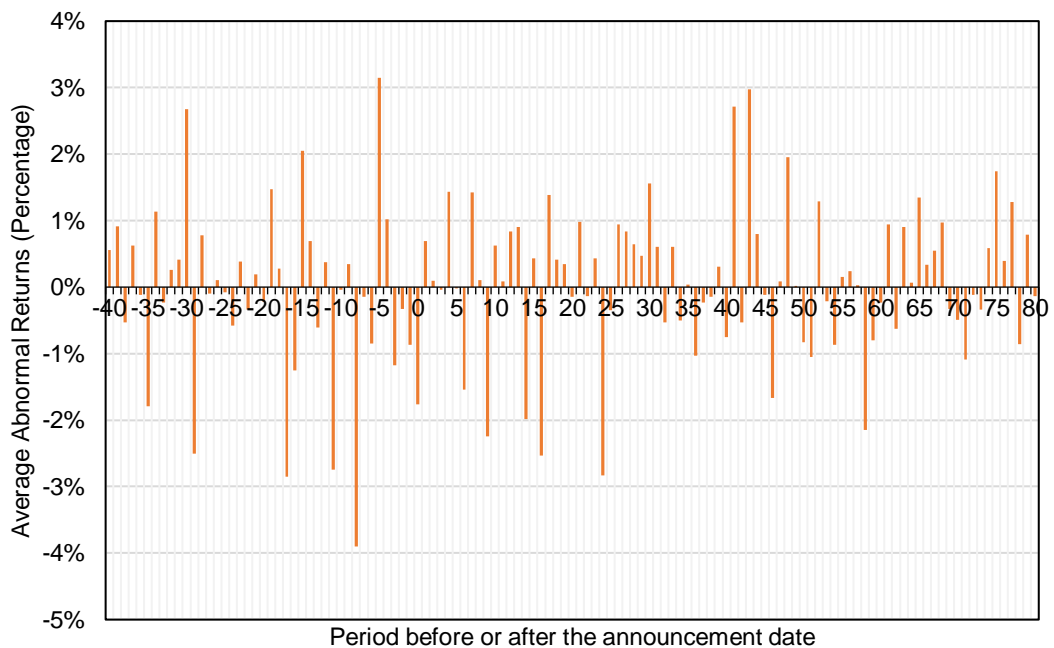


Figure 20: AARs for value companies according to the announcement date

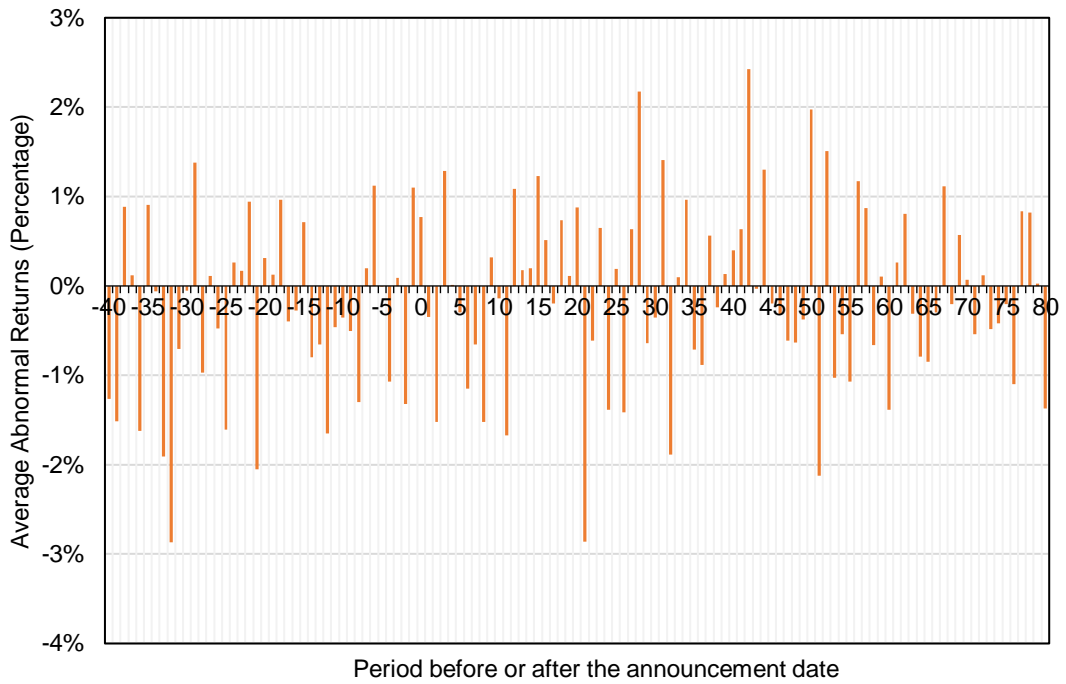


Figure 21: AARs for growth companies according to the announcement date

Figure 22 depicts the results obtained from value companies on the announcement date of the rights issue, while Figure 23 depicts the results obtained for growth companies on the announcement date.

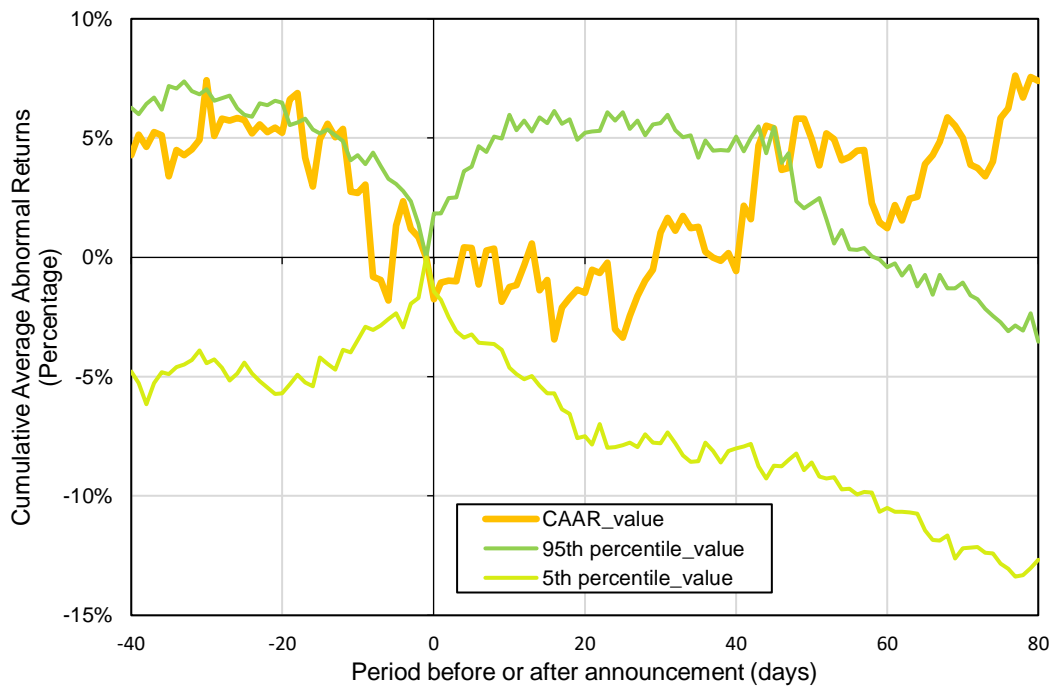


Figure 22: CAARs of value companies based on the announcement date

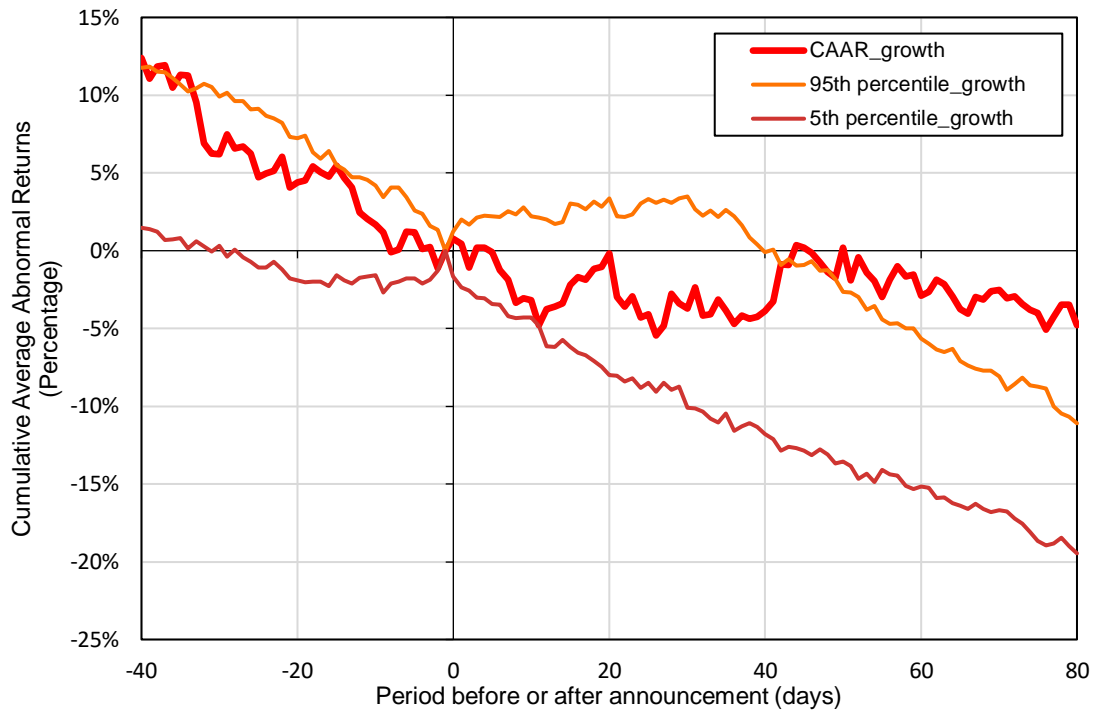


Figure 23: CAARs of growth companies based on the announcement date

The next section will depict the results for the same companies but on the rights issue.

5.7.2 Value vs. growth companies based on the rights issue

The final section to be analysed relates to the rights issue for value and growth companies. Therefore, Figure 24 and Figure 25 present the result of the AARs for value and growth stock at the rights issue, respectively.

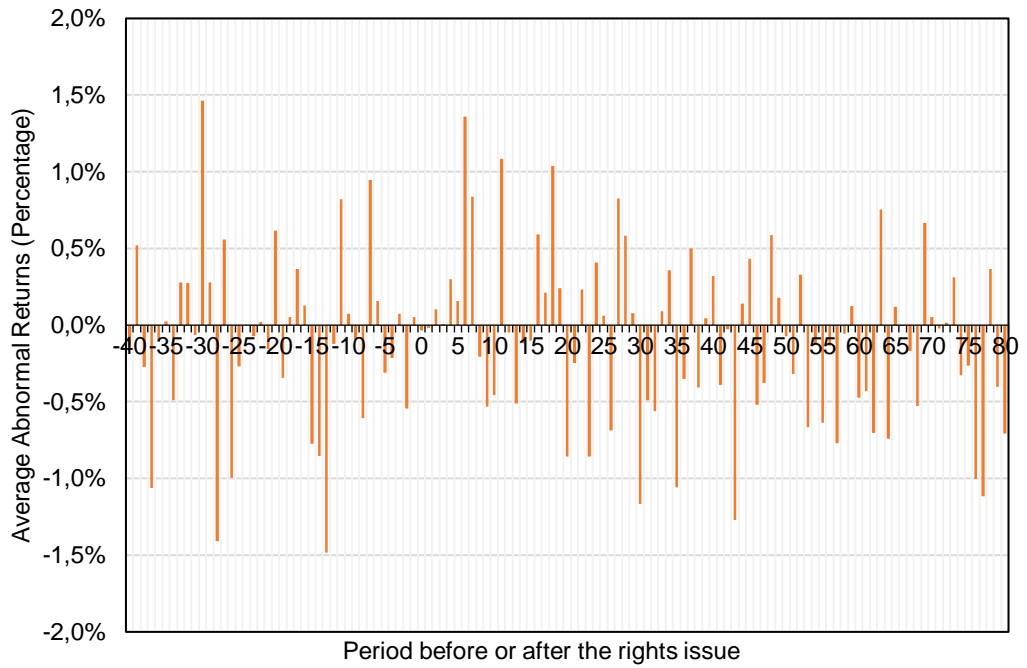


Figure 24: AARs for value companies according to the rights issue

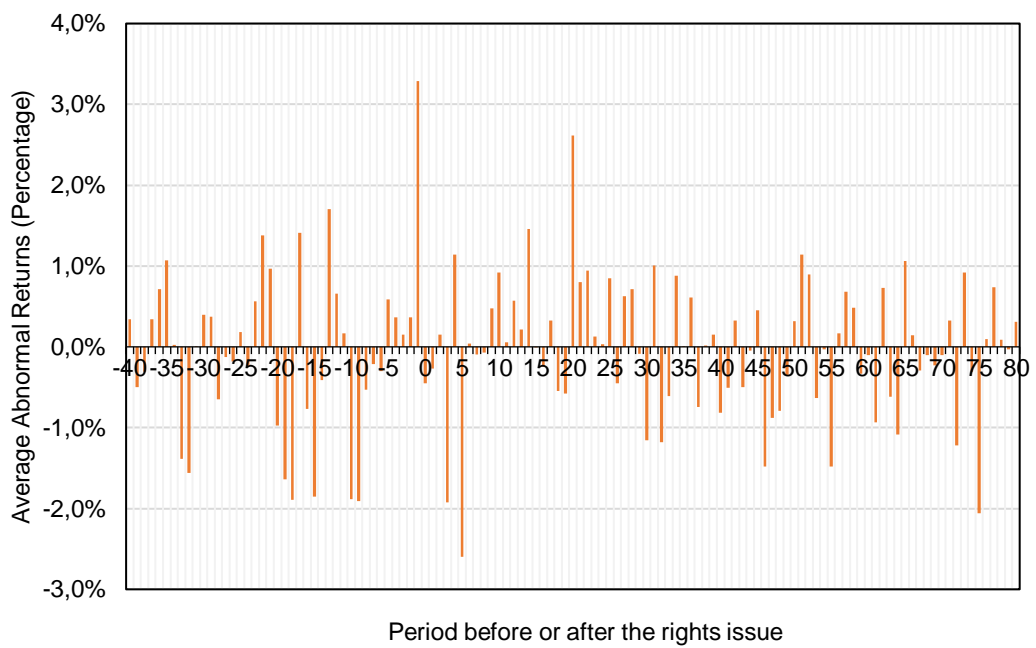


Figure 25: AARs for growth companies according to the rights issue

Similarly, Figure 26 and Figure 27 depicts the CAARs' result for value and growth companies on the day of the rights issue, respectively.



Figure 26: CAARs of value companies based on the rights issue

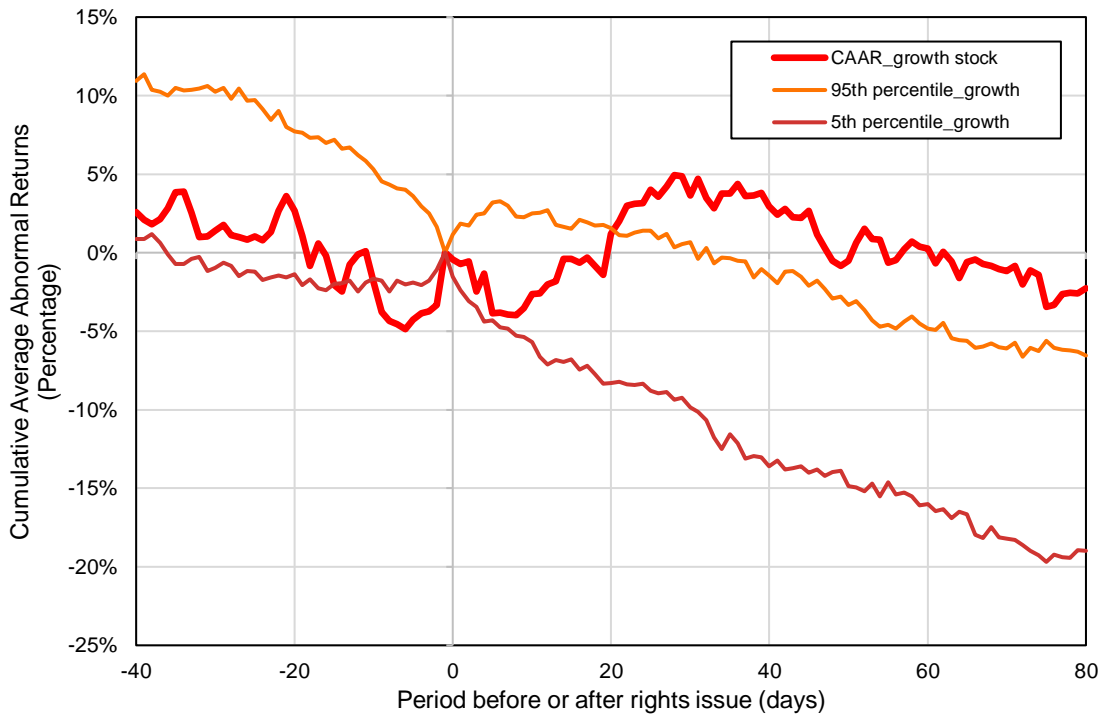


Figure 27: CAARs of growth companies based on the rights issue

The next section will discuss the result obtained from the analysis.

5.8 Conclusion of section

This section provided the results obtained from the study period. The section first introduced the key results from the study, followed by a brief description of how the data will be interpreted. Subsequently, the results for each variable were presented according to the hypothesis for continuity.

The following section includes a discussion of the results depicted in this section. Additionally, the results will be compared to the literature, whereafter the hypotheses equations will be addressed.

6 Discussion of Results

The results will be discussed according to the overarching research observations (the main takeaways from the rights issue discussed in section 5.1), followed by a discussion of the main findings from each hypothesis. Finally, the section will be concluded to summarize this section of the document.

6.1 Key findings and outcomes from results

Underlining the research, it is important to note why companies tend to issue equity as opposed to financing activities through debt. Generally speaking, companies would prefer to fund activities through debt given that the cost of debt is lower, albeit resulting in an increased leveraging ratio (Coleman, Cotei, & Farhat, 2016; Ward & Price, 2006). The reason for this is that the investors take on more risk in comparison with banks. That being said, when companies tend to issue equity, an assumption can be made that banks are already hesitant in lending more money, given that the company may have too much debt already. As such, share prices are expected to reduce when such an event occurs or if announcements relating to a rights issue are made, given that investors assume the worst concerning the motives in acquiring the capital. There could be one outlier that may cause share prices to increase, and that relates to intention. If companies intend to invest in a new product, then investors may perceive this as expansion. Consequently, share prices might increase so much that the dilution effect is mitigated (Akhigbe et al., 2007; Van Rixtel & Villegas, 2015; White et al., 1980).

When referring to Figure 4 which depicts the descriptive statistics of the historic rights issues, the first notable observation that can be made is the cyclic behaviour of the frequency of events. From 2005 to 2007, the frequency of rights issues was comparatively low where the average occurrence varied from 10 events in 2005 to progressively reduce to 8 in 2007. After 2008, the frequency of events then increased to attain a cycle maximum of 21 in 2009, followed by a progressive reduction to a minimum of 11 events in 2011. However, thereafter the frequency briefly recovered to attain a maximum of 25 in 2014, whereafter it decreased to a minimum of 5 events in 2019. According to van Rixtel and Villegas (2015), this was a common occurrence, especially between the years 2004 and 2007 when

companies preferred to engage in share buybacks. However, after the economic crises of 2008, companies then reissued equity in an attempt to promote activity.

In terms of the weight of the capital raised (which was classified as a function of the market capitalisation of each company), the values varied between 17% and 45%, depending on the year. The absolute minimums commonly occurred when the number of rights issued increases and vice versa. A correlation test between these two variables indicates that there is an inverse relationship of 29.55%.

When considering the CAARs for all the variables, an observation is made that the significance charts tend to slope downwards after the announcement and rights issue dates occurred. The reason for this could be that the random sampling dates fell within a year of the rights issue, meaning that those shares could have been subject to a reduction in price. This is indicative that the companies were experiencing a reduction in share price before the rights issue even occurred. Further evidence of this lies within Figure 30 and Figure 31, which depict the CAARs for growth and value companies according to the announcement dates respectively. Given that those portfolios of companies were in a position of capital stability (due to them consisting of EY values greater than zero), their 95th percentile significance charts slope upwards for the first 80 days of sampling. This is expected given that those companies were yielding profits.

Lastly, the results were depicted as a function of the announcement date and rights issue date. Relating to the rights issue date, dilution of the shares tends to occur over a window and does not occur on a single date. Therefore, the rights issue date is referred to as the time when the rights issue occurred, and that share prices are expected to reduce thereafter due to the dilution effect.

Although more conclusions can be made on the overarching results, they would not add value. As such, a discussion of each hypothesis will be presented in the following sections.

6.2 Hypothesis 1

The first hypothesis seeks to determine the effect of a rights issue announcement on the CAARs of all the companies within the scope of the research. Based on the data

that was obtained, 180 announcements were analysed as part of addressing hypothesis 1. The average period between the announcement date and the rights issue was 30.19 days, while the median was 24 days. This disparity is due to 16 outlier companies whose period was more than 50 days.

Each transaction was defined as a function of the market capitalisation at the time of the rights issue. This provides a metric to which different companies can be compared. The average weight was 70.38% and a median of 27.17%, ranging from a minimum of 4.35% to a maximum of 1666.67%, with a standard deviation of 166.19%. Upon further analysis, nine companies issued equity that equates to 200% or more of the market cap at the time, rendering them outliers. These outliers are all due to the market cap of those companies. For example, AG industries had a market cap of R215 907 349.35 during the month of the rights issue. Going back one month to the announcement, their market cap was R12 337 562.82. This results in a factor of more than 10. Although these companies were included in conducting the statistical tests, notice must be made of these outliers. Table 2 is a summary of the outliers found in analysing the data.

Table 2: Summary of outliers relating to company weight and announcement

Company	Code	Date	Weight
SUPER GROUP LTD	SPG	07 Oct 2009	362,90%
AG INDUSTRIES LTD	AGI	05 Mar 2010	1666,67%
S A FRENCH LTD	SFH	16 Mar 2011	300,52%
ERBACON INV HLDGS LTD	ERB	13 Jul 2012	222,22%
SACOIL HOLDINGS LTD	SCL	06 Dec 2013	220,80%
SEARDEL INV CORP -N-	SRN	24 Feb 2014	404,95%
LONMIN PLC	LON	09 Nov 2015	1295,26%
BASIL READ HOLDINGS LTD	BSR	29 Jan 2018	438,08%
EFORA ENERGY LIMITED	EEL	17 Jul 2018	352,78%

Relating to the Average Abnormal Returns (ARRs) according to the announcement date, a reduction of 1.353% was observed. It then continues to decrease over the following 3 days. Although this is a contradiction to the results obtained by Marisetty, Marsden and Veeraraghavan (2008) who found a positive but statistically insignificant price reaction to such announcements, it does however coincide with Pascoe, Ward and Mackenzie (2005) who observed a negative 3% on the day of the announcement. Similarly, it aligns with the research conducted by Cotterell (2011) who also observed such a reduction.

When considering the Cumulative Average Abnormal Returns (CAARs) in Figure 8, it can be seen that they behave within the statistical insignificance region from 40 to 14 days before the event. That being said, a 2% to 3% reduction in CAARs is observed from 15 to 10 days before the announcement date. This is most likely due to some level of market expectation that such an announcement would occur soon – this occurrence was also seen by Cotterell (2011) and Setati (2014) who found that CAARs can reduce by between 1% to 3% before an announcement is made.

Once the announcement has occurred, the CAARs then reduce to below the 5th percentile and continue to perform there for the following 31 days. Thereafter, the CAARs then increase into the statistical insignificance area to eventually surpass the 95th percentile region on day 60 – this is because the further away from time t=0, the more uncertain the confidence becomes.

Based on this, hypothesis 1 was tested and updated such that:

$$H_{01}: CAAR_{ARI} \neq 0 \quad (5.1)$$

$$H_{A1}: 0 < CAAR_{ARI} > 0 \quad (6.1)$$

Subsequently, a conclusion can be made that the null hypothesis is rejected, while the alternative hypothesis is accepted – rights issue announcements are found to negatively impact the share price of a company.

The next section will investigate the effect of the rights issue on the share price of companies.

6.3 Hypothesis 2

The second hypothesis seeks to determine the effect of equity issuance on the CAARs of companies. Based on the study period, ranging between January 2005 and September 2022, 229 rights issues were recorded. Subsequently, the occurrence of these events led to an average amount of R1.196b being raised for each transaction, ranging from just below R1m to R13.488b on an individual basis.

In terms of the relative capital that was raised, the most were 111.95% for Lonmin Plc on the 4th of December 2015. Conversely, the lowest relative capital raised was 3.05% for Invicta Holdings Ltd on the 9th of February 2015.

Relating to the AARs, a negative abnormal return of 0.748% was seen on the day the company performed the rights issue. Therefore, there is no statistical significance seen on the day of the rights issue occurring.

Relating to Figure 9, the CAARs are above the 95th percentile at 7.75% 40 days before the rights issue. For the next 20 days, the CAARs then remain within the same range, whereafter it is then subject to a comparatively large reduction over the following 10 days to fall in between the 5th and 95th percentile range. This is most likely due to the announcement date discussed in hypothesis 1.

For the 10 days before the rights issue, the CAARs then decrease to below the 5th percentile, until it reaches day -1. The reason for this could be twofold: firstly, this could be the effect of the dilution process occurring through the mechanics of a rights issue, or secondly, it could be market pricing in reaction to the rights issue

However, the main focus is to analyse the results after the rights issue. From day 0, the CAARs progressively increase beyond the 95th percentile range on day 7 and continue to increase to eventually reach a maximum of 6.26% on day 25. The reason for this could be due to investor sentiment, where they perceive the uncertainty to be over, or it could be due to an improved gearing ratio (gearing is calculated as a function of debt and equity).

Thereafter, it then gradually decreases to approximately 1.42% on day 80, albeit above the 95th percentile – inferring statistical significance. This is in line with the research conducted by Cotterell (2011) who found that equity issuance yields a CAAR higher than the 95th percentile after day 20 (as opposed to day 7 found in this research). The 13-day disparity can be attributed to two reasons: firstly, due to different economic environments, rights issue behaviours may be affected; and secondly, the sample size is larger in this study as compared to their research.

The statistical results from Figure 9 indicate that there is a statistically significant difference in the share price of companies according to a rights issue. Therefore,

the hypotheses tests and updates can be updated and illustrated in the following equations:

$$H_{02}: CAAR_{RI} \neq 0 \quad (7.1)$$

$$H_{A2}: CAAR_{RI} > 0 \quad (8.1)$$

The next section will test hypothesis 3 where the aim is to determine the effect of equity size on both the announcement and rights issue dates.

6.4 Hypothesis 3

The third hypothesis seeks to determine if the relative size of the rights issue categorically affects the share price and CAARs of the company. In other words, if the relative size of the rights issue is increased, will the effect be higher on the CAARs of the company? Therefore, this hypothesis will be analysed in terms of the announcement date and the rights issue.

According to Figure 10, which depicts the results of the CAARs of the different weight quantiles according to the announcement date, it can be seen that the 3rd quantile yields the highest value of 10.07% near a period of 40 days before the announcement. At the same time, quantiles 5, 4, 2 and 1 all yield a CAAR of between 4.08% and 1.92%, respectively. As the time decreases toward the announcement date, so does the CAAR of each quantile (with an exception seen for the 4th percentile).

Once the announcement has occurred, all quantiles tend to decrease for the first 20 to 30 days. This is especially evident for the 5th quantile where a minimum is found on day 27. Thereafter, each quantile increases towards a maximum near day 80, with an exception seen for the 2nd quantile. Quantile 4 attained the highest CAARs with a value of 23.35%, while the lowest is found for the 2nd quantile at -6.83%. Upon further investigation, outlying AARs were observed for some companies. Subsequently, quantile 4 behaved accordingly. It is, however, important to recognise that the position of each quantile varies according to time and that there is no specific order in which they are categorized.

The next phase involves an analysis of the effect of different quantiles based on the rights issue. As such, Figure 11 depicts the CAARs of the various quantiles. It's seen that the highest CAAR occurs for the 3rd quantile, where a maximum of 11.39% is seen 39 days before the rights issue. It then remains constant in the region, whereafter it reduced from 10.41% to 0% over 16 days. The second highest CAAR before the rights issue is the 5th quantile, where it attains a maximum of 9.09% at -21 days. This significant reduction in CAAR is due to the announcement date occurring. The 5th, 4th and 1st quantiles occupy the remaining position in terms of CAARs before the rights issue.

Once the rights issue has occurred, all quantiles show an increase in the CAARs; with the highest being seen for the 4th quantile near day 25. However, the 2nd, 3rd and quantile 4 all show a decrease in CAARs once a peak was reached, while the 1st and the 5th quantiles remain constant over the subsequent period after their peak. After day 80, the 5th and 1st quantiles yield the highest CAAR, while the 3rd, 4th and 2nd quantiles all yield negative CAARs. Similar to the announcement date, it must be noted that the relative position of the quantiles varies according to time, and the order changes dynamically.

The conclusion from Figure 10 and Figure 11 all indicate that the CAARs of different quantiles vary according to time. That being said, there is no relationship between the relative size of the rights issue and the CAARs. Therefore, the hypothesis test results can be changed as follows:

$$H_{03}: CAAR_{1st\ per} \neq CAAR_{2nd\ per} \neq CAAR_{3rd\ per} \neq CAAR_{4th\ per} \neq CAAR_{5th\ per} \quad (9.1)$$

$$H_{A3}: CAAR_{1st\ per} \neq CAAR_{2nd\ per} \neq CAAR_{3rd\ per} \neq CAAR_{4th\ per} \neq CAAR_{5th\ per} \quad (10.1)$$

The next section will analyse hypothesis 4 and focuses on the effect of equity issuance on resource and non-resource companies.

6.5 Hypothesis 4

Hypothesis 4 focuses on the effect of equity issuance on companies that either focus on resource or non-resource activities. As stated earlier, no research was found that categorizes companies according to these two variables. Each company was

categorized by conducting desktop research into its main functions. The effect of these two categories was selected since a large percentage of companies on the JSE is reliant on resource supply. Although it is estimated that only 9% of South Africa's GDP is driven by mining exports (Statista, 2022), approximately 19.91% of all the companies that issued equity were resource-dependent. Blanco, Garcia, Lara and Tribo (2015) have indicated that by disclosing segments in which companies operate, the cost of capital would decrease. That means that certain companies are more reliant on public funding as opposed to debt. Subsequently, market shock will be more pronounced to equity issuance.

For continuity, this section is categorized according to resource and non-resource companies. Resource companies will be discussed in terms of the announcement date and the event date, followed by a similar discussion for non-resource companies. Finally, the two different categories will then be compared with each other according to the announcement date and event date.

6.5.1 Hypothesis 4A: Resource companies

According to Figure 12, it can be seen that the AAR on day 0 for resource companies is -8.44%. That means that the share price fell by 8.44% according to the announcement date. When referring to Figure 14, which illustrates the results for resource companies according to their announcement date, it can be seen that the CAARs remain in between the 5th and 95th percentile leading up to the period of the announcement date. The CAAR is at its lowest approximately 38 days before the announcement date with a value of -8.44%. Given that is approximately 2 months before the announcement date, an assumption can be made that the price is due to market volatility, especially given that the sample size is comparatively small.

The CAAR then continues to increase to a maximum of 13.60% 17 days before, whereafter it then decreases to zero on the day of the announcement. It is noted that the share price is above the 95th percentile 3 days before the announcement date but then decreases to below the 5th percentile one day before the announcement date. This anomaly can be attributed to the shareholders being aware that an announcement of such nature can be expected (as highlighted in earlier sections of the discussion). Subsequently, they then sell their shares, resulting in an abnormal price reduction of the share price.

Once the announcement has been made, the CAAR reduces to -15.58% over 2 days. For that same period, the CAAR for the 5th percentile is -5.34%, inferring that the share price of those companies reduced three times more in comparison with the 5th percentile. However, after the 2nd day after the announcement, the price then increases to -2.99% over the subsequent 4 days. This is most likely due to investors applying the contrarian approach by buying shares at a reduced price (Marks, 2011); therefore driving share prices upwards again. However, the price then falls again to below the 5th percentile; followed by re-increasing. This cyclic volatile behaviour continues to be seen over the following 28 days to reach a minimum of -34.95% on day 31 to reduce below the 5th percentile – as will be discussed later. This is important because the average rights issue is 29 days after the announcement date. Thereafter, the price progressively increases to surpass the 95th percentile to a value of -2.29% on day 54. The maximum CAAR is then seen on day 64 to reach a value of 7.23%; albeit with the same volatility seen since the announcement date.

After the results, a conclusion can be made that a rights issue announcement has a statistically significant effect on the share price of resource companies, especially according to the short-term period after the announcement. As such, the hypotheses' equations can be updated accordingly:

$$H_{044A}: CAAR_{A4A} \neq 0 \quad (11.1)$$

$$H_{A44A}: CAAR_{A4A} < 0 \quad (12.1)$$

It must be noted that the volatile behaviour of the share price is expected given that resources have been subject to high volatility over history (Aboura & Chevallier, 2015; Wen et al., 2021); and also due to a comparatively small sample size (40 companies). Relating the latter, small sample sizes leave the results susceptible to outliers that may skew the results.

Relating to Figure 16, it can be seen that the share price was reduced by 1.2% on the rights issue date. Thereafter, the share price tends to remain convoluted over the period. Referring to Figure 18, where the rights issue is taken as a reference, it can be seen that the CAARs are continuously above the 95th percentile. On day -38, the maximum CAAR of 21.43% is seen, whereafter it progressively decreases to 11.59% on day -16. After day -16, the CAAR is subject to a comparatively large

decrease from 11.59% to 4.92% on day -14, to fall between the 5th and 95th percentile. This is driven by the occurrence of the announcement, albeit at a delayed response – the latter being attributed to the log function interpretation method used in analysing the results. Thereafter, the CAAR then decreases to approximately 0% on day -8 and continues to remain stable at the price for the duration until the event.

After the event has occurred, the CAAR increases to 3.19% on day 6, resulting in it increasing beyond the 95th percentile. The CAAR then decreases to -4.83% on day 12, followed by increasing above the 95th percentile again. This is reminiscent of the volatile nature seen for resource companies based on their announcement dates. However, the CAAR then remains stable above the 95th percentile and continues to do so for the remaining period of 80 days.

Based on these, a conclusion can be made that the null hypothesis is accepted and that there is no significant effect on the share price according to a rights issue, especially considering the first 18 days. However, it must be noted that the effect becomes significant on day 18 and remains in that region. Therefore, the hypotheses can be updated accordingly:

$$H_{04ARI}: CAAR_{RI4A} = 0 \quad (13.1)$$

$$H_{A4ARI}: CAAR_{RI4A} \neq 0 \quad (14.1)$$

The next section will discuss the effect of equity issuance on non-resource companies.

6.5.2 Hypothesis 4B: Non-resource companies

Figure 15 depicts the CAAR results of non-resource companies based on the announcement date. For 40 days before the announcement date, the CAAR is 9.94%. Thereafter, it progressively increases to reach a maximum of 11.11%, 37 days before the announcement day. However, it then progressively decreases towards 1.14% on day -20. Once there, the CAAR begins to behave in a cyclic volatile manner where it fluctuates between -2.31% and 3.07% in 3-day cycles. This is most likely due to investors expecting such an event, thus resulting in the price decreasing due to the selling of shares, followed by an increase in price due to other investors purchasing shares at a price they perceive to be a discount. This cyclic

behaviour was an exhibit for resource companies as well, meaning that there is no difference between the different categories.

After the announcement has been made, the CAAR progressively decreases in line with and eventually below the 5th percentile until day 26 to reach a minimum of -16.62%. However, it then increases to surpass the 5th percentile on day 28. This is due to the event of issuing equity where the average period between the announcement date and the event was 31.70 days. The CAAR then continues to increase to surpass the 95th percentile on day 68 at a value of -4.46%. Based on this, a conclusion can be made that there is a statistically significant effect on the share price of non-resource companies based on the announcement of a rights issue. Therefore, the hypotheses can be updated accordingly:

$$H_{04BA}: CAAR_{A4B} \neq 0 \quad (15.1)$$

$$H_{A4BA}: CAAR_{A4B} < 0 \quad (16.1)$$

When analysing the portfolio of non-resource companies, Figure 19 depicts the CAAR as a function of days before and after the rights issue occurred. The CAAR begins at 4.18% for 40 days before the event occurs. Thereafter, it progressively increases to 7.27% on day -21, followed by decreasing to 0% on day 0. However, it does reach a minimum of -1.05% on day -2 but due to the stable nature seen, no significance is applicable given that the data remains between the 5th and 95th percentile.

Similar behaviour is seen for the period after the event has occurred where the CAAR remained stable near 0% for the first 8 days. However, the CAAR then increases to reach a maximum of 6.04% on day 23 to surpass the 95th percentile. Although the CAAR then remains stable between a range of 0% and 5% until the period of 80 days is reached, it does, however, increase over the 95th percentile. This is indicative that the CAARs increased more based on the event date in comparison with the CAARs for randomized dates for the same portfolio of companies that do not include any factors (both announcement date and the event) relating to the equity issuance.

Similar to resource companies, a conclusion can be made that the null hypothesis is accepted and that there is no significant effect on the share price according to a rights issue, especially considering the first 17 days. However, it must be noted that

the effect becomes significant on day 18 and remains in that region. Therefore, the hypotheses can be updated accordingly:

$$H_{0ABRI}: CAAR_{RI4B} = 0 \quad (17.1)$$

$$H_{AABRI}: CAAR_{RI4B} \neq 0 \quad (18.1)$$

The next section will compare the two different categories according to the announcement date and event date.

6.5.3 Hypothesis 4C: Comparison between the two categories

This section is divided into two sections, namely, the effect based on the announcement date; and the effect based on the equity issuance date. Figure 28 effectively illustrates the difference between the two independent variables and the announcement date. The figure includes the CAAR for both resource and non-resource companies based on the announcement date, with a 5th-order polynomial trendline to indicate the cyclic behaviour seen in the previous section.

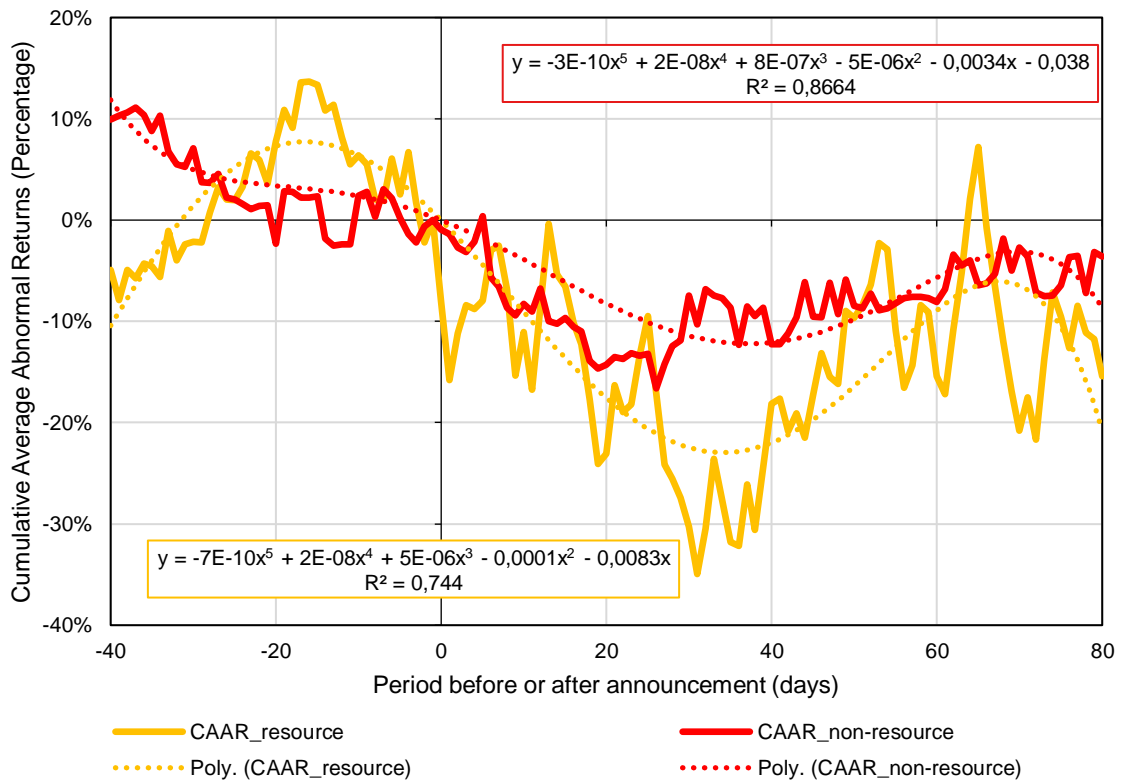


Figure 28: CAARs of resource and non-resource companies based on the announcement date

Concerning Figure 28, it can be seen that non-resource companies are less susceptible to CAAR variations. The maximum CAARs were calculated 40 days before the announcement occurred. Conversely, resource companies yielded a CAAR of -4.95% for the same day. After the initial starting day, non-resource companies progressively decreased toward the 0% CAAR mark on day -1. Conversely, resource companies first increased to reach a maximum of 13.68% on day -16, and then decreased to 0% on day -1.

Once the announcement had been made, resource companies yielded the greatest reduction of CAAR to reach a minimum of -34.95% on day 31. Similarly, non-resource companies also yielded a negative CAAR of -12.34% on day 36. In both instances, the CAAR then increased again under the observed cyclic behaviour. However, it can be seen that both portfolios of companies are susceptible to announcements concerning equity issuance. However, based on the amplitude of each function (an average of approximately 8% for resource companies and an average of 6% for non-resource companies), a conclusion can be made that resource companies are more susceptible to announcements concerning equity issuance.

It is also noted that there is an 86.68% correlation between the trendline and the data for non-resource companies, whereas a correlation of 74.4% was seen between the data and the trendline for the resource companies. In addition, the cycles for resource companies are shorter in comparison with non-resource companies; both of these are indicative of the volatility that resource prices are subject to.

Based on this, a conclusion can be made that the effect of an announcement is statistically higher for non-resource companies as opposed to resource companies. Therefore, the hypotheses can be updated as follows:

$$H_{04CA}: CAAR_{RC} \neq CAAR_{NRC} \quad (19.1)$$

$$H_{1A4CA}: CAAR_{ARC4C} > CAAR_{ANRC4C} \quad (20.1)$$

$$H_{2A4CA}: CAAR_{ARC4C} \not< CAAR_{ANRC4C} \quad (21.1)$$

Figure 29 depicts the CAARs for resource and non-resource companies according to the event date. Similar to the above, trendlines and correlations are also provided for analysis purposes.

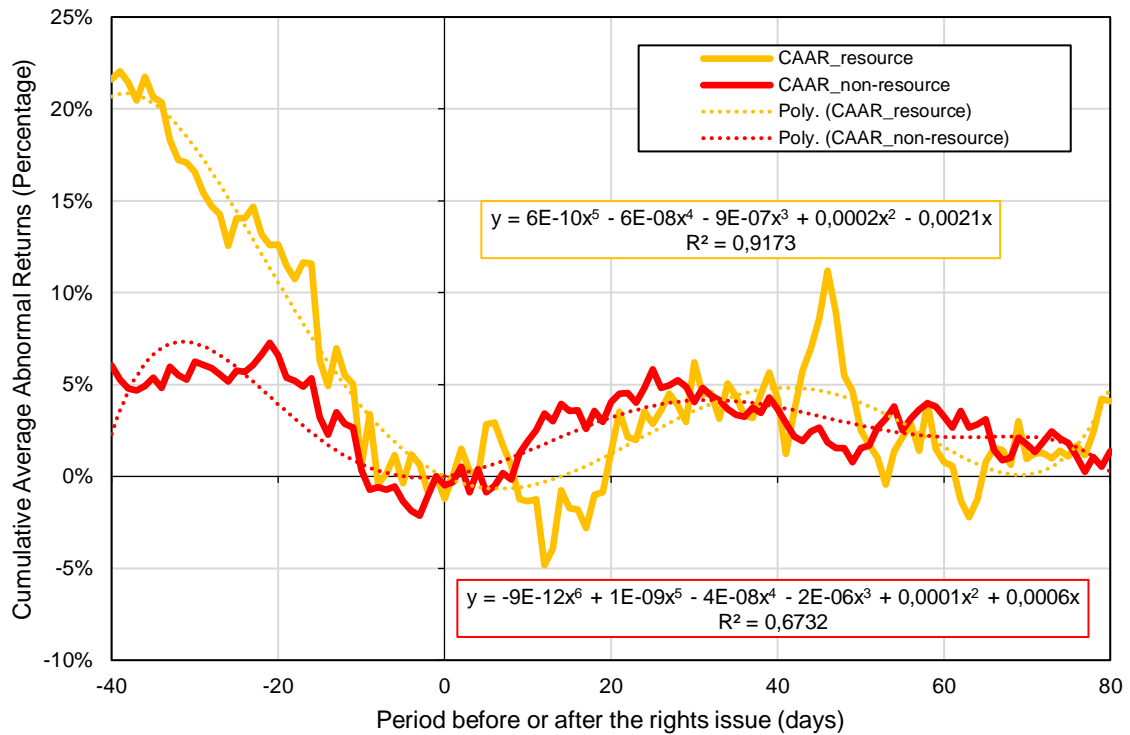


Figure 29: CAARs of resource and non-resource companies according to the rights issue

Referring to Figure 29, the chart indicates the market prices concerning the anticipated dilution before the actual issue of shares. This is interesting given that the dilution effect is only supposed to be seen on the new shares that have been issued. This could be indicative of a market that is not efficient. Typically, new shares are offered at a discount of 16%. This would imply that the discount rate is much higher in this instance for resource companies. Additionally, it can be seen that the CAARs of resource companies are considerably higher when compared to non-resource companies at approximately 20% for 40 days before the rights issue (as opposed to approximately 5% for non-resource companies). However, once the rights issue has occurred, both resource and non-resource companies behave similarly, with similar CAARs observed for both. Based on this, the hypotheses equations can be updated accordingly:

$$H_{04CRI}: \quad CAAR_{RC} = CAAR_{NRC} \quad (22.1)$$

$$H_{1A4CRI}: \quad CAAR_{RC4C} \neq CAAR_{NRC4C} \quad (23.1)$$

$$H_{2A4CRI}: \quad CAAR_{RC4C} \neq CAAR_{NRC4C} \quad (24.1)$$

When referring to volatility, resource companies exhibit higher volatility when compared to non-resource companies. Three noticeable outliers are seen on days

13, 46 and 63. However, the correlation equation suggests that the correlation between the trendline and the CAAR is lower for non-resource companies. This can be attributed to the overall behaviour of the CAAR and will increase when the order of the polynomial equation is increased.

The next section will focus on hypothesis 5, where the main purpose is to analyse the effect of equity issuance on value and growth companies.

6.6 Hypothesis 5

Hypothesis 5 focuses on the effect of equity issuance on growth and value companies. Each company was categorized by utilizing the earnings yield of the company on the date of the announcement, followed by comparing that value to the median of all the companies that were in operation in the All Share Index. The effect of these two categories was selected since research suggests that growth companies tend to outperform value companies (S Basu, 1977; Oppenheimer, 1984; Petrie, 2007; Woolridge et al., 1990). Driven by this, the following question can be raised for example: is the inverse true when equity issuance is initiated for both companies?

As stated earlier, for companies to be categorized according to both variables, earnings yield ratios had to be above 0. Therefore, there is a possibility that some announcements are not integrated within the defined scope. In line with this, only 118 announcements adhered to this requirement, where 42.37% (50 companies) of which were classified as value and the rest as growth. Relating the latter, it is generally expected that most companies would issue equity for further investment; when their share price is comparatively high, or when they require additional funding due to insufficient financial capacity (Dittmar & Thakor, 2007; Goet, 2021; Wang et al., 2006). For simplification, this section will be discussed according to value and growth sections, followed by an overall comparison of both.

6.6.1 Hypothesis 5A: Value companies

Relating to Figure 22, which depicts the CAAR of value companies according to the announcement date, it can be seen that the portfolio of companies yields approximately 5% 40 days before the event. It then remains constant throughout the period until 12 days before the announcement date: with the CAAR surpassing the

95th percentile 3 times throughout the same period. However, 12 days before the announcement is made, the CAAR then reduces from 5.38% to -1.82% over 6 days. Similar behaviour was exhibited for both resource and non-resource companies where it was concluded that the investors most likely expect such an announcement to occur – thus, driving the share price down due to increased supply of shares. Thereafter, the market then reacts, and the share price increases again towards 0% on day -1.

Once the announcement has occurred, the CAARs then remain constant near the 0% return value, with small variations between 0% and -3.44% observed. However, after 40 days, the CAARs then increase by 5.47% over 1 day to surpass the 95th percentile. It then progressively increases to 7.55% over the subsequent 40 days. Conversely, the 95th percentile decreases for the same period to -3.53%, thus increasing the range between the value stock and the 95th percentile. That being said, a conclusion can be made that there is no statistical significance for growth companies according to the announcement. As such, the hypotheses can be updated accordingly:

$$H_{05AA}: CAAR_{A5A} = 0 \quad (25.1)$$

$$H_{A5AA}: CAAR_{A5A} \neq 0 \quad (26.1)$$

Relating to Figure 26 (an illustration of the CAAR according to the rights issue), the effect of equity issuance is less pronounced in comparison with the announcement date. The CAAR begins at a value of 3.96% on day -40 and then continues to gradually decrease to 2.77% approximately 15 days before the event is initiated. Thereafter, the CAAR then reduces to -0.36% over the subsequent 3 days – this is most likely a response to the announcement date that occurred. Relating to the latter, the average period between the announcement date and the event for value companies was 32.1 days. For the last 12 days before the event occurred, the CAAR remains comparatively stable at between -0.32 and 0.62%.

After the event occurred, the share price increases beyond the 95th percentile to peak at 3.96% on day 19; unlike the announcement date where the share price was subject to volatility and depreciation. It then continues to behave in line with the 95th percentile region until day 35; whereafter it progressively decreases towards the 5th

percentile on day 80 to attain a minimum of -7.16%. That being said, the CAAR for value companies according to the event date seldomly exceeds the 95th percentile, but never reduces to below the 5th percentile value. Therefore, a conclusion can be made that there is little statistical significance for value companies according to the rights issue. As such, the hypotheses equations can be updated accordingly:

$$H_{05ARI}: CAAR_{RI5A} = 0 \quad (27.1)$$

$$H_{A5ARI}: CAAR_{RI5A} \neq 0 \quad (28.1)$$

The next section of the discussion section will focus on growth companies, to determine statistical significance.

6.6.2 Hypothesis 5B: Growth companies

The first metric to analyse in terms of growth companies relates to the announcement date. Figure 23, which depicts the CAAR results of the 68 companies that were classified as growth companies, indicates that the highest CAAR was obtained 40 days before the announcement date at a value of 12.39%: approximately 0.9% above the 95th percentile. It then progressively decreases in line with the 95th percentile to 10.95% at a period of 33 days before the announcement date. However, it then decreases at an increased rate to reach a value of 6.20% on day -30 (indicative of a decline of 4.75% over 3 days). Finally, it then continues to decrease a continuous gradient (when considering the trendline) to eventually reach 0% on day -1, with an exception seen for a period of 14 days to 7 days before the announcement was made. Relating to the latter, this is most likely due to the investors being cognizant of a potential rights announcement to come shortly.

Once the announcement has been made, the CAAR then decreases to -5% over the following 11 days to reach the 5th percentile, whereafter it then increases to 0% on day 20. The CAAR then exhibits volatility over the next 20 days (most likely due to the event occurring), to eventually stabilize on day 45 at 0%, albeit above the 95th percentile. Finally, it then decreases to its minimum to reach a value of -5% on day 80, although above the 95th percentile throughout. That being said, a conclusion can be made that there is no statistical significance on the share price.

$$H_{05BA}: CAAR_{A5B} = 0 \quad (29.1)$$

$$H_{A5BA}: CAAR_{A5B} \neq 0 \quad (30.1)$$

Concerning the rights issue, Figure 27 depicts the CAAR of growth companies. For 40 days before the event date, the CAAR is approximately 2.09%. The CAAR then remains stable for the following 19 days, to yield a CAAR of 3.61% on day 21. Thereafter, the CAAR decreases below the 5th percentile region to -4.87% up until 6 days before the event occurs; most likely due to the average announcement period of 26.66 days that occurred. It then continues to stay below the 5th percentile, albeit increasing towards the 0% CAAR value on day -1.

Once the event has occurred, the CAAR then decreases to 4.31% on day 5, followed by a gradual increase beyond the 95th percentile region to reach a maximum of 4.85% on day 29. Finally, it then progressively decreases in line with the 95th percentile region (although above it throughout the remainder of the case study period), to eventually reach a CAAR of -2.28% on day 80. That being said, a conclusion can be made that there is no statistical significance on the share price of growth companies after the rights issue. As such, the hypotheses can be updated accordingly:

$$H_{05BRI}: CAAR_{RI5B} = 0 \quad (31.1)$$

$$H_{A5BRI}: CAAR_{RI5B} \neq 0 \quad (32.1)$$

The next section will compare the two different categories according to the announcement date and event date.

6.6.3 Hypothesis 5C: Comparison between the two categories

The purpose of this section is to illustrate the difference an announcement date has on the CAARs of value and growth stock. Subsequently, Figure 30 was created to graphically illustrate the aforementioned and includes the 4th-order polynomial trendline with correlation relationships for each variable.

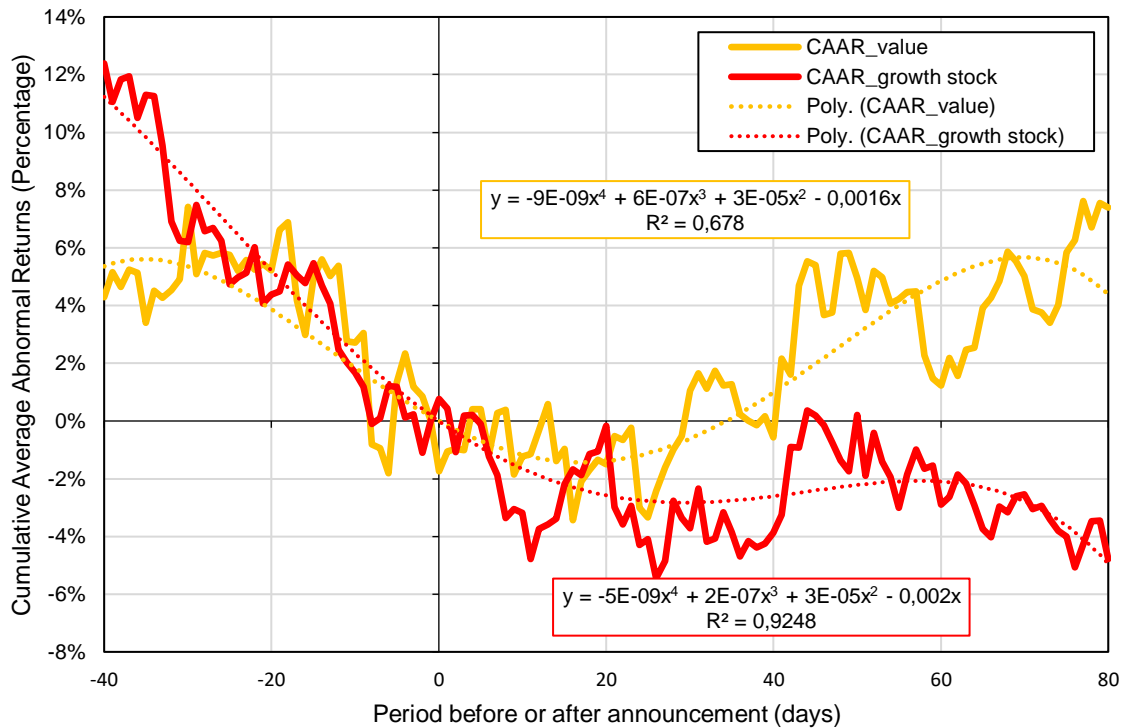


Figure 30: CAARs of value and growth companies according to the announcement date

Similar to research that suggests growth stock tends to outperform value stock (Damodaran, 2012; Penman et al., 2018), it can be seen that the CAAR for growth stock of approximately 12.00% is higher at a period of 40 days before the announcement occurred in comparison with value stock at 4.28% at the same time. However, the effect of the announcement date is pronounced and becomes less evident as the time approaches the announcement date to eventually merge 30 days before the announcement date. Thereafter, both portfolios of companies progressively decrease at the same gradient toward the announcement date.

Once the announcement occurred, both portfolios are subject to a decrease in CAAR. However, value companies tend to recover 16 days after the announcement has occurred and continue to recover to eventually surpass 0% CAAR on day 37. Thereafter the value of stocks continues to increase to eventually reach a maximum on day 68 according to the trendline.

Conversely, growth stocks continue to decline in value and only recover after 31 days. The growth stock then remains stable at the CAAR value of 31 days but decreases further on day 60 to eventually reach a minimum on day 80. This is a contradiction to the literature and suggests that value stock is more resistant to

announcement dates in comparison with a growth stock. That being said, value stocks tend to be more volatile in comparison with growth stocks where a correlation of 67.8% was calculated between the trendline and the CAAR, while a correlation of 92.48% was seen for a growth stock.

Based on this, a conclusion can be made that the CAARs of a value stock outperform that of a growth stock. As such, the hypotheses equations can be updated accordingly:

$$H_{05CA}: CAAR_{VC} \neq CAAR_{GC} \quad (33.1)$$

$$H_{1A4CA}: CAAR_{AVC5C} > CAAR_{ARC5C} \quad (34.1)$$

$$H_{2A4CA}: CAAR_{AVC5C} \not< CAAR_{ARC5C} \quad (35.1)$$

To determine the effect of equity issuance and rights issues, Figure 31 accordingly depicts the CAAR of both portfolios of companies.

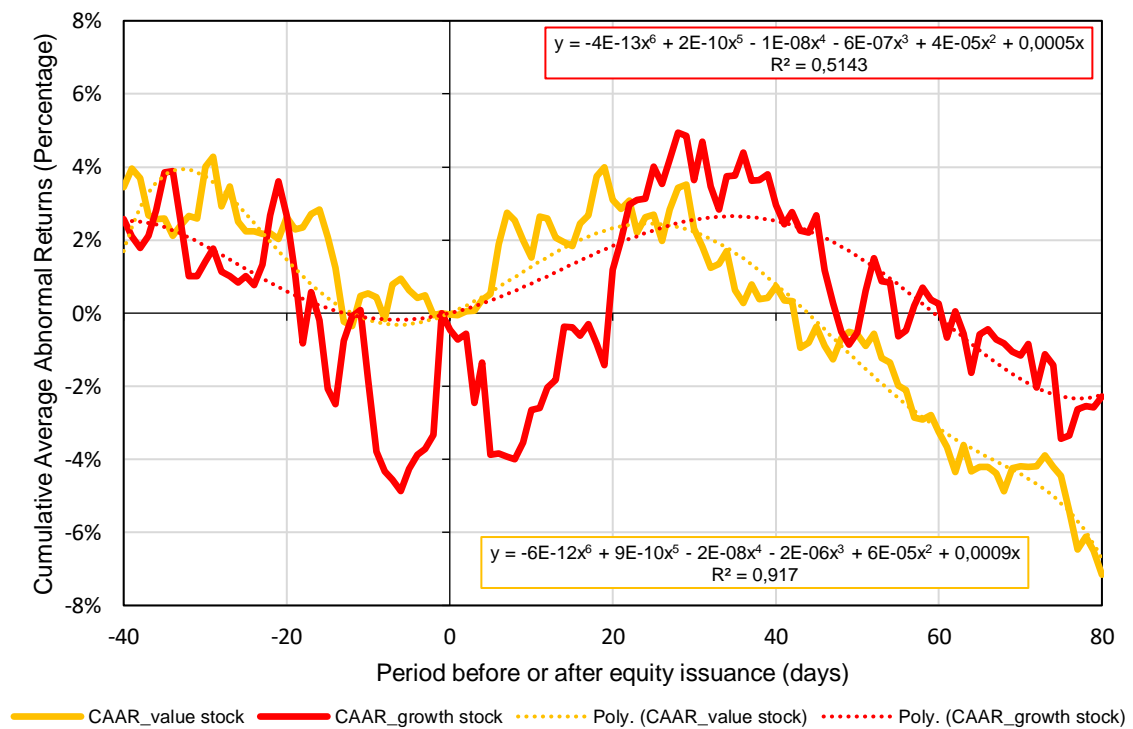


Figure 31: CAAR of value and growth companies according to the equity issuance date

Concerning Figure 31, it can be seen that the value stock behaves similarly to the announcement date, where it outperforms the growth stock. Unlike growth stock, value stock constantly remains above 0% until the equity issuance date is reached.

Conversely, growth stock starts at a similar position (approximately 3%) to value stock, but then progressively decreases to below the 0% mark.

Once equity issuance has occurred, both value and growth stock increase. Value stock reaches a maximum on day 22, while growth stock only reaches a maximum CAAR on day 37, as per both trendlines. However, value stock then progressively decreases from its cycle maximum to a minimum of -7.16% on day 80. Conversely, growth stock outperforms value stock and only decreases to -2.58% on day 80. Unlike the announcement date, this is in line with literature that suggests growth stock outperforms value stock. That being said, the returns concerning each other vary according to time, with small differences being exhibited. Therefore, the hypotheses equations can be updated accordingly:

$$H_{05CRI}: \quad CAAR_{VC} = CAAR_{GC} \quad (36.1)$$

$$H_{1A5CRI}: \quad CAAR_{VC5C} \neq CAAR_{GC5C} \quad (37.1)$$

$$H_{2A5CRI}: \quad CAAR_{VC5C} \neq CAAR_{GC5C} \quad (38.1)$$

Finally, growth stock was subject to more volatility where a correlation of only 51.43% was seen between the data and the trendlines. Conversely, value stock exhibits a correlation of 91.7% between the data and the trendline; thus, indicating that value stock is less exposed to volatility.

6.7 Conclusion of section

This section of the document provided a discussion of the results obtained in section 5. The section was categorized according to the overarching result from rights issues on the JSE, followed by discussing the results according to the different hypotheses. Each result was compared to the literature to aid the discussion of the result.

The next section includes a conclusion to the research. Each section will be concluded where the key takeaways are highlighted. Finally, recommendations for future research will be given.

7 Conclusion and Recommendations

This section presents the conclusion from the research, followed by a discussion of the limitations of the research and recommendations for future research.

7.1 Introduction

The introduction section provided background regarding the study. In essence, the research aims to investigate the effect of a rights issue and its announcement on the share price of current and past companies listed on the JSE. Although the JSE has been subject to a reduction in company participation, average market capitalisation has seen an increase. Subsequently, investors prefer the JSE to invest in different equities as the potential for future growth is present. When a rights issue occurs, share prices are generally influenced. A rights issue is a term used to describe the process of providing existing shareholders with a preference for buying shares at a discount rate in proportion to their holding of old shares. If those shareholders do not want to purchase those shares, they can sell their rights to purchase, thus enabling other investors to buy the shares; but exposing them to share dilution.

7.2 Literature review

The literature review depicts all the relevant theories concerning the research. Four underlying sections were included in the literature review, with the first section focussing on investor sentiment and psychology. Literature indicates strongly that investing is as much psychological, as it is financial. Secondly, a discussion of the various investment techniques was presented. This discussion focussed on the financial and non-financial metrics that investors use to guide their investment decisions. In addition to the aforementioned, secondary factors exist that influence the share price of a given company. Therefore, the third section of the literature review focused on those factors, including the macroeconomic environment of the said company; the core business of the firm; and a brief discussion of how exogenous events influence share prices. Lastly, the mechanics and past research on rights issues were presented, followed by a brief discussion of the methodology used in calculating the AARs and CAARs of a specific portfolio.

7.3 Hypotheses

Five hypotheses were derived according to the findings from the literature review. The first hypothesis focussed on the effect of a rights issue announcement on the share price of a company. The second hypothesis focussed on the effect on share price due to a rights issue being implemented. Hypothesis three focussed on determining the effect of the relative size of the rights issue on the share price. This was achieved through the use of quantiles. The last two hypotheses focussed on the effect of a rights issue on resource vs. non-resource companies and the effect on value vs. growth companies. Relating to the latter, companies were categorized according to data from the All Share Index.

7.4 Methodology section

The methodology section discussed the various methods used in interpreting the results. In doing so, a list of assumptions; the event window and sample population (with a basic description of the model used in identifying announcement dates); and the mathematical models were presented in this section. Relating to the latter, mathematical models that assist in categorizing companies, as well as those used for statistical analysis, were presented. Finally, key research limitations were identified that must be considered in analysing the results.

7.5 Results and discussion

For continuity, the conclusion of the results and discussion will be integrated into one section with each hypothesis being discussed separately. However, the overarching observations of rights issues within South Africa were discussed. Therefore, the first section will deal with it accordingly.

7.5.1 Key findings

The first section of the discussion discussed some of the key findings. 229 rights issues occurred in the study period between the 1st of January 2005 to 30 June 2022. A relationship was identified where it was seen that rights issues relate to economic activity, where economic suppression tends to promote the rate of rights issues. This was further highlighted by the random sample of the same companies where a negative slope of past returns was observed. A conclusion was made that companies who initiate a rights issue tend to be capital distressed.

7.5.2 Hypothesis 1

The first hypothesis focussed on the effect of a rights issue announcement on the share price of companies. The results indicate that there is a statistically significant effect on share pricing after the announcement occurred, where CAARs tend to trade below the 5th percentile. As such, the null hypothesis was rejected, while the alternative hypothesis was accepted – rights issue announcements are found to negatively impact the share price of a company

7.5.3 Hypothesis 2

The second hypothesis aimed to determine the effect of a rights issue on the share price of a company. Although companies are subject to share price reduction, this is mostly enforced by the diluting effect found within the mechanics of a rights issue. That being said, the result from the research indicate that share prices tend to recover above the 95th percentile. Accordingly, a conclusion was made that there is a positive statistically significant effect on the share prices of companies according to the event of a rights issue.

7.5.4 Hypothesis 3

Hypothesis three focussed on determining the effect on share price if the relative size of the rights issue is increased. Quantile categorization was used according to which companies were allocated, with quantile one representing comparatively small rights issues, and quantile five representing large rights issues.

The result from the research indicates that the relative size of the rights issue does not change the effect of a rights issue. This was especially evident for quantile 4 where the highest CAARs were observed. In essence, the order continuously changed as a function of time. Therefore, the null hypothesis was rejected.

7.5.5 Hypothesis 4

Hypothesis 4 focussed on the effect of a rights issue and its announcement on resource and non-resource companies. The first notable conclusion that was made was the volatility of share price resource companies were subject to. This was evident when analysing the announcement dates.

Further analysis revealed that resource companies are more prone to a rights issue announcement. One cause of this could be that resource companies tend to initiate new shares at a higher discount rate. Subsequently, a conclusion was made that resource companies are more affected by the announcement of a rights issue compared to non-resource companies.

Relating to the rights issue, minimal variation was found between resource and non-resource companies. As such, the null hypothesis was accepted for this part of the research.

7.5.6 Hypothesis 5

The final hypothesis focussed on the effect of a rights issue and its announcement on value vs. growth companies. Each company was categorized by utilizing the earnings yield of the company on the date of the announcement, followed by comparing that value to the median of all the companies that were in operation in the All Share Index. For a company to be classified as a value, its earnings yield must be lower than the median earnings yield on the all-share. Conversely, growth companies yielded a higher-than-median earnings yield at the time. A requirement was enforced that the company had a positive earnings yield.

The results indicate that growth companies are more negatively influenced by a rights issue announcement as opposed to value companies. However, once the rights issue occurs, growth companies tend to recover and surpass the CAARs of the value companies.

One other observation that was made is that both growth and value companies tend to yield greater returns, as opposed to all the companies that issued equity. The reason for this relates to their earnings – given that a positive earnings yield was observed for both, investors are more prone to invest in those companies as opposed to companies that are not yielding a profit.

7.6 Limitations and recommendations for future research

The first limitation relates to the announcement of rights issues. Due to the convoluted nature of the data on the SENS, some announcements were not found (refer to Appendix A for a summary of all the companies analysed). Subsequently,

the sample size was reduced and influenced. For future research, it is advised that the scope be changed. Given that most of the uncertainties originate between 2005 to 2010 (when SENS data were less structured), future research must be limited from 2010 until the latest data. However, the adverse effect may be that categorizations (value vs. growth) could not occur given that the sample size is small.

Secondly, confounding simultaneous announcements were not excluded from the research. That means that the effect of the simultaneous announcements may be integrated into the results used for analysing. It is advised that confounding events be included in future research. This will involve developing an algorithmic model that is capable of distinguishing confounding events.

Further to the second limitation, the interpretation of the results may be skewed. That means that it may become difficult to validate or discredit the hypotheses as it is difficult to deduce correlation (i.e. is the change in share price due to increased efficiency or because of a different external occurrence?). Future research could include integrating a model that enhances the interpretation of data. As such, utilizing Matlab-based programming models will aid in calculating CAARs.

The fourth limitation relates to externalities that were not communicated through an announcement. Subsequently, this may result in share price variation within the scope of the research. For example, research conducted by Wesson, Muller and Ward (2018) has identified that standard errors limit certain conclusions about whether the price changes are temporary or permanent. Although the statistical interpretation method aims to mitigate the effect of external occurrences, some factors might not be accounted for. Future research could include analysing the share price of individual companies before the announcement has been made, with the intention of anomalies.

The fifth limitation relates to the repurchase of shares. It can be expected that companies might want to enforce a share buyback. This means that shares are bought back by the company to limit supply. In theory, this will conclude the process of a rights issue. However, this study focuses solely on the process of a rights issue. For future research, it is advised that share buybacks be investigated and compared to a rights issue.

The last variable relates to trading costs. Trading costs, such as brokerage costs, were not considered as part of the research. This means that the cost of the rights issue is higher in comparison with the result obtained in the research. Accordingly, future research could include integrating an average trading cost into the interpretation model. This will reflect a more applicable result.

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Appendix A: Summary of rights issues in the study period

The following table is a summary of all the rights issues that occurred during the study period. In the case where an empty cell is found, then it can be considered that the announcement date was not found on the SENS, or that weighting information could not be calculated based on void data from the bulletin.

Table 3: Summary of the different rights issues with coinciding information

Code	Announcement date_SENS	Event Date_bulletin	Shares	Capital Raised
AVA		31 Jan 2005	293 333 333,00	4 400 000,00
GIJ	13 Dec 2004	30 Apr 2005	457 142 857,00	160 000 000,00
BRN		30 Jun 2005	100 076 155,00	110 083 770,50
DRD		31 Jul 2005	15 804 116,00	86 922 638,00
SIM		31 Jul 2005	516 241 685,00	129 060 421,00
SYA	30 Jun 2005	31 Aug 2005	39 984 623,00	199 923 115,00
PGFP		31 Oct 2005	200 000 000,00	400 000 000,00
MRF	04 Oct 2005	30 Nov 2005	1 007 239 942,00	553 981 968,10
BEG		31 Dec 2005	228 305 833,00	11 415 292,00
WAR	07 Nov 2005	31 Dec 2005	35 505 240,00	639 094 320,00
RDF	10 Apr 2006	31 May 2006	53 501 834,00	331 711 370,80
SAL	19 May 2006	30 Jun 2006	141 354 896,00	65 023 252,16
ACT	30 Jun 2006	31 Aug 2006	84 600 000,00	84 600 000,00
SZA	30 Jun 2006	31 Aug 2006	3 625 000,00	6 887 500,00
BSR		31 Oct 2006	15 111 777,00	109 560 383,25
PSG		31 Oct 2006	12 696 447,00	215 839 599,00
MFL	15 Sep 2006	30 Nov 2006	188 897 403,00	141 673 052,25
MYT	11 May 2007	25 Jun 2007	114 168 870,00	353 923 497,00
PPE	17 May 2007	25 Jun 2007	37 129 910,00	44 555 892,00
SAL	25 May 2007	25 Jun 2007	124 916 992,00	74 950 195,00
YRK		20 Aug 2007	17 266 722,00	259 000 830,00
HPA		22 Oct 2007	15 903 352,00	204 517 106,72
HPB		22 Oct 2007	15 903 352,00	295 484 280,16
GRT		03 Dec 2007	100 000 000,00	1 650 000 000,00
MDC		03 Dec 2007	198 675 497,00	4 500 000 007,00
TFX	07 Dec 2007	11 Feb 2008	18 181 818,00	40 000 000,00
TAW	20 Feb 2008	20 Mar 2008	23 099 370,00	13 166 641,00
SALD		31 May 2008	151 483 358,00	75 741 679,00
PFG		09 Jun 2008	20 000 000,00	500 000 000,00
ANG	27 May 2008	30 Jun 2008	69 470 442,00	13 477 265 748,00
SDH		14 Jul 2008	9 276 471,00	15 770 000,70
ALJ		04 Aug 2008	60 000 000,00	15 000 000,00
SAH		04 Aug 2008	25 000 000,00	100 000 000,00

ABO	05 Sep 2008	06 Oct 2008	214 008 081,00	12 840 484,86
SPG		13 Oct 2008	209 058 316,00	836 233 264,00
PPE	18 Sep 2008	20 Oct 2008	399 743 200,00	119 922 960,00
SER		20 Oct 2008	613 057 249,00	306 528 624,50
SAP	11 Nov 2008	08 Dec 2008	286 886 270,00	5 815 184 692,90
BIO		19 Jan 2009	909 202 880,00	31 822 101,00
MTX		19 Jan 2009	129 461 597,00	258 923 194,00
GRT		26 Jan 2009	128 092 620,00	1 742 059 632,00
AQP		21 Apr 2009	41 491 737,00	656 814 197,00
SBL		04 May 2009	1 797 400,00	34 995 378,00
LBT		15 May 2009	95 161 642,00	951 616,00
MKX		25 May 2009	233 733 088,00	4 674 662,00
LON	11 May 2009	28 May 2009	35 072 129,00	3 964 553 462,00
ZED		01 Jun 2009	366 783 194,00	495 157 312,00
FRT	22 Jun 2009	06 Jul 2009	666 666 667,00	20 000 000,00
ILV	24 Jul 2009	07 Sep 2009	108 342 362,00	3 000 000 004,00
PGL		21 Sep 2009	228 571 376,00	799 999 816,00
PLD	04 Sep 2009	05 Oct 2009	128 205 128,00	150 000 000,00
SKW		26 Oct 2009	137 767 451,00	6 888 373,00
SPG	07 Oct 2009	16 Nov 2009	2 727 580 820,00	1 227 411 369,00
AFP	23 Oct 2009	23 Nov 2009	90 000 000,00	315 000 000,00
PNG	17 Sep 2009	30 Nov 2009	666 666 667,00	100 000 000,00
DAW	06 Nov 2009	07 Dec 2009	41 666 666,00	299 999 995,00
SNU	12 Oct 2009	07 Dec 2009	350 993 245,00	501 920 340,00
SOV	05 Nov 2009	07 Dec 2009	16 997 070,00	144 475 095,00
YRK	30 Oct 2009	07 Dec 2009	250 000 000,00	500 000 000,00
OAD	19 Jan 2010	15 Feb 2010	301 694 876,00	1 052 915 117,00
VUN		01 Mar 2010	0,00	0,00
RDI	03 Feb 2010	15 Mar 2010	92 710 767,00	32 448 768,00
AMS	08 Feb 2010	19 Mar 2010	24 891 473,00	12 499 999 911,00
AGI	05 Mar 2010	12 Apr 2010	4 112 520 940,00	205 626 047,00
MTX		12 Apr 2010	250 000 000,00	900 000 000,00
ELI	25 Feb 2010	19 Apr 2010	50 000 000,00	100 000 000,00
MYD	26 Feb 2010	19 Apr 2010	125 000 000,00	100 000 000,00
COM	08 Apr 2010	17 May 2010	69 176 471,00	124 517 648,00
EQS	14 May 2010	21 Jun 2010	154 761 905,00	650 000 001,00
HLM	26 Apr 2010	21 Jun 2010	100 000 000,00	750 000 000,00
CRD		28 Jun 2010	679 029 025,00	152 102 502,00
RAC	26 May 2010	05 Jul 2010	25 000 007,00	10 000 003,00
MDC	21 Jun 2010	02 Aug 2010	59 301 395,00	1 363 932 085,00
OMN		06 Sep 2010	20 000 000,00	1 000 000 000,00
ABK	09 Jul 2010	13 Sep 2010	671 311 614,00	20 139 348,00
BDM	07 Jul 2010	08 Nov 2010	2 404 016 261,00	300 502 032,63
HPA	01 Oct 2010	08 Nov 2010	21 030 043,00	269 184 550,40

HPB	01 Oct 2010	08 Nov 2010	21 030 043,00	220 815 451,50
CPI	25 Nov 2010	24 Jan 2011	8 420 462,00	1 052 557 750,00
DGC	14 Jan 2011	14 Feb 2011	30 000 000,00	90 000 000,00
PMM	14 Jan 2011	21 Feb 2011	26 666 667,00	400 000 005,00
ESR	25 Nov 2010	28 Feb 2011	93 023 256,00	200 000 000,40
SOV	21 Feb 2011	07 Mar 2011	31 578 947,00	149 999 998,25
FPT	21 Feb 2011	04 Apr 2011	166 666 667,00	1 000 000 002,00
TDH	01 Apr 2011	29 Apr 2011	103 833 866,00	650 000 001,16
BEGP2	04 Apr 2011	09 May 2011	25 000 000,00	25 000 000,00
BAT		20 Jun 2011	356 961 963,00	5 889 872 389,50
SFH	16 Mar 2011	27 Jun 2011	400 000 000,00	20 000 000,00
COH	26 May 2011	04 Jul 2011	80 607 040,00	322 428 160,00
AET	02 Sep 2011	03 Oct 2011	1 515 151 515,00	50 000 000,00
JDH		10 Oct 2011	214 285 714,00	14 999 999,98
ADW	14 Jun 2011	24 Oct 2011	250 000 000,00	25 000 000,00
GND		24 Oct 2011	0,00	0,00
CSP	07 Oct 2011	14 Nov 2011	535 630 824,00	214 252 330,00
NEP	21 Oct 2011	28 Nov 2011	14 285 714,00	428 571 420,00
FGL	09 Dec 2011	05 Mar 2012	200 000 000,00	20 000 000,00
MUR		16 Apr 2012	112 843 490,00	2 031 182 820,00
HPA	30 Apr 2012	11 Jun 2012	36 000 000,00	413 280 000,00
HPB	30 Apr 2012	11 Jun 2012	36 000 000,00	117 000 000,00
AET	27 Mar 2012	25 Jun 2012	4 285 714 286,00	120 000 000,00
COH	28 Mar 2012	25 Jun 2012	58 037 069,00	348 222 414,00
PGL	02 Jul 2012	16 Jul 2012	357 142 857,00	799 999 999,68
OCT	13 Jul 2012	13 Aug 2012	18 927 445,00	300 000 003,25
ERB	13 Jul 2012	20 Aug 2012	390 240 594,00	156 096 237,60
CPI	26 Sep 2012	05 Nov 2012	14 050 848,00	2 248 135 680,00
NEP	05 Oct 2012	12 Nov 2012	12 345 680,00	537 037 080,00
PAN	23 Nov 2012	07 Jan 2013	370 071 902,00	703 136 613,80
REB	18 Dec 2012	28 Jan 2013	58 035 718,00	650 000 041,60
RBW	06 Dec 2012	25 Feb 2013	276 964 802,00	3 932 900 188,00
DLT	28 Feb 2013	26 Apr 2013	119 047 619,00	999 999 999,60
COH	22 Feb 2013	06 May 2013	50 489 948,00	605 879 376,00
SYC	11 Apr 2013	20 May 2013	33 027 523,00	900 000 001,80
VIF	22 Mar 2013	27 May 2013	45 813 098,00	247 390 729,20
GIJ	28 Mar 2013	14 Jun 2013	3 000 000 000,00	150 000 000,00
RBA	02 Apr 2013	08 Jul 2013	125 000 000,00	10 000 000,00
NEP	13 Jun 2013	22 Jul 2013	20 833 328,00	1 349 999 654,00
VPF	05 Jul 2013	19 Aug 2013	48 503 939,00	478 893 941,00
ABL	05 Aug 2013	02 Dec 2013	685 281 693,00	5 482 253 544,00
CRD		09 Jan 2014	19 196 065,00	28 602 137,00
JSC	22 Nov 2013	13 Jan 2014	72 000 000,00	57 600 000,00
SCL	06 Dec 2013	20 Jan 2014	2 111 111 111,00	569 999 999,97

AET		03 Mar 2014	17 500 000,00	35 000 000,00
ADW	13 Dec 2013	31 Mar 2014	508 184 155,00	40 654 732,00
EFG	06 Mar 2014	31 Mar 2014	17 500 000,00	28 000 000,00
RBP	04 Mar 2014	07 Apr 2014	14 545 455,00	800 000 025,00
ITU	20 Mar 2014	11 Apr 2014	278 241 628,00	8 981 639 752,00
UBU	06 Mar 2014	11 Apr 2014	53 336 464,00	17 601 033,00
SRN	24 Feb 2014	17 Apr 2014	3 125 000 000,00	5 000 000 000,00
RAR		02 May 2014	0,00	0,00
AQP	07 Apr 2014	08 May 2014	976 206 906,00	2 352 658 643,46
RES	14 Apr 2014	12 May 2014	19 230 769,00	999 999 988,00
LAB	10 Oct 2013	19 May 2014	202 212 023,00	30 331 803,45
FFA	09 May 2014	02 Jun 2014	43 856 417,00	609 604 196,30
FFB	09 May 2014	02 Jun 2014	43 856 417,00	390 322 111,30
COH	18 Feb 2014	13 Jun 2014	29 479 439,00	589 588 780,00
JDG	25 Mar 2014	13 Jun 2014	40 000 000,00	1 000 000 000,00
SHF	02 Jul 2014	28 Jul 2014	199 899 588,00	10 394 778 576,00
HUG	04 Aug 2014	01 Sep 2014	20 000 000,00	20 000 000,00
ECS	17 Jul 2014	15 Sep 2014	715 000 000,00	100 100 000,00
TAS	28 Aug 2014	19 Sep 2014	60 052 514,00	180 157 542,00
WHL	29 Aug 2014	19 Sep 2014	167 800 000,00	9 984 100 000,00
IAP	18 Sep 2014	13 Oct 2014	111 896 298,00	1 197 290 389,00
GIJ	30 Sep 2014	12 Dec 2014	1 000 000 000,00	100 000 000,00
OAD	02 Dec 2014	05 Jan 2015	0,00	0,00
ELI	29 Oct 2014	12 Jan 2015	104 551 707,00	115 006 878,00
IVT	16 Jan 2015	09 Feb 2015	32 608 696,00	250 000 024,00
PPR	10 Feb 2015	02 Mar 2015	15 879 318,00	100 039 703,00
DSY	24 Feb 2015	27 Mar 2015	55 555 556,00	5 000 000 040,00
BEG		04 May 2015	0,00	0,00
COH	16 Apr 2015	04 May 2015	29 599 681,00	739 992 025,00
ZPLP		11 May 2015	0,00	0,00
RES	22 May 2015	12 Jun 2015	32 696 124,00	2 779 170 540,00
ELI	17 Jun 2015	13 Jul 2015	181 818 182,00	200 000 000,20
MDC	21 Jul 2015	17 Aug 2015	111 111 111,00	9 999 999 990,00
OCE	11 Aug 2015	07 Sep 2015	15 999 997,00	1 199 999 775,00
SAR	02 Sep 2015	28 Sep 2015	17 426 199,00	152 479 241,25
TEX	02 Sep 2015	28 Sep 2015	100 000 000,00	986 000 000,00
SPG	10 Sep 2015	05 Oct 2015	33 751 353,00	867 409 772,10
TAS	16 Oct 2015	09 Nov 2015	75 464 476,00	226 393 428,00
SCP	22 Oct 2015	23 Nov 2015	173 913 044,00	400 000 001,00
ADH	03 Nov 2015	30 Nov 2015	75 555 556,00	850 000 005,00
WSL	07 Oct 2015	30 Nov 2015	49 041 904,00	64 735 313,00
LON	09 Nov 2015	04 Dec 2015	26 997 717 400,00	5 777 511 524,00
CND	09 Oct 2015	07 Dec 2015	75 000 000,00	150 000 000,00
SAC	13 Nov 2015	07 Dec 2015	263 141 113,00	1 202 554 886,00

CKS	25 Jun 2015	11 Dec 2015	2 687 500,00	215 000 000,00
IPF	16 Nov 2015	11 Dec 2015	171 032 683,00	2 565 490 245,00
ACL	06 Nov 2015	11 Jan 2016	692 307 693,00	4 500 000 005,00
IAP	22 Jan 2016	15 Feb 2016	59 566 747,00	689 782 930,00
ILE	03 Dec 2015	22 Feb 2016	208 333 333,00	25 000 000,00
FGL	12 Feb 2016	07 Mar 2016	157 185 629,00	525 000 001,00
SNU	19 Feb 2016	14 Mar 2016	581 005 310,00	104 580 956,00
COH	30 Mar 2016	09 May 2016	32 442 525,00	1 070 603 325,00
ASC	30 Jun 2016	02 Aug 2016	54 545 454,00	1 199 999 988,00
PPC	23 Aug 2016	14 Sep 2016	1 000 000 000,00	4 000 000 000,00
REM	27 Sep 2016	19 Oct 2016	48 110 637,00	9 261 297 622,50
CIL	28 Oct 2016	23 Nov 2016	38 860 102,00	749 999 968,60
KAP	17 Nov 2016	07 Dec 2016	197 368 421,00	1 499 999 999,60
REB	22 Nov 2016	13 Dec 2016	49 840 696,00	533 793 854,16
PHM	10 Jan 2017	01 Feb 2017	16 331 225,00	284 000 002,75
ESR	20 Jan 2017	15 Feb 2017	98 796 357,00	37 542 615,66
ECS	31 Jan 2017	22 Feb 2017	333 333 292,00	49 999 993,80
IAP	31 Jan 2017	22 Feb 2017	113 333 342,00	1 530 000 117,00
DAW	13 Mar 2017	05 Apr 2017	350 000 000,00	350 000 000,00
LHC	16 Mar 2017	11 Apr 2017	367 346 939,00	9 000 000 005,50
SGL	11 May 2017	07 Jun 2017	1 195 787 294,00	13 488 480 676,00
TAS		13 Jun 2017	80 000 012,00	120 000 018,00
MDP	19 May 2017	21 Jun 2017	98 892 723,00	1 827 537 521,00
AVL	11 Jul 2017	02 Aug 2017	66 373 632,00	86 285 722,00
HPB	11 Jul 2017	02 Aug 2017	71 428 571,00	999 999 994,00
SYG	11 Jul 2017	08 Aug 2017	17 777 778,00	160 000 002,00
SDO	03 Oct 2017	25 Oct 2017	256 000 011,00	640 000 028,00
ITE	23 Oct 2017	22 Nov 2017	260 539 178,00	3 014 438 289,00
CND	20 Oct 2017	06 Dec 2017	175 000 000,00	350 000 000,00
ASC	21 Nov 2017	13 Dec 2017	37 501 366,00	750 027 320,00
REB	12 Dec 2017	10 Jan 2018	30 973 451,00	349 999 996,30
TAS	19 Dec 2017	24 Jan 2018	442 222 223,00	398 000 000,70
BSR		21 Feb 2018	1 363 636 364,00	300 000 000,08
ILE	29 Jan 2018	21 Feb 2018	750 000 000,00	15 000 000,00
FGL	23 Mar 2018	18 Apr 2018	172 609 725,00	412 537 242,75
SOH	10 Apr 2018	24 Apr 2018	46 898 000,00	19 697 160,00
SUI	08 May 2018	30 May 2018	25 941 107,00	1 499 914 806,74
AEG	05 Jun 2018	27 Jun 2018	5 000 000 000,00	500 000 000,00
GAM	05 Jun 2018	27 Jun 2018	36 740 623,00	67 235 340,09
EEL	17 Jul 2018	07 Aug 2018	1 200 000 000,00	600 000 000,00
NUT	14 Aug 2018	05 Sep 2018	10 000 000 000,00	10 000 000,00
REN	06 Nov 2018	28 Nov 2018	16 666 667,00	125 000 003,00
CIL	04 Dec 2018	19 Dec 2018	200 000 000,00	800 000 000,00
TAS	29 Jan 2019	20 Feb 2019	1 320 000 000,00	132 000 000,00

RBP	05 Mar 2019	27 Mar 2019	46 777 694,00	1 029 109 268,00
BWZ	27 Aug 2019	18 Sep 2019	13 199 997,00	85 799 980,50
OMN	27 Aug 2019	18 Sep 2019	100 000 000,00	2 000 000 000,00
LTE	04 Nov 2019	04 Dec 2019	150 000 000,00	1 162 500 000,00
EPE	14 Jan 2020	05 Feb 2020	100 000 000,00	750 000 000,00
BAT	21 Jan 2020	12 Feb 2020	795 454 545,00	5 249 999 997,00
SEP	21 Jan 2020	12 Feb 2020	46 270 261,00	37 478 911,41
SUI	14 Jul 2020	05 Aug 2020	127 174 696,00	1 200 529 130,00
TFG	14 Jul 2020	05 Aug 2020	94 270 486,00	3 949 933 363,00
CLH	21 Jul 2020	19 Aug 2020	566 460 609,00	1 200 896 491,00
COH	18 Jun 2020	02 Sep 2020	185 873 606,00	1 500 000 000,00
HMN	01 Sep 2020	21 Sep 2020	3 678 209 328,00	12 542 693 808,00
AIL	15 Sep 2020	30 Sep 2020	272 727 273,00	750 000 000,80
EPS	11 Dec 2020	20 Jan 2021	100 639 032,00	379 546 019,70
AEG	26 Jan 2021	10 Mar 2021	20 000 000 000,00	300 000 000,00
AVL		30 Mar 2021	279 416 667,00	67 060 000,00
AEG		02 Jun 2021	6 666 666 668,00	100 000 000,02
BAU		24 Nov 2021	109 302 842,00	33 883 881,02
BIHLEB	23 Nov 2021	14 Dec 2021	100 000,00	3 000 000 000,00
JSC	17 Jan 2022	02 Feb 2022	157 142 857,00	54 999 999,95

Appendix B: Summary of companies according to each quantile

This section will be categorized according to two groups. The first group includes all of the weightings of the intended rights issue during the announcement. The second group includes all of the weightings at the time of the event.

Percentiles based on data at the time of the announcement

Table 4: Quantile 1-3 according to weighting at the time of announcement

Quantile 1			Quantile 2			Quantile 3		
Code	Weight	Date	Code	Weight	Date	Code	Weight	Date
AVA			BSR			SAL	32,03%	19 May 2006
DRD			SAL	13,04%	25-May-07	ACT	60,00%	30 Jun 2006
WAR	16,46%	07-Nov-05	YRK			HPA		
RDF	10,00%	10-Apr-06	TFX	10,01%	07-Dec-07	HPB		
PSG			ANG	16,93%	27-May-08	SAP	67,29%	11 Nov 2008
PPE	10,25%	17-May-07	MTX			SBL		
GRT			MKX			FRT	129,09%	22 Jun 2009
PFG			LON	11,19%	11-May-09	ILV	27,81%	24 Jul 2009
SDH			PLD	21,70%	04-Sep-09	AFP	35,39%	23 Oct 2009
SAH			PNG	21,84%	17-Sep-09	DAW	21,13%	06 Nov 2009
GRT			ELI	19,44%	25-Feb-10	SNU	58,70%	12 Oct 2009
AQP			COM	11,10%	08-Apr-10	OAO	22,16%	19 Jan 2010
LBT			RAC	19,52%	26-May-10	RDI	23,24%	03 Feb 2010
AMS	7,34%	08-Feb-10	DGC	13,69%	14-Jan-11	MTX		
MDC	8,74%	21-Jun-10	PMM	20,50%	14-Jan-11	HLM	32,88%	26 Apr 2010
CPI	8,42%	25-Nov-10	FPT	15,69%	21-Feb-11	OMN		
CPI	10,00%	26-Sep-12	NEP	14,04%	21-Oct-11	HPA	28,21%	01 Oct 2010
NEP	8,66%	05-Oct-12	MUR			HPB	30,61%	01 Oct 2010
COH	13,38%	22-Feb-13	COH	18,00%	28-Mar-12	ESR	32,61%	25 Nov 2010
RBP	6,91%	04-Mar-14	OCT	19,20%	13-Jul-12	HPB	32,95%	30 Apr 2012
RES	5,92%	14-Apr-14	PAN	16,48%	23-Nov-12	HPA	36,09%	30 Apr 2012
FFA	10,69%	09-May-14	SYC	12,44%	11-Apr-13	REB	22,51%	18 Dec 2012
FFB	10,69%	09-May-14	VIF	24,11%	22-Mar-13	VPF	39,31%	05 Jul 2013
COH	7,22%	18-Feb-14	RBA	17,26%	02-Apr-13	ABL	41,15%	05 Aug 2013
SHF	7,88%	02-Jul-14	NEP	12,65%	13-Jun-13	CRD		
HUG	17,80%	04-Aug-14	EFG	12,94%	06-Mar-14	UBU	29,89%	06 Mar 2014
IVT	4,35%	16-Jan-15	ITU	18,54%	20-Mar-14	TAS	25,76%	28 Aug 2014
DSY	7,05%	24-Feb-15	JDG	16,09%	25-Mar-14	ELI	29,60%	29 Oct 2014
COH	5,98%	16-Apr-15	WHL	14,83%	29-Aug-14	TEX	26,62%	02 Sep 2015
RES	8,75%	22-May-15	ADH	12,01%	03-Nov-15	TAS	23,22%	16 Oct 2015
MDC	10,23%	21-Jul-15	CND	16,72%	09-Oct-15	SCP	19,11%	22 Oct 2015
OCE	10,37%	11-Aug-15	SAC	12,64%	13-Nov-15	WSL	25,97%	07 Oct 2015

SAR	9,70%	02-Sep-15	IAP	20,05%	22-Jan-16	CKS		
SPG	9,51%	10-Sep-15	ASC	16,73%	30-Jun-16	IPF	35,02%	16 Nov 2015
COH	6,90%	30-Mar-16	CIL	19,60%	28-Oct-16	FGL	25,90%	12 Feb 2016
REM	8,39%	27-Sep-16	PHM	17,46%	10-Jan-17	ESR	26,39%	20 Jan 2017
KAP			HPB	14,26%	11-Jul-17	IAP	34,93%	31 Jan 2017
REB			SDO	14,86%	03-Oct-17	LHC	28,92%	16 Mar 2017
SYG	11,01%	11-Jul-17	ITE	18,43%	23-Oct-17	TAS		
ASC	10,04%	21-Nov-17	FGL	13,25%	23-Mar-18	CND	27,62%	20 Oct 2017
REB			SUI	16,34%	08-May-18	SOH	23,07%	10 Apr 2018
NUT	26,71%	14-Aug-18	RBP	12,12%	05-Mar-19	REN	17,22%	06 Nov 2018
BWZ	11,16%	27-Aug-19	TFG	23,96%	14-Jul-20	LTE	28,69%	04 Nov 2019
AEG			AEG	51,56%	26-Jan-21	SEP	26,47%	21 Jan 2020
			BAU			AIL	21,48%	15 Sep 2020

Table 5: Quantile 4-5 according to weighting at the time of announcement

Quantile 4			Quantile 5		
Code	Weight	Date	Code	Weight	Date
BRN	34,44%		GIJ		13 Dec 2004
SIM	30,55%		SYA		30 Jun 2005
MRF	39,15%	04 Oct 2005	PGFP		
BEG	33,33%		SZA	95,00%	30 Jun 2006
MDC	33,14%		MFL	121,82%	15 Sep 2006
TAW	30,81%	20 Feb 2008	MYT	119,83%	11 May 2007
SALD	37,31%		PPE	136,07%	18 Sep 2008
ALJ	42,03%		SER		
ABO	39,99%	05 Sep 2008	BIO		
SPG	45,35%		SPG	362,90%	07 Oct 2009
ZED	34,91%		YRK	170,13%	30 Oct 2009
PGL	43,11%		CRD		
SKW	36,46%		BDM	120,31%	07 Jul 2010
SOV	35,45%	05 Nov 2009	TDH	74,58%	01 Apr 2011
MYD	37,21%	26 Feb 2010	BAT		
EQS	32,31%	14 May 2010	SFH	300,52%	16 Mar 2011
ABK	40,95%	09 Jul 2010	AET	96,79%	27 Mar 2012
SOV	32,86%	21 Feb 2011	PGL	45,74%	02 Jul 2012
BEGP2	36,76%	04 Apr 2011	GIJ	103,27%	28 Mar 2013
COH	33,96%	26 May 2011	SRN	404,95%	24 Feb 2014
AET	40,33%	02 Sep 2011	LAB	116,35%	10 Oct 2013
JDH	40,33%		ECS	150,26%	17 Jul 2014
ADW	44,05%	14 Jun 2011	GIJ	122,92%	30 Sep 2014
CSP	43,48%	07 Oct 2011	ACL	175,57%	06 Nov 2015
FGL	42,95%	09 Dec 2011	SNU	89,15%	19 Feb 2016
ERB	37,44%	13 Jul 2012	PPC	107,79%	23 Aug 2016

RBW	43,55%	06 Dec 2012	DAW	143,05%	13 Mar 2017
DLT	34,02%	28 Feb 2013	MDP	87,96%	19 May 2017
JSC	36,63%	22 Nov 2013	TAS	129,34%	19 Dec 2017
SCL	43,97%	06 Dec 2013	BSR		
AET	35,00%		AEG	65,93%	05 Jun 2018
ADW	44,44%	13 Dec 2013	GAM	108,93%	05 Jun 2018
AQP	36,52%	07 Apr 2014	EEL	352,78%	17 Jul 2018
IAP	44,18%	18 Sep 2014	CIL	56,20%	04 Dec 2018
PPR	37,32%	10 Feb 2015	TAS	104,59%	29 Jan 2019
ELI	39,38%	17 Jun 2015	OMN	64,74%	27 Aug 2019
ILE	38,53%	03 Dec 2015	BAT	121,66%	21 Jan 2020
ECS	30,40%	31 Jan 2017	CLH	172,47%	21 Jul 2020
SGL	42,16%	11 May 2017	HMN	89,69%	01 Sep 2020
AVL	31,21%	11 Jul 2017	EPS	86,62%	11 Dec 2020
ILE	36,13%	29 Jan 2018	AVL		
EPE	40,07%	14 Jan 2020	BIHLEB		23 Nov 2021
SUI	36,45%	14 Jul 2020	JSC	68,53%	17 Jan 2022
COH	30,97%	18 Jun 2020			

Percentiles based on data at the rights issue

Table 6: Quantile 1-3 according to rights issue

Percentile 1			Percentile 2			Percentile 3		
Code	Weight	Date	Code	Weight	Date	Code	Weight	Date
AVA	5,03%	31 Jan 2005	BSR	12,95%	31 Oct 2006	SAL	20,25%	30 Jun 2006
DRD	4,55%	31 Jul 2005	SAL	12,63%	25 Jun 2007	ACT	24,32%	31 Aug 2006
WAR	10,12%	31 Dec 2005	YRK	15,86%	20 Aug 2007	HPA	26,04%	22 Oct 2007
RDF	9,73%	31 May 2006	TFX	13,12%	11 Feb 2008	HPB	21,56%	22 Oct 2007
PSG	5,70%	31 Oct 2006	ANG	14,43%	30 Jun 2008	SAP	28,79%	08 Dec 2008
PPE	10,45%	25 Jun 2007	MTX	16,00%	19 Jan 2009	SBL	18,01%	04 May 2009
GRT	8,26%	03 Dec 2007	MKX	13,33%	25 May 2009	FRT	21,15%	06 Jul 2009
PFG	10,58%	09 Jun 2008	LON	11,19%	28 May 2009	ILV	20,00%	07 Sep 2009
SDH	4,65%	14 Jul 2008	PLD	16,64%	05 Oct 2009	AFP	21,80%	23 Nov 2009
SAH	6,48%	04 Aug 2008	PNG	13,01%	30 Nov 2009	DAW	17,34%	07 Dec 2009
GRT	8,52%	26 Jan 2009	ELI	15,99%	19 Apr 2010	SNU	29,92%	07 Dec 2009
AQP	4,91%	21 Apr 2009	COM	11,36%	17 May 2010	OAQ	20,06%	15 Feb 2010
LBT	0,00%	15 May 2009	RAC	13,61%	05 Jul 2010	RDI	17,44%	15 Mar 2010
AMS	6,42%	19 Mar 2010	DGC	11,36%	14 Feb 2011	MTX	21,23%	12 Apr 2010
MDC	8,32%	02 Aug 2010	PMM	17,01%	21 Feb 2011	HLM	23,37%	21 Jun 2010
CPI	7,43%	24 Jan 2011	FPT	13,03%	04 Apr 2011	OMN	23,27%	06 Sep 2010
CPI	10,34%	05 Nov 2012	NEP	12,48%	28 Nov 2011	HPA	20,79%	08 Nov 2010
NEP	7,17%	12 Nov 2012	MUR	15,97%	16 Apr 2012	HPB	22,62%	08 Nov 2010
COH	10,58%	06 May 2013	COH	13,24%	25 Jun 2012	ESR	28,12%	28 Feb 2011
RBP	6,13%	07 Apr 2014	OCT	14,57%	13 Aug 2012	HPB	27,58%	11 Jun 2012

RES	5,63%	12 May 2014	PAN	14,25%	07 Jan 2013	HPA	25,00%	11 Jun 2012
FFA	9,04%	02 Jun 2014	SYC	11,92%	20 May 2013	REB	18,48%	28 Jan 2013
FFB	9,20%	02 Jun 2014	VIF	16,84%	27 May 2013	VPF	29,50%	19 Aug 2013
COH	6,49%	13 Jun 2014	RBA	15,10%	08 Jul 2013	ABL	30,31%	02 Dec 2013
SHF	7,88%	28 Jul 2014	NEP	11,19%	22 Jul 2013	CRD	20,77%	09 Jan 2014
HUG	8,59%	01 Sep 2014	EFG	12,94%	31 Mar 2014	UBU	21,70%	11 Apr 2014
IVT	3,05%	09 Feb 2015	ITU	13,85%	11 Apr 2014	TAS	22,23%	19 Sep 2014
DSY	6,19%	27 Mar 2015	JDG	13,83%	13 Jun 2014	ELI	18,13%	12 Jan 2015
COH	5,48%	04 May 2015	WHL	14,07%	19 Sep 2014	TEX	26,62%	28 Sep 2015
RES	7,65%	12 Jun 2015	ADH	12,01%	30 Nov 2015	TAS	20,69%	09 Nov 2015
MDC	9,59%	17 Aug 2015	CND	15,88%	07 Dec 2015	SCP	18,16%	23 Nov 2015
OCE	9,19%	07 Sep 2015	SAC	11,43%	07 Dec 2015	WSL	22,06%	30 Nov 2015
SAR	9,70%	28 Sep 2015	IAP	16,85%	15 Feb 2016	CKS	23,09%	11 Dec 2015
SPG	7,63%	05 Oct 2015	ASC	11,13%	02 Aug 2016	IPF	25,33%	11 Dec 2015
COH	6,94%	09 May 2016	CIL	16,21%	23 Nov 2016	FGL	21,52%	07 Mar 2016
REM	7,81%	19 Oct 2016	PHM	14,43%	01 Feb 2017	ESR	23,75%	15 Feb 2017
KAP	7,53%	07 Dec 2016	HPB	12,02%	02 Aug 2017	IAP	26,47%	22 Feb 2017
REB	7,77%	13 Dec 2016	SDO	14,86%	25 Oct 2017	LHC	21,74%	11 Apr 2017
SYG	10,59%	08 Aug 2017	ITE	16,05%	22 Nov 2017	TAS	17,54%	13 Jun 2017
ASC	8,66%	13 Dec 2017	FGL	12,95%	18 Apr 2018	CND	20,26%	06 Dec 2017
REB	5,10%	10 Jan 2018	SUI	16,34%	30 May 2018	SOH	23,07%	24 Apr 2018
NUT	7,28%	05 Sep 2018	RBP	12,12%	27 Mar 2019	REN	17,22%	28 Nov 2018
BWZ	10,18%	18 Sep 2019	TFG	15,62%	05 Aug 2020	LTE	21,98%	04 Dec 2019
AEG	4,02%	02 Jun 2021	AEG	13,08%	10 Mar 2021	SEP	19,64%	12 Feb 2020
			BAU	14,12%	24 Nov 2021	AIL	21,48%	30 Sep 2020

Table 7: Quantile 4-5 according to weighting at the rights issue

Quantile 4			Quantile 5		
Code	Weight	Date	Code	Weight	Date
BRN	34,44%	30 Jun 2005	GIJ	48,79%	30 Apr 2005
SIM	30,55%	31 Jul 2005	SYA	49,68%	31 Aug 2005
MRF	39,15%	30 Nov 2005	PGFP	101,01%	31 Oct 2005
BEG	33,33%	31 Dec 2005	SZA	47,50%	31 Aug 2006
MDC	33,14%	03 Dec 2007	MFL	48,98%	30 Nov 2006
TAW	30,81%	20 Mar 2008	MYT	63,49%	25 Jun 2007
SALD	37,31%	31 May 2008	PPE	57,88%	20 Oct 2008
ALJ	42,03%	04 Aug 2008	SER	107,08%	20 Oct 2008
ABO	39,99%	06 Oct 2008	BIO	49,08%	19 Jan 2009
SPG	45,35%	13 Oct 2008	SPG	70,75%	16 Nov 2009
ZED	34,91%	01 Jun 2009	YRK	52,51%	07 Dec 2009
PGL	43,11%	21 Sep 2009	CRD	95,24%	12 Apr 2010
SKW	36,46%	26 Oct 2009	BDM	51,33%	28 Jun 2010
SOV	35,45%	07 Dec 2009	TDH	48,46%	08 Nov 2010
MYD	37,21%	19 Apr 2010	BAT	74,58%	29 Apr 2011

EQS	32,31%	21 Jun 2010	SFH	74,82%	20 Jun 2011
ABK	40,95%	13 Sep 2010	AET	70,62%	27 Jun 2011
SOV	32,86%	07 Mar 2011	PGL	49,53%	25 Jun 2012
BEGP2	36,76%	09 May 2011	GIJ	45,74%	16 Jul 2012
COH	33,96%	04 Jul 2011	SRN	75,60%	14 Jun 2013
AET	40,33%	03 Oct 2011	LAB	71,77%	17 Apr 2014
JDH	40,33%	10 Oct 2011	ECS	46,88%	19 May 2014
ADW	44,05%	24 Oct 2011	GIJ	61,68%	15 Sep 2014
CSP	43,48%	14 Nov 2011	ACL	83,44%	12 Dec 2014
FGL	42,95%	05 Mar 2012	SNU	65,90%	11 Jan 2016
ERB	37,44%	20 Aug 2012	PPC	55,98%	14 Mar 2016
RBW	43,55%	25 Feb 2013	DAW	45,85%	14 Sep 2016
DLT	34,02%	26 Apr 2013	MDP	51,59%	05 Apr 2017
JSC	36,63%	13 Jan 2014	TAS	53,12%	21 Jun 2017
SCL	43,97%	20 Jan 2014	BSR	62,18%	24 Jan 2018
AET	35,00%	03 Mar 2014	AEG	87,23%	21 Feb 2018
ADW	44,44%	31 Mar 2014	GAM	65,93%	27 Jun 2018
AQP	36,52%	08 May 2014	EEL	108,93%	27 Jun 2018
IAP	44,18%	13 Oct 2014	CIL	83,09%	07 Aug 2018
PPR	37,32%	02 Mar 2015	TAS	56,20%	19 Dec 2018
ELI	39,38%	13 Jul 2015	OMN	49,52%	20 Feb 2019
ILE	38,53%	22 Feb 2016	BAT	47,48%	18 Sep 2019
ECS	30,40%	22 Feb 2017	CLH	58,78%	12 Feb 2020
SGL	42,16%	07 Jun 2017	HMN	69,07%	19 Aug 2020
AVL	31,21%	02 Aug 2017	EPS	89,69%	21 Sep 2020
ILE	36,13%	21 Feb 2018	AVL	61,35%	20 Jan 2021
EPE	40,07%	05 Feb 2020	BIHLEB	49,24%	30 Mar 2021
SUI	36,45%	05 Aug 2020	JSC	50,00%	14 Dec 2021
COH	30,97%	02 Sep 2020		44,02%	02 Feb 2022

Appendix C: Summary of companies that are classified as resource and non-resource

This section will be categorized according two groups. The first group includes all of the resource and non-resource companies at the time of announcement. The second group depicts all of the resource and non-resource companies at the event of equity issuance.

Resource and non-resource companies at the time of the announcement

Table 8: Resource and non-resource companies at time of announcement

Resource			Non-resource					
Code	Weight	Date	Code	Weight	Date	Code	Weight	Date
<i>SIM</i>			<i>AVA</i>			<i>JSC</i>	46,84%	22 Nov 2013
<i>DRD</i>			<i>GIJ</i>		13 Dec 2004	<i>AET</i>		
<i>MRF</i>	82,81%	04 Oct 2005	<i>BRN</i>			<i>EFG</i>	12,94%	06 Mar 2014
<i>WAR</i>	16,46%	07 Nov 2005	<i>SYA</i>		30 Jun 2005	<i>ADW</i>	88,89%	13 Dec 2013
<i>SAL</i>	13,04%	25 May 2007	<i>PGFP</i>			<i>ITU</i>	18,54%	20 Mar 2014
<i>YRK</i>			<i>BEG</i>			<i>UBU</i>	29,89%	06 Mar 2014
<i>TAW</i>	29,69%	20 Feb 2008	<i>RDF</i>	10,00%	10 Apr 2006	<i>SRN</i>	404,95%	24 Feb 2014
<i>ANG</i>			<i>SAL</i>	32,03%	19 May 2006	<i>RAR</i>		
<i>SAH</i>			<i>SZA</i>	95,00%	30 Jun 2006	<i>RES</i>	5,92%	14 Apr 2014
<i>SAP</i>	67,29%	11 Nov 2008	<i>ACT</i>	60,00%	30 Jun 2006	<i>LAB</i>	116,35%	10 Oct 2013
<i>MTX</i>			<i>PSG</i>			<i>FFA</i>	10,69%	09 May 2014
<i>AQP</i>			<i>BSR</i>			<i>FFB</i>	10,69%	09 May 2014
<i>LON</i>	11,19%	11 May 2009	<i>MFL</i>	121,82%	15 Sep 2006	<i>COH</i>	7,22%	18 Feb 2014
<i>ILV</i>	27,81%	24 Jul 2009	<i>MYT</i>	119,83%	11 May 2007	<i>JDG</i>	16,09%	25 Mar 2014
<i>PGL</i>			<i>PPE</i>	10,25%	17 May 2007	<i>SHF</i>	7,88%	02 Jul 2014
<i>YRK</i>	170,13%	30 Oct 2009	<i>HPA</i>			<i>HUG</i>	17,80%	04 Aug 2014
<i>SNU</i>	58,70%	12 Oct 2009	<i>HPB</i>			<i>ECS</i>	150,26%	17 Jul 2014
<i>RDI</i>	23,24%	03 Feb 2010	<i>GRT</i>			<i>TAS</i>	25,76%	28 Aug 2014
<i>AMS</i>	7,34%	08 Feb 2010	<i>MDC</i>			<i>WHL</i>	14,83%	29 Aug 2014
<i>MTX</i>			<i>TFX</i>	10,01%	07 Dec 2007	<i>IAP</i>	80,81%	18 Sep 2014
<i>HLM</i>	32,88%	26 Apr 2010	<i>PFG</i>			<i>GIJ</i>	122,92%	30 Sep 2014
<i>CRD</i>			<i>SDH</i>			<i>OAD</i>	0,00%	02 Dec 2014
<i>OMN</i>			<i>ALJ</i>			<i>ELI</i>	29,60%	29 Oct 2014
<i>PGL</i>	45,74%	16 Jul 2012	<i>ABO</i>	29,99%	05 Sep 2008	<i>IVT</i>	4,35%	16 Jan 2015
<i>PAN</i>	24,15%	02 Jul 2012	<i>SPG</i>			<i>PPR</i>	55,59%	10 Feb 2015
<i>CRD</i>			<i>PPE</i>	136,07%	18 Sep 2008	<i>DSY</i>	7,05%	24 Feb 2015
<i>SCL</i>	220,80%	06 Dec 2013	<i>SER</i>			<i>COH</i>	5,98%	16 Apr 2015
<i>RBP</i>	6,91%	04 Mar 2014	<i>BIO</i>			<i>BEG</i>		
<i>AQP</i>	122,03%	07 Apr 2014	<i>GRT</i>			<i>RES</i>	8,75%	22 May 2015

ZPLP			SBL			ELI	52,55%	17 Jun 2015
WSL	25,97%	07 Oct 2015	LBT			MDC	10,23%	21 Jul 2015
LON	1295,26%	09 Nov 2015	MKX			OCE	10,37%	11 Aug 2015
ACL	175,57%	06 Nov 2015	ZED			SAR	9,70%	02 Sep 2015
SNU	89,15%	19 Feb 2016	FRT	129,09%	22 Jun 2009	TEX	26,62%	02 Sep 2015
CIL	19,60%	28 Oct 2016	PLD	21,70%	04 Sep 2009	SPG	9,51%	10 Sep 2015
SGL	91,67%	11 May 2017	SKW			TAS	23,22%	16 Oct 2015
AEG	65,93%	05 Jun 2018	SPG	362,90%	07 Oct 2009	SCP	19,11%	22 Oct 2015
EEL	352,78%	17 Jul 2018	AFP	35,39%	23 Oct 2009	ADH	12,01%	03 Nov 2015
REN	17,22%	06 Nov 2018	PNG	21,84%	17 Sep 2009	CND	16,72%	09 Oct 2015
CIL	56,20%	04 Dec 2018	DAW	21,13%	06 Nov 2009	SAC	12,64%	13 Nov 2015
RBP	12,12%	05 Mar 2019	SOV	53,39%	05 Nov 2009	CKS	26,54%	25 Jun 2015
EPS	86,62%	11 Dec 2020	OAD	22,16%	19 Jan 2010	IPF	35,02%	16 Nov 2015
AEG	51,56%	26 Jan 2021	VUN			IAP	20,05%	22 Jan 2016
AEG			AGI	1666,67%	05 Mar 2010	ILE	43,79%	03 Dec 2015
BAU			MYD	70,36%	26 Feb 2010	FGL	25,90%	12 Feb 2016
			ELI	19,44%	25 Feb 2010	COH	6,90%	30 Mar 2016
			COM	11,10%	08 Apr 2010	ASC	16,73%	30 Jun 2016
			EQS	50,21%	14 May 2010	PPC	107,79%	23 Aug 2016
			RAC	19,52%	26 May 2010	REM	8,39%	27 Sep 2016
			MDC	8,74%	21 Jun 2010	KAP	8,07%	17 Nov 2016
			ABK	92,14%	09 Jul 2010	REB	9,04%	22 Nov 2016
			HPA	28,21%	01 Oct 2010	PHM	17,46%	10 Jan 2017
			HPB	30,61%	01 Oct 2010	ESR	26,39%	20 Jan 2017
			BDM	120,31%	07 Jul 2010	ECS	48,78%	31 Jan 2017
			CPI	8,42%	25 Nov 2010	IAP	34,93%	31 Jan 2017
			DGC	13,69%	14 Jan 2011	DAW	143,05%	13 Mar 2017
			PMM	20,50%	14 Jan 2011	LHC	28,92%	16 Mar 2017
			ESR	32,61%	25 Nov 2010	TAS		
			SOV	53,17%	21 Feb 2011	MDP	87,96%	19 May 2017
			FPT	15,69%	21 Feb 2011	HPB	14,26%	11 Jul 2017
			TDH	74,58%	01 Apr 2011	AVL	31,65%	11 Jul 2017
			BEGP2		04 Apr 2011	SYG	11,01%	11 Jul 2017
			BAT			SDO	14,86%	03 Oct 2017
			SFH	300,52%	16 Mar 2011	ITE	18,43%	23 Oct 2017
			COH		26 May 2011	CND	27,62%	20 Oct 2017
			AET	162,74%	02 Sep 2011	ASC	10,04%	21 Nov 2017
			JDH			REB	5,52%	12 Dec 2017
			GND			TAS	129,34%	19 Dec 2017
			ADW	112,14%	14 Jun 2011	BSR		
			CSP	88,89%	07 Oct 2011	ILE	59,14%	29 Jan 2018
			NEP	14,04%	21 Oct 2011	FGL	13,25%	23 Mar 2018
			FGL	37,39%	09 Dec 2011	SOH	23,07%	10 Apr 2018
			MUR			SUI	16,34%	08 May 2018

			HPB	32,95%	30 Apr 2012	GAM	108,93%	05 Jun 2018
			HPA	36,09%	30 Apr 2012	NUT	26,71%	14 Aug 2018
			AET	96,79%	27 Mar 2012	TAS	104,59%	29 Jan 2019
			COH	18,00%	28 Mar 2012	BWZ	11,16%	27 Aug 2019
			OCT	19,20%	13 Jul 2012	OMN	64,74%	27 Aug 2019
			ERB	222,22%	13 Jul 2012	LTE	28,69%	04 Nov 2019
			CPI	10,00%	26 Sep 2012	EPE	55,56%	14 Jan 2020
			NEP	8,66%	05 Oct 2012	BAT	121,66%	21 Jan 2020
			REB	22,51%	18 Dec 2012	SEP	26,47%	21 Jan 2020
			RBW	77,02%	06 Dec 2012	SUI	91,08%	14 Jul 2020
			DLT	72,18%	28 Feb 2013	TFG	23,96%	14 Jul 2020
			COH	13,38%	22 Feb 2013	CLH	172,47%	21 Jul 2020
			SYC	12,44%	11 Apr 2013	COH	40,44%	18 Jun 2020
			VIF	24,11%	22 Mar 2013	HMN	89,69%	01 Sep 2020
			GIJ	103,27%	28 Mar 2013	AIL	21,48%	15 Sep 2020
			RBA	17,26%	02 Apr 2013	AVL		
			NEP	12,65%	13 Jun 2013	BIHLEB		23 Nov 2021
			VPF	39,31%	05 Jul 2013	JSC	68,53%	17 Jan 2022
			ABL	41,15%	05 Aug 2013			

Resource and non-resource companies at the time rights issue

Table 9: Resource and non-resource companies at time of rights issue

Resource			Non-resources					
Code	Weight	Date	Code	Weight	Date	Code	Weight	Date
SIM	30,55%	31 Jul 2005	AVA	5,03%	31 Jan 2005	ABL	30,31%	02 Dec 2013
DRD	4,55%	31 Jul 2005	GIJ	48,79%	30 Apr 2005	JSC	36,63%	13 Jan 2014
MRF	39,15%	30 Nov 2005	BRN	34,44%	30 Jun 2005	AET	35,00%	03 Mar 2014
WAR	10,12%	31 Dec 2005	SYA	49,68%	31 Aug 2005	EFG	12,94%	31 Mar 2014
SAL	12,63%	25 Jun 2007	PGFP	101,01%	31 Oct 2005	ADW	44,44%	31 Mar 2014
YRK	15,86%	20 Aug 2007	BEG	33,33%	31 Dec 2005	ITU	13,85%	11 Apr 2014
TAW	30,81%	20 Mar 2008	RDF	9,73%	31 May 2006	UBU	21,70%	11 Apr 2014
ANG	14,43%	30 Jun 2008	SAL	20,25%	30 Jun 2006	SRN	71,77%	17 Apr 2014
SAH	6,48%	04 Aug 2008	SZA	47,50%	31 Aug 2006	RAR	0,00%	02 May 2014
SAP	28,79%	08 Dec 2008	ACT	24,32%	31 Aug 2006	RES	5,63%	12 May 2014
MTX	16,00%	19 Jan 2009	PSG	5,70%	31 Oct 2006	LAB	46,88%	19 May 2014
AQP	4,91%	21 Apr 2009	BSR	12,95%	31 Oct 2006	FFA	9,04%	02 Jun 2014
LON	11,19%	28 May 2009	MFL	48,98%	30 Nov 2006	FFB	9,20%	02 Jun 2014
ILV	20,00%	07 Sep 2009	MYT	63,49%	25 Jun 2007	COH	6,49%	13 Jun 2014
PGL	43,11%	21 Sep 2009	PPE	10,45%	25 Jun 2007	JDG	13,83%	13 Jun 2014
YRK	52,51%	07 Dec 2009	HPA	26,04%	22 Oct 2007	SHF	7,88%	28 Jul 2014
SNU	29,92%	07 Dec 2009	HPB	21,56%	22 Oct 2007	HUG	8,59%	01 Sep 2014
RDI	17,44%	15 Mar 2010	GRT	8,26%	03 Dec 2007	ECS	61,68%	15 Sep 2014

AMS	6,42%	19 Mar 2010	MDC	33,14%	03 Dec 2007	TAS	22,23%	19 Sep 2014
MTX	21,23%	12 Apr 2010	TFX	13,12%	11 Feb 2008	WHL	14,07%	19 Sep 2014
HLM	23,37%	21 Jun 2010	PFG	10,58%	09 Jun 2008	IAP	44,18%	13 Oct 2014
CRD	51,33%	28 Jun 2010	SDH	4,65%	14 Jul 2008	GIJ	83,44%	12 Dec 2014
OMN	23,27%	06 Sep 2010	ALJ	42,03%	04 Aug 2008	OAO	0,00%	05 Jan 2015
PGL	45,74%	16 Jul 2012	ABO	39,99%	06 Oct 2008	ELI	18,13%	12 Jan 2015
PAN	14,25%	07 Jan 2013	SPG	45,35%	13 Oct 2008	IVT	3,05%	09 Feb 2015
CRD	20,77%	09 Jan 2014	PPE	57,88%	20 Oct 2008	PPR	37,32%	02 Mar 2015
SCL	43,97%	20 Jan 2014	SER	107,08%	20 Oct 2008	DSY	6,19%	27 Mar 2015
RBP	6,13%	07 Apr 2014	BIO	49,08%	19 Jan 2009	COH	5,48%	04 May 2015
AQP	36,52%	08 May 2014	GRT	8,52%	26 Jan 2009	BEG	0,00%	04 May 2015
ZPLP	0,00%	11 May 2015	SBL	18,01%	04 May 2009	RES	7,65%	12 Jun 2015
WSL	22,06%	30 Nov 2015	LBT	0,00%	15 May 2009	ELI	39,38%	13 Jul 2015
LON	111,95%	04 Dec 2015	MKX	13,33%	25 May 2009	MDC	9,59%	17 Aug 2015
ACL	65,90%	11 Jan 2016	ZED	34,91%	01 Jun 2009	OCE	9,19%	07 Sep 2015
SNU	55,98%	14 Mar 2016	FRT	21,15%	06 Jul 2009	SAR	9,70%	28 Sep 2015
CIL	16,21%	23 Nov 2016	PLD	16,64%	05 Oct 2009	TEX	26,62%	28 Sep 2015
SGL	42,16%	07 Jun 2017	SKW	36,46%	26 Oct 2009	SPG	7,63%	05 Oct 2015
AEG	65,93%	27 Jun 2018	SPG	70,75%	16 Nov 2009	TAS	20,69%	09 Nov 2015
EEL	83,09%	07 Aug 2018	AFP	21,80%	23 Nov 2009	SCP	18,16%	23 Nov 2015
REN	17,22%	28 Nov 2018	PNG	13,01%	30 Nov 2009	ADH	12,01%	30 Nov 2015
CIL	56,20%	19 Dec 2018	DAW	17,34%	07 Dec 2009	CND	15,88%	07 Dec 2015
RBP	12,12%	27 Mar 2019	SOV	35,45%	07 Dec 2009	SAC	11,43%	07 Dec 2015
EPS	61,35%	20 Jan 2021	OAO	20,06%	15 Feb 2010	CKS	23,09%	11 Dec 2015
AEG	13,08%	10 Mar 2021	VUN	0,00%	01 Mar 2010	IPF	25,33%	11 Dec 2015
AEG	4,02%	02 Jun 2021	AGI	95,24%	12 Apr 2010	IAP	16,85%	15 Feb 2016
BAU	14,12%	24 Nov 2021	MYD	37,21%	19 Apr 2010	ILE	38,53%	22 Feb 2016
			ELI	15,99%	19 Apr 2010	FGL	21,52%	07 Mar 2016
			COM	11,36%	17 May 2010	COH	6,94%	09 May 2016
			EQS	32,31%	21 Jun 2010	ASC	11,13%	02 Aug 2016
			RAC	13,61%	05 Jul 2010	PPC	45,85%	14 Sep 2016
			MDC	8,32%	02 Aug 2010	REM	7,81%	19 Oct 2016
			ABK	40,95%	13 Sep 2010	KAP	7,53%	07 Dec 2016
			HPA	20,79%	08 Nov 2010	REB	7,77%	13 Dec 2016
			HPB	22,62%	08 Nov 2010	PHM	14,43%	01 Feb 2017
			BDM	48,46%	08 Nov 2010	ESR	23,75%	15 Feb 2017
			CPI	7,43%	24 Jan 2011	ECS	30,40%	22 Feb 2017
			DGC	11,36%	14 Feb 2011	IAP	26,47%	22 Feb 2017
			PMM	17,01%	21 Feb 2011	DAW	51,59%	05 Apr 2017
			ESR	28,12%	28 Feb 2011	LHC	21,74%	11 Apr 2017
			SOV	32,86%	07 Mar 2011	TAS	17,54%	13 Jun 2017
			FPT	13,03%	04 Apr 2011	MDP	53,12%	21 Jun 2017
			TDH	74,58%	29 Apr 2011	HPB	12,02%	02 Aug 2017
			BEGP2	36,76%	09 May 2011	AVL	31,21%	02 Aug 2017

			BAT	74,82%	20 Jun 2011	SYG	10,59%	08 Aug 2017
			SFH	70,62%	27 Jun 2011	SDO	14,86%	25 Oct 2017
			COH	33,96%	04 Jul 2011	ITE	16,05%	22 Nov 2017
			AET	40,33%	03 Oct 2011	CND	20,26%	06 Dec 2017
			JDH	40,33%	10 Oct 2011	ASC	8,66%	13 Dec 2017
			GND	0,00%	24 Oct 2011	REB	5,10%	10 Jan 2018
			ADW	44,05%	24 Oct 2011	TAS	62,18%	24 Jan 2018
			CSP	43,48%	14 Nov 2011	BSR	87,23%	21 Feb 2018
			NEP	12,48%	28 Nov 2011	ILE	36,13%	21 Feb 2018
			FGL	42,95%	05 Mar 2012	FGL	12,95%	18 Apr 2018
			MUR	15,97%	16 Apr 2012	SOH	23,07%	24 Apr 2018
			HPB	27,58%	11 Jun 2012	SUI	16,34%	30 May 2018
			HPA	25,00%	11 Jun 2012	GAM	108,93%	27 Jun 2018
			AET	49,53%	25 Jun 2012	NUT	7,28%	05 Sep 2018
			COH	13,24%	25 Jun 2012	TAS	49,52%	20 Feb 2019
			OCT	14,57%	13 Aug 2012	BWZ	10,18%	18 Sep 2019
			ERB	37,44%	20 Aug 2012	OMN	47,48%	18 Sep 2019
			CPI	10,34%	05 Nov 2012	LTE	21,98%	04 Dec 2019
			NEP	7,17%	12 Nov 2012	EPE	40,07%	05 Feb 2020
			REB	18,48%	28 Jan 2013	BAT	58,78%	12 Feb 2020
			RBW	43,55%	25 Feb 2013	SEP	19,64%	12 Feb 2020
			DLT	34,02%	26 Apr 2013	SUI	36,45%	05 Aug 2020
			COH	10,58%	06 May 2013	TFG	15,62%	05 Aug 2020
			SYC	11,92%	20 May 2013	CLH	69,07%	19 Aug 2020
			VIF	16,84%	27 May 2013	COH	30,97%	02 Sep 2020
			GIJ	75,60%	14 Jun 2013	HMN	89,69%	21 Sep 2020
			RBA	15,10%	08 Jul 2013	AIL	21,48%	30 Sep 2020
			NEP	11,19%	22 Jul 2013	AVL	49,24%	30 Mar 2021
			VPF	29,50%	19 Aug 2013	BIHLEB	50,00%	14 Dec 2021
						JSC	44,02%	02 Feb 2022

Appendix D: Summary of companies that are classified as value vs. growth

This section will be categorized according two groups. The first group includes all of the value and growth companies at the time of announcement. The second group depicts all of the value and growth companies at the event of equity issuance.

Value and growth companies at time of announcement

Table 10: Value and growth companies at time of announcement

Value			Growth		
Code	Weight	Date	Code	Weight	Date
WAR	16,46%	07 Nov 2005	MYT	119,83%	11 May 2007
SYA	0,00%	30 Jun 2005	VIF	24,11%	22 Mar 2013
PLD	21,70%	04 Sep 2009	ABL	41,15%	05 Aug 2013
SAL	32,03%	19 May 2006	PMM	20,50%	14 Jan 2011
JDG	16,09%	25 Mar 2014	MYD	70,36%	26 Feb 2010
SYC	12,44%	11 Apr 2013	FPT	15,69%	21 Feb 2011
ILV	27,81%	24 Jul 2009	DGC	13,69%	14 Jan 2011
HPA	28,21%	01 Oct 2010	SOV	53,39%	05 Nov 2009
HPA	36,09%	30 Apr 2012	ESR	32,61%	25 Nov 2010
EFG	12,94%	06 Mar 2014	ESR	26,39%	20 Jan 2017
HPB	30,61%	01 Oct 2010	DAW	21,13%	06 Nov 2009
HPB	14,26%	11 Jul 2017	LON	11,19%	11 May 2009
ECS	150,26%	17 Jul 2014	SGL	91,67%	11 May 2017
TAS	25,76%	28 Aug 2014	COM	11,10%	08 Apr 2010
SRN	404,95%	24 Feb 2014	PHM	17,46%	10 Jan 2017
CKS	26,54%	25 Jun 2015	ITU	18,54%	20 Mar 2014
MRF	82,81%	04 Oct 2005	MDP	87,96%	19 May 2017
RDF	10,00%	10 Apr 2006	CIL	19,60%	28 Oct 2016
ACT	60,00%	30 Jun 2006	SNU	58,70%	12 Oct 2009
AMS	7,34%	08 Feb 2010	HPB	32,95%	30 Apr 2012
HLM	32,88%	26 Apr 2010	IAP	80,81%	18 Sep 2014
CPI	8,42%	25 Nov 2010	IAP	20,05%	22 Jan 2016
COH	0,00%	26 May 2011	IAP	34,93%	31 Jan 2017
NEP	14,04%	21 Oct 2011	ECS	48,78%	31 Jan 2017
OCT	19,20%	13 Jul 2012	REB	22,51%	18 Dec 2012
CPI	10,00%	26 Sep 2012	REB	9,04%	22 Nov 2016
NEP	8,66%	05 Oct 2012	REB	5,52%	12 Dec 2017
RBW	77,02%	06 Dec 2012	CND	16,72%	09 Oct 2015
DLT	72,18%	28 Feb 2013	OAD	22,16%	19 Jan 2010
COH	13,38%	22 Feb 2013	OAD	0,00%	02 Dec 2014
NEP	12,65%	13 Jun 2013	MFL	121,82%	15 Sep 2006

VPF	39,31%	05 Jul 2013	ADW	112,14%	14 Jun 2011
JSC	46,84%	22 Nov 2013	WSL	25,97%	07 Oct 2015
RBP	6,91%	04 Mar 2014	PPE	10,25%	17 May 2007
COH	7,22%	18 Feb 2014	PPE	136,07%	18 Sep 2008
WHL	14,83%	29 Aug 2014	SAP	67,29%	11 Nov 2008
COH	5,98%	16 Apr 2015	ELI	19,44%	25 Feb 2010
MDC	10,23%	21 Jul 2015	MDC	8,74%	21 Jun 2010
OCE	10,37%	11 Aug 2015	PAN	16,48%	23 Nov 2012
ADH	12,01%	03 Nov 2015	RES	5,92%	14 Apr 2014
FGL	25,90%	12 Feb 2016	FFA	10,69%	09 May 2014
COH	6,90%	30 Mar 2016	FFB	10,69%	09 May 2014
ASC	16,73%	30 Jun 2016	SHF	7,88%	02 Jul 2014
AVL	31,65%	11 Jul 2017	HUG	17,80%	04 Aug 2014
SYG	14,26%	11 Jul 2017	ELI	29,60%	29 Oct 2014
SDO	14,86%	03 Oct 2017	IVT	4,35%	16 Jan 2015
RBP	12,12%	05 Mar 2019	PPR	55,59%	10 Feb 2015
EPE	55,56%	14 Jan 2020	DSY	7,05%	24 Feb 2015
SEP	26,47%	21 Jan 2020	RES	8,75%	22 May 2015
AIL	21,48%	15 Sep 2020	ELI	52,55%	17 Jun 2015
			SAR	9,70%	02 Sep 2015
			TEX	26,62%	02 Sep 2015
			SPG	9,51%	10 Sep 2015
			SAC	12,64%	13 Nov 2015
			IPF	35,02%	16 Nov 2015
			PPC	107,79%	23 Aug 2016
			REM	8,39%	27 Sep 2016
			KAP	8,07%	17 Nov 2016
			LHC	28,92%	16 Mar 2017
			ITE	18,43%	23 Oct 2017
			ASC	10,04%	21 Nov 2017
			FGL	13,25%	23 Mar 2018
			GAM	108,93%	05 Jun 2018
			SUI	91,08%	14 Jul 2020
			TFG	23,96%	14 Jul 2020
			CLH	172,47%	21 Jul 2020
			COH	40,44%	18 Jun 2020
			HMN	89,69%	01 Sep 2020

Value and growth companies at time of rights issue

Table 11: Value and growth companies at time of rights issue

VALUE			GROWTH		
Code	Weight	Date	Code	Weight	Date
WAR	10,12%	31 Dec 2005	MYT	63,49%	25 Jun 2007
SYA	49,68%	31 Aug 2005	VIF	16,84%	27 May 2013
PLD	16,64%	05 Oct 2009	ABL	30,31%	02 Dec 2013
SAL	20,25%	30 Jun 2006	PMM	17,01%	21 Feb 2011
JDG	13,83%	13 Jun 2014	MYD	37,21%	19 Apr 2010
SYC	11,92%	20 May 2013	FPT	13,03%	04 Apr 2011
ILV	20,00%	07 Sep 2009	DGC	11,36%	14 Feb 2011
HPA	20,79%	08 Nov 2010	SOV	35,45%	07 Dec 2009
HPA	25,00%	11 Jun 2012	ESR	28,12%	28 Feb 2011
EFG	12,94%	31 Mar 2014	ESR	23,75%	15 Feb 2017
HPB	22,62%	08 Nov 2010	DAW	17,34%	07 Dec 2009
HPB	12,02%	02 Aug 2017	LON	11,19%	28 May 2009
ECS	61,68%	15 Sep 2014	SGL	42,16%	07 Jun 2017
TAS	22,23%	19 Sep 2014	COM	11,36%	17 May 2010
SRN	71,77%	17 Apr 2014	PHM	14,43%	01 Feb 2017
CKS	23,09%	11 Dec 2015	ITU	13,85%	11 Apr 2014
MRF	39,15%	30 Nov 2005	MDP	53,12%	21 Jun 2017
RDF	9,73%	31 May 2006	CIL	16,21%	23 Nov 2016
ACT	24,32%	31 Aug 2006	SNU	29,92%	07 Dec 2009
AMS	6,42%	19 Mar 2010	HPB	27,58%	11 Jun 2012
HLM	23,37%	21 Jun 2010	IAP	44,18%	13 Oct 2014
CPI	7,43%	24 Jan 2011	IAP	16,85%	15 Feb 2016
COH	33,96%	04 Jul 2011	IAP	26,47%	22 Feb 2017
NEP	12,48%	28 Nov 2011	ECS	30,40%	22 Feb 2017
OCT	14,57%	13 Aug 2012	REB	18,48%	28 Jan 2013
CPI	10,34%	05 Nov 2012	REB	7,77%	13 Dec 2016
NEP	7,17%	12 Nov 2012	REB	5,10%	10 Jan 2018
RBW	43,55%	25 Feb 2013	CND	15,88%	07 Dec 2015
DLT	34,02%	26 Apr 2013	OAO	20,06%	15 Feb 2010
COH	10,58%	06 May 2013	OAO	0,00%	05 Jan 2015
NEP	11,19%	22 Jul 2013	MFL	48,98%	30 Nov 2006
VPF	29,50%	19 Aug 2013	ADW	44,05%	24 Oct 2011
JSC	36,63%	13 Jan 2014	WSL	22,06%	30 Nov 2015
RBP	6,13%	07 Apr 2014	PPE	10,45%	25 Jun 2007
COH	6,49%	13 Jun 2014	PPE	57,88%	20 Oct 2008
WHL	14,07%	19 Sep 2014	SAP	28,79%	08 Dec 2008
COH	5,48%	04 May 2015	ELI	15,99%	19 Apr 2010
MDC	9,59%	17 Aug 2015	MDC	8,32%	02 Aug 2010
OCE	9,19%	07 Sep 2015	PAN	14,25%	07 Jan 2013
ADH	12,01%	30 Nov 2015	RES	5,63%	12 May 2014

FGL	21,52%	07 Mar 2016	FFA	9,04%	02 Jun 2014
COH	6,94%	09 May 2016	FFB	9,20%	02 Jun 2014
ASC	11,13%	02 Aug 2016	SHF	7,88%	28 Jul 2014
AVL	31,21%	02 Aug 2017	HUG	8,59%	01 Sep 2014
SYG	10,59%	08 Aug 2017	ELI	18,13%	12 Jan 2015
SDO	14,86%	25 Oct 2017	IVT	3,05%	09 Feb 2015
RBP	12,12%	27 Mar 2019	PPR	37,32%	02 Mar 2015
EPE	40,07%	05 Feb 2020	DSY	6,19%	27 Mar 2015
SEP	19,64%	12 Feb 2020	RES	7,65%	12 Jun 2015
AIL	21,48%	30 Sep 2020	ELI	39,38%	13 Jul 2015
			SAR	9,70%	28 Sep 2015
			TEX	26,62%	28 Sep 2015
			SPG	7,63%	05 Oct 2015
			SAC	11,43%	07 Dec 2015
			IPF	25,33%	11 Dec 2015
			PPC	45,85%	14 Sep 2016
			REM	7,81%	19 Oct 2016
			KAP	7,53%	07 Dec 2016
			LHC	21,74%	11 Apr 2017
			ITE	16,05%	22 Nov 2017
			ASC	8,66%	13 Dec 2017
			FGL	12,95%	18 Apr 2018
			GAM	108,93%	27 Jun 2018
			SUI	36,45%	05 Aug 2020
			TFG	15,62%	05 Aug 2020
			CLH	69,07%	19 Aug 2020
			COH	30,97%	02 Sep 2020
			HMN	89,69%	21 Sep 2020