Shareholder Wealth Effects of Convertible Bond Announcements in South Africa

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Abstract

This study examines shareholder wealth effects of convertible bond announcements in South Africa for the period 2004 to 2017. The data shows that South African companies issue convertible bonds for several reasons and that issues are not only South African rand denominated, but are in other currencies as well. However, a review of the convertible bond announcements show that the majority of convertible bonds were issued in local currencies. In addition to the currency of issue, the study also shows that the majority of the stated practical uses of the proceeds was to finance corporate general purposes (47%, i.e. 7 of the 15 in the final sample) and the repayment of debt (, i.e. 47% that is, 7 out of 15). Contrary to prior studies in Korea and Japan, the results of this current study show that the use of proceeds towards project financing and capital expenditure ranked the least. Empirically, various t- tests were conducted to examine statistical significance of the wealth effects of convertible bond announcements. The findings from the various tests performed consistently showed that the announcements had significant negative price reactions. First, the findings shows that the announcements of convertible bonds in general (that is without distinction) had significant negative price reactions. The announcements in general, had significant negative wealth effects irrespective of whether the announcements were based on local or foreign currency. The results also show that the mean cumulative abnormal returns (CARs) of the issues denominated in rand value were more negative than those made in other currencies. In addition, further tests also show that the mean CARs based on the stated use of proceeds were significantly negative irrespective of whether the issues were for corporate general purpose or for the repayment of debt. Overall, the study shows that convertible bond issues in South Africa have a significant negative CARs around the announcement date.

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1. Introduction

Companies raise funds to pursue profit seeking strategic growth agendas. These strategic growth agendas can be financed through using internally generated funds, which are often referred to as “retained earnings” in accounting terms. In addition, companies may turn to the capital markets to raise funding for their expansion or future growth opportunities. Debt and equity are the common traditionally used forms of raising capital in the capital markets. Traditionally, companies could either use straight debt or straight equity or combination of both to meet their financing needs or requirements. However, at present, companies are also utilising other layers of capital that fall in between straight debt and straight equity. These additional layers of financing are often collectively known as mezzanine financing.

Mezzanine finance display characteristics of both debt and equity. In other words, mezzanine finance has a fixed income component, but also provides the investor with some upside, which could be unlimited (that is, the equity features). Included in the broad category of mezzanine finance are convertible bonds. Convertible bonds are a hybrid of a debt and an option on the underlying equity. In other words, a convertible bond is a hybrid security that combines the characteristics of bonds and equity (Dutordoir et al, 2016; Rahim et al, 2014). The investors of convertible bonds receive a regular fixed coupon payment and a repayment of the principal on maturity in addition to having an option to convert the bond to equity following specific future events (Rahim et al, 2014; Ernst and Young, 2013). Thus, convertible bonds potentially provide the investor with an option to participate when the equity market rises with limited downside exposure and a potentially higher return on capital (Ernst and Young, 2013). Thus, owing to these features, convertible bonds provide return characteristics that are similar to a corporate bond plus a call option on the underlying equity of the issuer (Ernst and Young, 2013).

A review of existing literature show that the impact of management’s financing decisions has been a contentious issue over a long time. Initially, much of this debate

was on the impact of the capital structure decisions based on straight debt or straight equity. Later arguments were also directed towards the motives for, determinants of and the impact of the issuance of hybrid instruments such as convertible bonds on firm value and shareholder wealth.

Initially, many authors in prior studies presented their arguments on the issuance of straight debt or equity or a mix (excluding hybrid securities such as convertible bonds). From the theoretical standpoint, others studies empirically tested the impact of the changes in capital structure decisions (changes in the mix of debt and equity) taken by management. From an empirical perspective, these prior studies examined the impact of management's financing decisions based on an examination of whether the issuance of debt or equity has an effect on company value. For example, Fama and French (1998), after assuming that capital markets are perfect and that companies maximise the wealth of both bondholders and equity holders, argued that the financing decisions of a company have no impact on the firm's market value as security holders will be indifferent between choosing debt over equity financing. Fama and French (1998)'s argument is consistent with Modigliani and Miller (1958) who in their pioneer study, argued that the debt level is irrelevant to company value.

Contrary to Modigliani and Miller (1958), Masulis (1983) empirically examined the valuation effects of capital structures changes and found that changes in stock prices were positively associated to leverage changes and that company values were also positively related to changes in debt levels.

From the theoretical perspective, Ross (1977) for example, argued that changes in the financing policy changes the investors' perception about the company as that action/change triggers a certain signal to the market. In other words, Ross (1977)'s signalling model proposes that financing decisions of companies are essentially made to communicate management's confidence in the future prospects of the company.

Consistent with Ross (1977)'s signalling theory, Barclay and Smith (2005) also argued that the issuance of debt would increase the value of the company's shares if

management thinks that the company is undervalued and vice versa. In this view, Barclay and Smith (2005) argued that the issuance of additional debt to the company's capital structure would serve as a credible signal about the company's future cash flows. Thus, companies whose management has issued additional debt, would in effect be signalling to the capital markets that they are aware that the general state of the business is favourable and that they are also confident about the company's ability to meet its financial expenses (Barclay and Smith, 2005).

Contrary to Ross (1977)'s signalling theory, Kim and Abdullah (2012) argued that there is a possibility that the company would suffer the consequences of bankruptcy if it fails to make the fixed payments over the term of the security.

1.1 Limitations in prior studies

Motivations for issuing convertible bonds rather than straight debt or straight equity is a well-researched area in academic literature albeit that these studies are more concentrated on North America, Europe and Japan (Kim and Han, 2019). Furthermore, extant studies on debt market "*treat both bank borrowings and debt securities offers as debts in genera*l" (Kim and Abdullah, 2012, p.45, see also Pandey, 2004). As a result, Kim and Abdullah (2012) suggested that further research is needed to examine the issuance of corporate debt securities from a micro perspective in order to understand the impact of debt instruments.

Similarly, existing research on shareholder wealth effects of convertible bond announcements is also dominated by studies that focus on American and European markets. In addition to concentration on developed markets, Dutordoir et al (2014, p.3)'s study shows that empirical studies on convertible debt issuance focus mainly on "*testing the predictions of four traditional theoretical models based on the convertible bond's potential to mitigate agency or adverse selection costs*", albeit that their findings are mixed. However, there is limited research on the on the motives or of the innovations in convertible bond characteristics and how investors' demand for certain

characteristics affect management's financing decisions (Dutordoir et al, 2014) ,especially from the emerging or developing country perspective.

1.2 Research objectives

The primary objectives of this study is to examine the wealth effects of convertible bond announcements in South Africa. The main objective is further split into numerous follow up objectives. The summary of the main objective and its splits is presented below:

- To examine the wealth effects of convertible bond announcements in South Africa
    - To determine the wealth effects of announcements made in local currency and of those made in foreign currency
    - To determine the wealth effect of the different stated uses of proceeds

1.3 Research Questions

In pursuit of the above objectives, this study seeks to answer one main research question which is then split into two sub questions. The main research question is:

- What is the wealth effect of convertible bond announcement in South Africa?

  And the sub questions are:

    - What are the wealth effect of bond announcements made in local currency and of those made in foreign currency?
    - What are the wealth effect of bond announcements made based on the stated use of proceeds?

1.4 Motivation of the study

A review of literature shows that research on convertible bonds in developing and emerging countries relative to developed countries is generally limited. One of the arguments proffered in prior studies is that companies in emerging and developing

countries irrespective of being large or small, "*typically do not depend on the bond markets to raise capital because emerging bond markets are extremely under developed*" largely as a result of a lack of liquid sovereign bond markets (Dittmar et al , 2008, p.1983). The lack of sovereign bond markets as a benchmark leaves a vacuum against which to value corporate bonds and to a missing catalyst for the development of the country's corporate bond market (Fabella and Madhur, 2003).

However, this claim could be considered as an exception for South Africa which has a history of an active government bond issuance market and a bond exchange market that has been in existence for many years. Furthermore, there is a recognisable trend of corporate bond issuances of various types and maturity in South Africa. Thus, the scarcity of studies based on convertible bond issuance in South Africa is not a result of lack of active government bond issuances, an absence of companies that issue convertible bonds, or illiquidity of the bond market. The lack of academic literature on convertible bonds could more likely be ascribed to the lack of actual issuances that have occurred in South Africa.

Despite the above, South Africa possesses an active government bond market which is liquid and companies are also actively involved on this market as they use it to raise capital either through straight debt or convertible bonds. Thus, the presence of an active government bond market and participation by South African companies on this market provides this study with an avenue to contribute to the existing body of knowledge on the welfare effects of convertible bond announcements using South Africa, which is an emerging economy, as the location of the study.

Findings in prior studies on the welfare effects of convertible bonds provided mixed results. Evidence in prior studies attributes differences in the findings obtained in different countries to differences in regulatory environments and corporate governance (see for example, Kim and Abdullah, 2012). Furthermore, Rahim et al (2014) show that differences in the findings in prior studies are due to systematic country difference or differences associated with specific firm issuers. Based on the

differences in the findings in prior studies conducted in different countries, it becomes equally plausible to examine how the findings in a developing country such as South Africa, where there is sound governance of the markets and recognisable regulatory environment, compare and contrast those in the developed countries and elsewhere. This study allows investors and other stakeholders to expand their understanding or knowledge base on the impact of convertible bonds in settings where similar or related research is scant, yet corporate managers in those areas are utilising convertible bond instruments as part of their financing decisions.

1.5 Organisation of the study

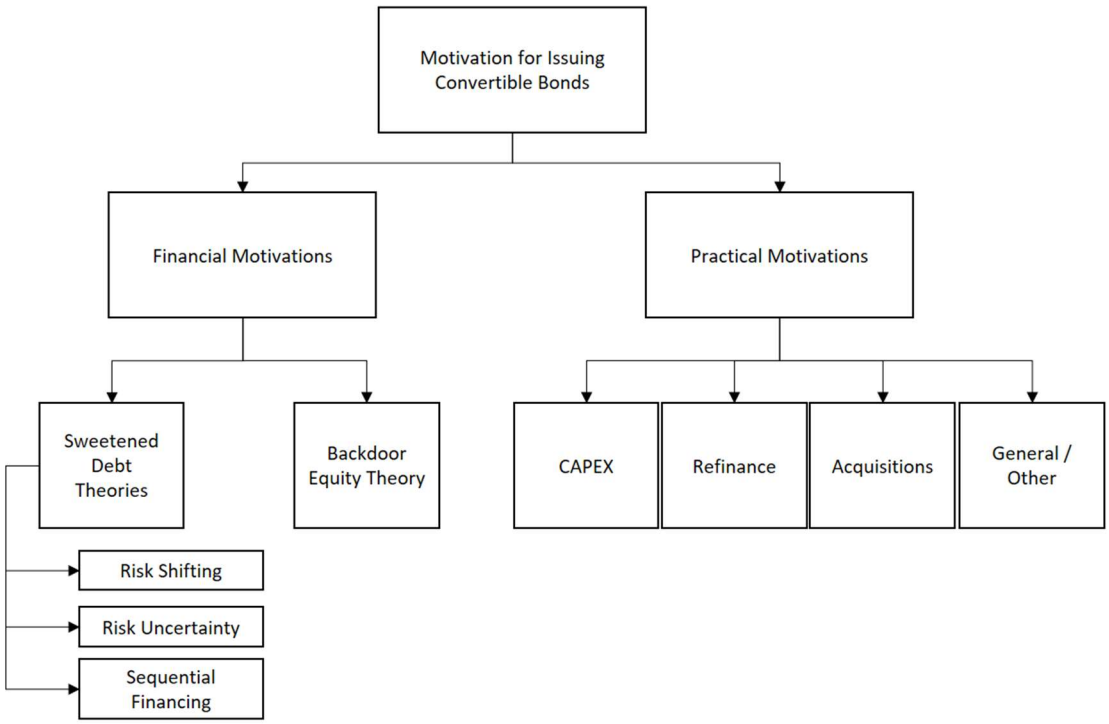
The remainder of the study is organised as follows; section 2 provides a review of related literature and a theoretical background that explains the welfare effects of convertible bonds issuance. Section 3 explains the methodology used to examine the welfare effects of the issuance of convertible bonds. Thereafter, section 4 discusses the findings of this study while section 5 concludes the study.

2. Review of literature and theoretical background

Dutordoir et al (2014) conducted a review of the literature on convertible bonds and divided prior studies into three main areas of focus. The three areas identified and discussed in their review focused on the motives for issuing convertible bonds, welfare effects of convertible bond announcements and convertible bond design. A review of literature conducted for this study is based on the key areas identified by Dutordoir et al (2014) as well as on the theories that explain the welfare effects of issuing convertible bonds to shareholders. The review is organised into sections and each section deals with each stream of research. Section 2.1.1 discusses the practical and financial motivations for issuing convertible bonds while section 2.1.2 discusses empirical evidence on the wealth effects of convertible issues, and 2.1.3 the motivations for issuing convertible bonds

The motivations for issuing convertible bonds have been included in the literature review as it has been shown to influence the degree of shareholder wealth effect on announcement (Abhyankar & Dunning, 1999). Prior studies split the motivation for issuing convertible bonds into two broad categories. Past studies argue that firms issue convertible bonds based on practical and financial motives. The diagram below illustrates the categorisation and sub categorisation of the reasons why firms issue convertible bonds.

Fig 1: motives for issuing convertible bonds.



2.1.1 The practical motives for issuing convertible bonds

From the practical use perspective, figure 1, shows that companies use the proceeds from the issuance for convertible bonds to meet the company's practical needs related to financing capital expenditure, share buybacks, repaying debt, acquisitions, general purpose, etc.

In South Africa, issuers are bound by the Johannesburg Stock Exchange (JSE) regulations to explain the application of funds to potential investors. For example,

rule 7.C.15 (a) requires that the use of funds is clarified in the investor circulars that accompanies a capital raise of any sort with the public shareholders. Irrespective of the JSE regulations, it would just not make common sense for companies to expect to raise funds without providing potential investors clarity on the proposed application thereof. In the absence of such clarity, it would generally mean that there might be a risk that the pricing of capital instruments would be unnecessarily high due to information asymmetries (Dutordoir, et al., 2016).

Studies that examined the practical use of funds generated from issuing convertible bonds, show that there are differences in the application of these proceeds across countries and regions. For example, Dutordoir et al (2016) examined the application of convertible bonds proceeds in the United States of America (US), Japan and other developed countries based on various uses of proceeds as indicated in Table 1. Table 1 reports the stated uses of proceeds of convertibles that Dutordoir et al (2016) obtained from Statistics and Data Corporation (SDC)) database for the issues made in Japan, U.S., and other developed countries.

Table 1: Application of Convertible Bonds Funds

Country	CapEx		Refinancing		Acquisition		Working Capital		General Purposes		TOTAL N
	%	N	%	N	%	N	%	N	%	N	
Japan	74.6	1 347	43.4	783	3.4	62	10.5	189	3.8	68	2 449
U.S.	4.6	51	30.7	344	14.5	162	10.2	114	84.6	947	1 618
Other	14.1	64	14.6	66	10.6	48	38.4	174	62.5	283	635
Total	43.3	1 462	35.3	1 193	8.1	272	14.1	477	38.4	1 298	4 702

Source: Dutordoir et al (2106, p.80).

According to Dutordoir et al (2016), the SDC explained or defined each of the practical uses as follows: Capital expenditure consists of proceeds spent on capital expenditure or related terms. Debt refinancing consists of proceeds spent on debt refinancing or related terms. Acquisition consists of proceeds spent on the purchase of/significant investment in another company. Working capital consists of proceeds spent on working capital requirements. General purposes consists of

proceeds spent on general (corporate) purposes. The note provided for Table 1 explains that the sum of the percentages of stated uses for each of the three subsamples (obtained by summing percentages across each row) is greater than 100%, simply because several offerings include more than one stated use of proceeds (see note provided by Dutordoir et al, 2016, p.80).

The findings of Dutordoir et al (2016), see Table 1 above, show that outside of the US, capital expenditure is the most popular reason for issuing convertible bonds, followed by refinancing existing debt. Financing acquisitions is the least popular reason for issuing convertible bonds. However, considering the results presented by Dutordoir et al (2016) also show that proceeds from the issue of convertible bonds are mostly used for a general purpose in the US, which is different from the rest of the other countries included in the sample.

Thus, after observing that companies practically use the proceeds from convertible bonds for different reasons, other studies were conducted to examine whether the wealth effects of convertible bond announcements could be linked to the preferred practical use of the funds, governance systems in the country of issue and issuer characteristics (Dutordoir et al, 2016).

A review of prior studies show that there are studies that provide empirical evidence that show that the wealth effects of convertible bonds are driven by the reasons for the practical use of the proceeds of convertible bonds (see for example, Kim and Han, 2019; Dutordior et al, 2016). Dutordior et al (2016) for example, conducted a study on Japan, the US and other developed countries for the period between 1982 and 2012 to determine if the practical use of proceeds of convertible bonds had an effect on shareholder wealth. In their study, Dutordior et al (2016) found that Japanese companies issued convertible bonds to finance capital expenditures more often whereas the US companies used the proceeds for general purposes as their motivation for offering convertible bonds (Dutordoir et al, 2016). In addition, the tests conducted by Dutordior et al, (2016) show that convertibles issued with capital expenditure as a stated purpose, on

average, typically have more positive share price reaction than other practical motives put forward and the country of issue (Dutordoir et al, 2016). For example, the findings in Dutordior et al, (2016) show that positive share prices were stronger for issues announced in Japan than in the US (negative share price returns). Owing to the above observations, Dutordoir et al (2016) concluded that their findings showed that the value of the companies was more explicit when companies disclose the intended use of the proceeds of security offerings. In their interpretation of their findings Dutordoir et al (2016) also argued that the integrity of management (that is, delivering what was promised as the use of funds) seemed to be an important contributing factor in the wealth effect of the stated practical use of the proceeds of convertible bond announcements. Consistent with Dutordior et al (2016), Kim and Han (2019) conducted a study on convertible bond announcement returns, capital expenditure and investment opportunities in Korea and found that convertible bond issues had a significantly positive cumulative abnormal returns (CARS) around the announcement. Furthermore, similar to Dutordior et al (2016), Kim and Han (2019)'s findings also show that issuing companies that stated capital expenditure as the use of proceeds had significantly higher CARS relative to companies that stated other purposes. In their conclusion, Kim and Han (2019) argued that companies that stated capital expenditure as the use of proceeds had the highest CARS because the increase in capital expenditure could be viewed by the market as a positive indicator, hence, leading the market to react positively to such issues due to high expectations in the future.

Conversely, empirical evidence provided in the studies conducted by Eckbo (1986) and Mikkelson and Partch (1986) show that the issuance of convertible bonds to repay existing debt, to finance capital expenditure and the general purpose are associated with significantly negative abnormal returns. In contrast to Eckbo (1986) and Mikkelson and Partch (1986), Abhyankar and Dunning (1999) found that the issuance of convertible bonds to finance capital expenditure is significantly positively related to abnormal returns while the association between the proceeds used to repay existing debt and abnormal returns is significantly

negative. Rahim et al (2014, p.380) also argued that issuing hybrid securities to repay existing debt "does not seem to be favoured by investors".

2.1.2 The financial motives for issuing convertible bonds

In addition to the practical motives for issuing convertible bonds, prior studies show that companies issue convertible bonds based on financial motives. The financial motives for issuing convertible bonds relate to the advantages of the nature of the convertible bond instrument, over that of straight debt or straight equity. Prior studies explained the financial motives for issuing convertible bonds using two broad theories (see figure 1). The two broad theories are the sweetened debt theory and the delayed equity (backdoor) theory.

The sweetened debt (which is also split into three theoretical models as shown in figure 1) refers to the debt like convertible bonds, that is, bonds with a lower probability of conversion. Thus, the sweetened debt theory views convertible debt as an instrument that can be issued to alleviate or avoid some of the costs related to straight debt financing costs (Dutordoir and van de Gucht, 2009). As a result, the sweetened debt theory is modelled under the assumption that high equity related financing costs prevent companies from issuing equity, thus, making it appropriate for them to issue convertible bonds to mitigate asset substitution costs that arise from the presence of risky debt (Dutordoir and Van de Gucht, 2009).

By issuing convertible bonds, companies would be allowing bondholders to participate on the upside potential of the stock (equity) by adding a conversion option to their bond issues (Dutordoir and van de Gucht, 2009). In this way, the issuance of the convertible bond would reduce the value of the stockholders' residual claim, hence, in the process, weakening the stockholders' tendency to engage in more risky projects (Dutordoir and van de Gucht, 2009).

The sweetened debt theory suggests that typically, companies with lower investment grades will issue convertible bonds. As a result, such issuers would be issuing convertible bonds to entice investors to take up their debt, without materially subjecting their cash flows to a constant obligation of repayment of high interest payments. Based on Brennan and Kraus (1987) and Brennan and Schwartz (1988)'s arguments, companies would issue convertible bonds (that is, sweetened debt/debt like convertibles) to mitigate adverse selection costs caused by uncertainty about the risk of the issuing company. Thus, in the presence of such uncertainty, the new bondholders would require additional *"lemon's premium"* over interest rate that they would ask under perfect information on the company's risk (Dutordoir and van de Gucht, 2009). Thus, to reduce the adverse selection problem, companies would issue convertible bonds instead of straight debt. The argument proffered for issuing convertible bonds rather than straight debt, is that the negative effect of the increase in the company's risk to the investor on the bond component of the convertibles, would be partly offset by the increased value in the option on the equity of the issuer. This results in the total valuation/pricing of the convertible bond would be less affected by the issuing company's risk than the value of straight debt (Dutordoir and van de Gucht, 2009).

Based on the above point of view, Mayers (1998) argued that convertible bonds are more suitable for financing a series of investment options of uncertain value than either short or long term bonds. In this view, Mayers (1998)'s argument is that convertible bonds would economise on the issuing costs that are associated with multiple short term debt offerings since the conversion would leave the funds inside the company. In addition, Dutordoir and van de Gucht (2009) argued that unlike the long term bonds, convertible bonds controls for stockholders' tendency to over invest in projects with negative net present values by returning the funds (loan component) to bondholders through redemption in situations where the option is out of the money (that is, where the option has no value). The basis of Mayers (1998)'s argument is that it assumes that convertible bonds are callable, which means that companies would be able to force the conversion of debt into

equity when the investment option is in the money (that is, when the investment option has a positive value).

Empirical studies split the sweetened debt theory into sub theories to examine the wealth effects of convertible bond announcements. The theories pursued in past studies are the risk shifting, risky uncertainty and sequential financing theories. Each of the sub theories stated above is discussed separately in the ensuing sub-sections.

2.1.3 Risk Shifting

Green (1984) argues that a convertible bond is designed to mitigate bondholder and stock holder agency costs. The model relies on shareholders having to share any cash flows resulting from high-risk strategies with convertible bondholders who converts the convertible bonds to shares, which will reduce shareholders' benefits to engage in such an investment strategy in the first place (Dutordoir, et al., 2014). From the bondholder's perspective, the theory predicts that shareholders will not underinvest in order to maximise the residual claim that they have, as their residual claim gets decreased by the repayment of interest and capital on the bond. The expectation is that mature businesses should reflect Green (1984)'s analogy. This reasoning is based on two viewpoints. First, mature businesses are expected to have stable cash flows which continue to build up in these businesses. The reasoning for this is that as a company grows and matures, the rule of marginal utility causes there to be less and less viable options in which to invest capital, hence, leading to the build-up of cash in these businesses. Second, the ability of mature businesses to identify and execute on new positive NPV projects is often not guaranteed at the time of raising capital, and more generally remains in question due to the life stage of the business.

Some limitations of the Green (1984) theory have been discussed in more recent research (see for example, Dorion, et al., 2014). Dorion et al (2014), for example, argued that Green (1984)'s theory does not extend to a multi-period setting.

Furthermore, Dorion et al (2014) and Viswanath and Frierman (1995) argued that convertible bonds are also less effective in reducing risk shifting especially if investors could trade derivatives that are written on a company's assets (thus creating incentives outside of Green (1984)'s model). In addition Dorion et al (2014) argued that, Green (1984)'s risk shifting theory does not hold if one adjusts for the probability of default prior to maturity. In addition, other studies argued that the risk shifting problem is less severe especially when accounting for the likelihood of a default before the term to maturity (see for example Chesney and Gibson-Asner, 2001). On the contrary, a study by Hennessy and Tserlukevich (2009) argue that shareholders always benefit from the increases in asset risk if the company is close to default.

2.1.4 Risk Uncertainty

Some authors have mistakenly associated a lower cost of financing (free lunch) with regard to Brennan and Schwartz (1988)'s theory as the primary motive for issuing convertible bonds. The mistaken researchers argue in favour of the lower cost, compares convertibles to straight debt when the firm's share price does poorly and holders do not convert, viewing the coupon on convertibles normally being lower than a straight bond's in isolation, hence implying that the issuer paid a lower cost of finance than it would have issuing straight debt. These authors also mistakenly compare the convertible bond to issuing straight equity when the share price does well, giving the benefit of the initial conversion premium to the original shareholders, whereas a straight equity issuance at the time of issuing the convertible bond would have been relatively more dilutive (Dutordoir, et al., 2014).

Brennan and Schwartz (1988) argue that firms with high straight debt issuing costs should consider issuing convertible bonds, not for the reason of cheaper financing, but as a mechanism that can bridge differences in opinion on what the cost of finance should be. Thus, the issuance of convertible bonds adds the option of negotiating the degree of risk in situations where two parties disagree on the

pricing/value of the bond because of the risk in the business. In this way, the convertible bond buyer gets compensated in the price of the equity option based on the agreed risk. Given the increased risk and the potential for upside should the risky projects pay off, the future value of the business is enhanced immediately as per the constructs of the Black-Scholes, which ascribes a higher value to the option on equity with higher volatility (Black & Scholes, 1973). In this example, if an issuer expects a high valuation in the future, the issuer will have to give the buyer this "valuable" option for a cheaper price than it is otherwise possible. In this way, the convertible bond bridges the gap between the issuer and investor.

Based on the above, companies that issue convertible bonds tend to be those for which uncertainty about risk is the greatest. The uncertainty causes their cost of debt to be unnecessarily expensive. The inverse will apply and volatile share prices can be read as a measure of risk if one accepts that higher operating and financial risk leads to volatile share prices. Thus, one would not ordinarily expect to see companies with good credit ratings issuing convertible bonds because their risk is well-understood. Companies with high unutilised debt capacity can also be considered candidates that reflect high risk uncertainty as it could be argued that their inefficient financing structure would be a symptom of unexplained risk.

2.1.5 Sequential Financing

The sequential financing problem arises when a firm has multiple potentially viable projects in its pipeline, each contingent on the outcome of the prior project. Mayers (1998) discusses the sequential financing motivation as focussed on the valuation of future prospects. Mayers (1998) suggested that the issuance of convertible bonds would be the most cost effective way of financing a company that has promising investment opportunities or projects not only in the present period but also a series of projects expected in the future which would require funding if they prove to be profitable. Mayer (1998)'s sequential-financing argument suggests that convertibles are better than long-term straight bonds for financing real options (option in growth that the business can execute on). For

investors, convertibles can overcome overinvestment risks by redeeming bonds and returning cash to bondholders when the investment option turns out to be worthless. If the investment turns out to be valuable, the convertible debt converts to common equity (Dutordoir, et al., 2014).

One plausible modern practical example is that of Telsa. Telsa, which is an electric carmaker, used convertible bonds to, first raise USD2bn in convertible bonds in February 2014, towards building its USD5bn battery factory. Prior to converting or redeeming the February 2014 convertibles, Tesla issued a further USD1.15bn convertible bond, announced on 15 March 2017. The proceeds of the bond was also to be used towards funding the battery factory. Tesla's electric cars are being built at an extreme pace, but off an extremely low base. The battery factory ("investment option") will only be fully utilised once Tesla has successfully ("initial project") rolled out a sufficient number of electric vehicles to need the batteries. In the interim, Tesla would want avoid using its working capital towards the battery factory. Thus, if Tesla decides not to pursue the battery factory, they can simply settle the convertible bond by raising new straight debt. The high (42.5%) conversion premium on Tesla's convertible bonds make them likely to behave like bonds more than equity, as it is less likely that the share price reaches the target price for conversion.

2.1.6 Delayed equity theory

Stein (1992) argues that companies issue convertible bonds to obtain equity further down the line, securing a premium to current prices. Managers in such instances are of the view that the current share price is not at fair value, due to information and interpretation of information that they have at their disposal. Stein (1992) builds a theoretical model that suggests that issuing convertible bonds is particularly attractive to firms that are (i) characterised by significant informational asymmetries, and (ii) will incur large costs of financial distress if they added more debt to their capital structures.

Stein (1992)'s view, which relies on his theoretical model for it basis, is supported by actual surveyed findings that asked the question of why managers issue convertible debt more directly in surveys with management teams. Research by Pilcher (1955), Brigham (1966) and Hoffmeister (1977) asked the question directly, and the results supports the view that eventually raising equity is the most important reason to issue convertible bonds.

Similar to Mayers (1998), Stein (1992) relies heavily on two attributes of convertible bonds. The first is that convertible bonds are callable and allows forced conversion. The second building block of the backdoor equity theory, is that excessive debt can lead to financial distress and business failure. When convertible bonds are originally issued, the equity option strike price is at a premium to the current price (or more often weighted price over a given a period prior to issuance, typically one month). In order to be able to force conversion, the share price needs to exceed the premium price at the time when management wants to force conversion into equity. A company that is under financial stress and at risk of collapse, will not be in a rush to issue additional debt that compromises the share price. Therefore, it can be accepted that a company issuing convertible bonds is optimistic about the share price, as it would want to avoid insolvency when it has to settle the debt and is unable to do so by conversion of the convertible bond into equity. Thus, Stein (1992)'s theory makes it plausible that managers sell the potential of the value in the shares by issuing convertible bonds in order to lock in a premium.

Empirically, Jen et al (1997), Kang and Stulz (1996) and Mikkelson and Partch (1986) tested this argument and their results were consistent with the arguments proffered by Stein (1992). Contrary to Stein (1992)'s theory, Eckbo (1986) found that convertible bonds with high Moody's rating had non-sweetened debt that had significantly negative abnormal returns while those with low rating had significantly negative abnormal returns during the announcements of these securities.

2.2 Wealth effects of convertible bonds

Other studies attributed the wealth effects of issuing convertible bonds to several factors. The factors are discussed in the subsequent sub-sections.

2.2.1 Country of Issuance

Furthermore, studies found that differences in the wealth effects of convertible bonds could be explained by institutional differences between convertible bond announcements procedures in different countries. In an endeavour to explain these differences, several studies were conducted on two or more countries to examine if the wealth effect of convertible bond announcements were different across countries. Some studies found a negative stock price effect while others found a positive price effect. For example, studies conducted in the US (see for example, Dann and Mikkelson, 1984; Mikkelson and Partch, 1986), Australia and UK (see for example, Magennis et al, 1998; Abhyankar and Dunning, 1999) and continental Europe (see for example, Burlacu, 2000; Ammann et al, 2006, Dutordoir and van de Gucht, 2007) found that the announcements had a negative effect on stock prices whereas the studies conducted in Japan and Korea (i.e. countries with different cultures and systems in place to the US and Europe) found that the announcements had a positive or neutral impact (see for example, Kim and Han, 2019; Christensen et al, 1996; Kang and Stulz, 1996, Kang et al, 1995). In explaining the differences in the study conducted between the US and Japan, de Jong et al (2012) argued that such differences could be attributed to the time taken between announcement and issuance of the convertible bonds. Their argument was based on the observation that convertible bond announcements and issuance in the US take place overnight whereas in Japan, the announcement process is lengthier, hence, making them more susceptible to information leakages prior to the official announcement date. Therefore de Jong et al (2012)'s argument implies that a lengthier process might weaken the negative information as more of the

information leakage over the estimation period has been absorbed into the pricing by the time of the announcement.

2.2.2 Sectors

There are also studies that examine the effect on shareholder wealth of issuing convertible bonds based on sectors. Li, et al., (2016) for example, examined whether financials experience less negative announcement returns in relation to individual industries across non-financials like manufacturing, wholesale retail, services, transportation, telecommunication, construction, mining and utilities. The general outcome of the sectoral work on convertibles' impact on shareholder wealth, points to the respective sectors following their shareholder wealth effect of a straight equity issuance (thus being slightly negative in general). The results show that, heavily regulated sectors (e.g. telecommunications, utilities) are less negative than the industry in general (Li et al, 2016).

2.2.3 Convertible bond design

Other studies attributed the differences in results to differences in the design of the convertible bonds by specifying the characteristics of the securities such as the coupon rate, term to maturity, conversion ratio (list not exhaustive). For example some researchers argued that convertible bonds that have lower maturities and a lower coupon rate, could be categorised as equity like convertible bonds (Rahim et al (2014). In Australia, Rogalski and Seward (2003) made a distinction between debt like, hedge like and equity like convertible bonds through categorisation using the conversion ratio. In their categorisation, Rogalski and Seward (2003) argued that convertible bonds with a conversion ratio into equity of less than 40% represented the debt like, and those between 40% and 60% represented the hedge like while those with a conversion ratio greater that 60% were considered to be equity like convertible bonds. After this categorisation, Rogalski and Seward (2003) found that the announcements of the three groups had almost similar negative market reactions of just above negative 1%. In contrast, a study by

Suchard (2007) found the negative returns after the announcement of both debt like and equity like convertible bonds albeit that their findings were insignificant. By contrast, a study conducted in France by Burlacu (2000) found that the equity like convertible bonds had more negative market reactions associated with their announcements whereas the rest had no clear cut results.

Overall, irrespective of the geographical or sectoral perspective of reviewing wealth effects of convertible bonds, shareholder wealth effects were consistently negative if designed with a larger equity component. The negative reaction irrespective of geography or sector, indirectly confirms Stein (1992)'s theory that managers issue convertible bonds as a backdoor to raise equity. Majluf and Myers (1984) also argued that a firm that does not issue equity to pursue investment decisions, raises the perception of value of its equity with shareholders, which in turn at least initially will cause the share price to increase. This further augments the argument that a convertible bond that is more debt like, would have a less negative effect on shareholder wealth at issuance than a convertible bond that is more equity like. The existing body of knowledge shows mostly the negative shareholder wealth effects generally (Li, et al., 2016).

3. Methodology

Since this study is based on examining the welfare effects of convertible bonds issuance announcements, the appropriate methodology that is widely used in prior studies is the event study approach. In conducting research on the wealth effects, the event's effect is measured in terms of the stock market's abnormal reaction to the announcement. In this view, the event study method is used to measure the impact of a specific event (in this case, the announcement of the issuance of convertible bonds) by measuring excess returns relative to normal returns on a share. Thus, the central objective is to measure an abnormal share price return relative to an isolable event.

However, for event studies to be accepted, there has to be an underlying degree of reliance on the principle of market efficiency. An assumption that the market is efficient is in recognition that the market's reaction is in consideration of the new information that came about (Bowman, 1983). Thus, this current study leverages on the findings in past studies on the market efficiency of the JSE (for example, Okeahalam and Jefferis (1999) that tested the impact of earnings announcements on the abnormal return of a sample of stocks listed on the Botswana Stock Exchange (BSE), Zimbabwe Stock Exchange (ZSE), and the Johannesburg Stock Exchange (JSE)) and found that the JSE conform to the semi-strong version of the efficient market hypothesis. As a result of these prior findings, this study therefore, assumes that those findings still hold and proceed to examine the welfare effects of convertible bonds issuance announcements. Things may have changed in these three countries since 1999 and it is therefore potentially questionable if this result still holds. Instead of earnings impact on abnormal return, this study test the impact of the convertible bond announcement on the stock return by calculating abnormal returns associated with the announcement.

There are three important steps that should be followed when conducting events studies. These steps are discussed below as follows:

Step 1:

The event of interest should be defined. In the case of this current study, the event of interest is the public announcement of the convertible bond issue.

Step 2:

Step 2 involves a decision on the period over which the event will be measured. In event study literature, this is commonly referred to as the event window.

Typically, in event studies, the researcher selects a single or number of days over which to measure the impact of the said event occurring. In line with previous studies,

this current study will look at varying event windows around the announcement date. The days of interest is coded as follows:

- the announcement is coded as 0,
- the period before the announcement is denoted with a negative sign, and
- the days after the event are coded denoted with a positive sign

The current study uses days -1, -10, 0 and +1 respectively. This implies ten days and one day before the event, the event day and one day after the event, with the event day represented by a zero. The symmetric window is selected in order to allow for a small degree of information leakage.

Step 3:

The third step requires a measurement of abnormal returns. Abnormal return is equal to the actual ex post return of the share over the event window, minus the normal return of the firm over the event window. The estimation period in the case of this study is the period between 250 days and 10 days prior to the announcement date (refer to sub section 4.3 below). The normal return is the expected return without conditioning on the event occurring (MacKinlay, 1997). The impact of confounding events were considered for the individual issues. The impact of confounding events is addressed by using a market model for estimating normal return over the event window. The movement in the JSE All Share Index was used to approximate confounding events.

Normal return for the purposes of research on convertible bonds is typically calculated in one of two ways. Some authors use the constant mean return model while others use the market model. The constant mean return model assumes that the mean return of a given security is constant through time while the market model assumes a stable linear relation between the market return and the individual share's return. Both approaches assume that markets respond efficiently to publicly available information (semi-strong market efficiency) (Cable & Holland, 1999). This current study will use the market model, similar to Abhyankar & Dunning (1999), as this

appears most often in event study research and has shown to be an improvement over the constant mean model (Dutordoir, Li, Liu, & Verwijmeren, 2016), Kim, H. J and Han, S.H (2019). Economic models for calculated normal return such as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT) is not commonly used in convertible bond research.

Before going on to explain how data was obtained, it is worth noting the limitations associated with event studies. First, Brown and Warner (1985) found that sample sizes influence mean performance (ability to generalise). Thus, the degree of misspecification in event study methodologies remain sensitive to sample size. This implies the significance levels should be accepted with caution if the sample size is small. Despite the recommended caution above, there are studies that used small sample sizes, for example, Dutordoir, et al., (2016) used 15 convertible bond issues as an acceptable minimum for including a country in their study on the announcement effects of convertible bonds when they compared Japan relative to the rest of the world. Consistent with Dutordoir et al (2016)'s use of a sample that had 15 convertible issuances, this study uses a population of 25 convertible bond issuances over the period 31 march 2004 to 25 may 2017 (refer to Table 2), which represents the entire universe of convertible bond issues up to that point in South Africa.

3.1 Data

Before determining the sample to be used in the study, various sources and criteria were used for this study. Share prices and information on new issues were obtained from the JSE website (that is JSE issue data). Investor circulars, balance sheets and income statements were sourced from the annual reports which were downloaded from company websites. Share prices were downloaded from the I Net Bridge and Bloomberg databases as explained above.

Dutordoir et al (2016)'s criteria for selecting convertible bond issuances for inclusion into the final sample was used. According to Dutordoir et al (2016)'s selection criteria,

the convertible bond must be (and which now also becomes the selection criteria for this study):

- Issued by a company locally domiciled or with local trading roots (South Africa in the case of this study).
- From an industry other than banking / financial institutions.
- The offering must be convertible into the issuing firm's stock (thus not to be exchanged for other assets of the company.
- The convertible must be listed on a recognised share exchange.
- The offering's stated use of proceeds must at least be common cause.
- The issuing firm's daily stock price data for the full calendar year preceding the announcement date must be available.
- The issuing firm's balance sheet and income statement data for the fiscal year-end immediately prior to the announcement must be available.
- The issuer must not be a start-up.

Following this discovery, this study then applied the criteria suggested by Dutordoir et al (2016) as explained above and gathered all the necessary information on and purposes for all the issuances that were made for the period 31 March 2004 until December 2017. Table 2 below tabulates the list of all the issuances that were made in South Africa for the period under consideration.

Table 2: Issues in South Africa from 31 March 2004 to 25 May 2017

#	Date	Company	Currency	Amount (m)	Coupon rate	Conversion Premium	Maturity (years)	Use of proceeds
1	08-Mar-17	Royal Bafokeng Platinum	ZAR	1 200	7.0	30.0	5	Project Financing
2	25-May-17	Impala Platinum	ZAR	3 250	6.4	32.5	5	Repay Debt
3	25-May-17	Impala Platinum	USD	250	3.3	32.5	5	Repay Debt
4	19-Sep-17	Sibanye Stillwater Gold	USD	450	1.9	35.0	6	Acquisitions / Repay Debt
5	14-Apr-16	Steinhoff	ZAR	1 100	1.3	40.0	7.5	General Corporate Purposes
6	25-Oct-16	Intu Properties	GBP	375	2.9	30.0	6	General Corporate Purposes
7	11-Sep-15	Brait	GBP	350	2.8	30.0	5	Future acquisitions
8	30-Jul-15	Steinhoff	EUR	1 116	1.3	35.0	7	Share repurchases
9	16-Jul-14	Aveng	ZAR	2 000	7.3	30.0	5	Repay Debt
10	23-Jan-14	Steinhoff	EUR	465	4.0	30.0	7	Repay Debt
11	15-Feb-13	Impala Platinum	ZAR	2 672	5.0	35.0	5	General Corporate Purposes
12	15-Feb-13	Impala Platinum	USD	200	1.0	35.0	5	General Corporate Purposes
13	20-Sep-12	Steinhoff	EUR	4 300	6.4	30.0	5	General Corporate Purposes
14	12-Jun-12	JD Group	ZAR	1 000	7.5	30.0	5	General Corporate Purposes
15	22-Mar-12	Shoprite	ZAR	4 500	6.5	33.0	5	Acquisitions
16	15-Sep-10	AngloGold Ashanti	USD	789	6.0	25.0	3	General Corporate Purposes
17	15-Sep-10	Steinhoff	EUR	390	5.0	35.0	6	Repay Debt
18	19-May-09	AngloGold Ashanti	USD	733	3.5	38.0	5	General Corporate Purposes
19	11-May-09	Acquarius Platinum	ZAR	650	11.0	25,0	3	Repay Debt/General Corporate Purposes
20	21-May-08	Steinhoff	ZAR	1 600	9.6	33.0	7	General Corporate Purposes
21	23-Oct-07	Aflease	ZAR	600	8.5	25.0	5	Capital Expenditure
22	28-Sep-06	Network Healthcare	ZAR	1 500	6.0	25.0	5	General Corporate Purposes
23	22-Jun-06	Steinhoff	EUR	1 500	5.7	33.0	7	Capital Expenditure
24	18-Jan-05	Aveng	ZAR	1 000	6.1	30.0	7	Repay Debt
25	31-Mar-04	Harmony Gold	ZAR	1 700	4.9	23.0	5	Repay Debt
						Ave = 31.2	**Ave = 5.5**	

Source: From Standard Markets Research

The population consists of 25 convertible bond issues that were issued in South Africa for the period under consideration. Table 2 shows that more than half of the convertible bonds (13 issues, or 52%) issued in South Africa for the period considered were issued in South African Rand. Table 2 also shows that 20% (i.e. 5 of the 25) of the issues were Euro denominated bond issuances while 8% (i.e. 2 issues) were denominated in British Pound denominated 8% (i.e. 2 issues) and a further 20% issues (i.e. 5 issues) were US Dollar denominated. The table also shows that, with the exception of the years 2009, 2010 and 2015, there were at least as many ZAR based convertible bonds issued as there were foreign currency denominated bonds.

Translating the currencies using Standard Bank exchange rates for the relevant dates of issues, the total issuances sum to R143.1bn in convertible bonds over the period up to 2017. In money terms, the ZAR bonds represent 15.9% of the sample (R22.77bn), the EUR bonds represent 59.1% (R84.53bn), GBP bonds represent 9.4% (R13.4bn) and USD bonds represent 15.7% (R22.4bn) of the bonds issued.

Steinhoff has been the most active issuer, accounting for 7 (28%) of the historic issuances. Impala Platinum has been the second most active, issuing 4 (16%) of the bonds over the relevant period. Aveng and Anglogold Ashanti have each issued 2 (8%)

convertible bonds. The least active has been Network Healthcare, Aflease, Brait, Shoprite, JD Group and Harmony Gold, Royal Bafokeng, Aquarius Platinum, Sibanye Stillwater Gold and Intu Properties have each issued only 1 convertible bond each.

The annual frequency at which convertible bonds have been issued is increasing. Between 2004 and 2010 (first 6 years), 10 convertible bonds were issued. Between 2012 and 2018 (last 6 years), 15 convertible bonds were issued, indicating a 50% increase between the two periods.

The final sample considered for this study was reached as follows: out of the population of 25 convertible bond issuances, only 15 were usable. 10 issuances were discarded as follows: first, 7 issuances by Steinhoff were discarded on the basis of their questionable reporting[1] as the inclusion of these issuances could have skewed results. Second, Impala Platinum issued 4 convertible bonds which consisted of 2 pairs which were simultaneously issued convertible bonds in two different denominations (USD and ZAR), hence, leading to only two being included in the final sample. Lastly, Aflease issued a convertible bond in October 2007 when it was still a start-up company, hence, the relevant share price information could not be collected and thus, the issue had to be discarded. As purpose of the study is dependent on share price movement in South Africa, only the local currency convertible bond announcement share price impact was measured. As a result of these adjustments, the final sample had 15 issues which then formed the basis of this study. Owing to the size of the final sample, a significance

[1] According to a widely circulated case study on Steinhoff published in June 2018 by the Stellenbosch Business School called "Business Perspectives on the Steinhoff Saga", concerns around Steinhoff's reporting first arose in 2007, which is around the time that they first issued convertible bonds. In addition, at the time of writing this study, there was still many investigations ongoing into the results of Steinhoff, and uncertainty around how far back financials will have to be restated. The full case study on the Steinhoff case was written up by Brett Hamilton who holds an MBA from the University of Stellenbosch Business School where he is a visiting lecturer in Corporate Finance and a director of First River Capital, Marius Ungerer is Professor of Strategy at the University of Stellenbosch Business School, Daniel Malan is Associate Professor of Corporate Governance and Head of the Centre for Corporate Governance in Africa, based at the University of Stellenbosch Business School, Mias de Klerk is Professor of Leadership and Human Capital Development, and Head of Research at the University of Stellenbosch Business School, leading academics in South Africa, Furthermore, Abhyankar & Dunning, 1999, p. 1051, also excludes companies which issued as regularly as Steinhoff from their sample. We therefore excluded Steinhoff from the sample.

level of 10% was selected and is considered adequate for some of the statistical tests performed.

3.2 Estimating Excess Returns

The abnormal returns are calculated for each convertible bond announcement in the sample using the convertible bond issuance data (previously detailed) for the period between 31 March 2004 and 31 December 2017. Share price data for this analysis was obtained directly from the JSE data team. Consistent with prior event studies related to convertible bond issuances (e.g. Dorion, et al., 2014; Rahim, et al., 2014), this study only includes the vanilla convertible bonds. Similar to the approach in a prior study (Li, Liu, & Siganos, 2016), issues are bundled in situations where the issuer issued additional convertible bonds in subsequent years.

In addition to selecting the appropriate model, this study also selected 241 (one year of business days) observations before the announcement date to determine the baseline. A period of 241 seems appropriate given the precedency in prior studies that use event studies that used 250 days (Cable & Holland, 1999), and given that 241 days roughly approximates a typical year of business days in South Africa, after allowing for some public holidays. Thus, the share price data over days −250 to −10 before the announcement date (day 0) is used to calculate normal returns, and then subtract these returns from actual stock returns to obtain abnormal stock returns. The 8 day buffer before day 0 is to adjust for potential insider information being leaked. The cumulative abnormal stock returns (CARs) are the sum of abnormal stock returns over trading days -1 to 0, −1 to 1 and -10 to 0 in relation to announcement dates.

4. Analysis of results

4.1 Descriptive Statistics

Prior to 2008, at most, one company issued convertible bonds in any one single year. From 2009 onwards, that is, post the financial crisis, at least two or more companies issued a convertible bond except for the year 2011 in which no convertible bonds were

issued. In value terms, 2012 had the highest average Rand per convertible bond issued and this number was driven by the Shoprite whose convertible bond issued in that year was worth R5bn. Furthermore, the Shoprite convertible bond issued in 2012 is the single largest Rand convertible bond that has ever been issued in South Africa at the time of the writing of this paper.

Table 3: Stated use of proceeds of convertible bonds.

Stated use of proceeds for convertible bonds

Stated Use	N	% of Population	n	% of Sample	Mean CAR	Median CAR
Project Financing	1	4%	1	6%	-10,71%	-10,71%
Repay Debt	9	36%	7	41%	-6,94%	-9,94%
Acquisitions	3	12%	2	12%	-5,24%	-7,11%
General Corporate Purposes	9	36%	7	41%	-3,45%	-3,00%
Share Repurchases	1	4%	0	0%	N/A	N/A
Capital Expenditure	2	8%	0	0%	N/A	N/A

Table 3 below provides a summary of the stated uses of the proceeds of convertible bonds, number of companies that used the stated use, their proportion, the mean and median CARs.

An inference into the results in Table 3 shows that the sum of percentages is larger than 100%. Similar to Dutordior et al (2016), this implies that some issuances in South Africa also include more than one stated use of the proceeds. In addition, the results show that a higher proportion of the companies included in the final sample issued convertible bonds for the purpose of repaying debt (i.e. 41%) followed by general corporate purposes (41%), acquisitions (12%), project financing (6%), capital expenditure (0%) and share repurchase tied (0%). Note that, the results in Table 3 are after eliminating the 10 issuances as explained in the methodology section. However, before elimination of the 10 issuances (see Table 2), of the population of 25 companies 9 (36%) issued convertible bonds with the motive for financing the general purpose, on par with 9 (36%) that stated the repayment of debt as their reason for issuing the convertible bonds. The least number of companies of companies stated that they used the proceeds of convertible bonds to finance projects and to repurchase shares (1 company each). Specifically, the review of the announcements of each company that issued convertible bonds shows that Steinhoff was the only company that issued the convertible bonds for the purpose of Share Repurchases. Note that due to the

concerns around Steinhoff's reporting, this study removed Steinhoff from the final sample that was used to calculate the CARs. This implies that none of the companies included in the final sample issued convertible bonds for the purposes of share repurchases or capital expenditure. This observation is contrary to prior studies that show that most of the companies issued convertible bonds to finance capital expenditure requirements, for example in Japan (see Dutordior et al, 2016) and Korea (see for example Kim and Han, 2019) whereas companies in the US issued convertible bonds mainly for general purposes (see for example, Dutordior et al, 2016).

In addition to reported descriptive statistics, an analysis was also conducted based on the CAR for each individual company over three event windows being -1 to 0 days, -1 to +1 days, and -10 to 0 days. Table 4 below provides these results.

4.2 Stock price reaction to convertible security offering

Table 4: CAR and expected CARs of sample convertible bonds

#	Date	Company	CAR -1 to 0	CAR -1 to 1	CAR -10 to 0
1	08-Mar-17	Royal Bafokeng Platinum	-0,58%	4,92%	10,80%
2	25-May-17	Impala Platinum	-10,82%	-15,74%	-14,39%
3	19-Sep-17	Sibanye Stillwater Gold	-7,86%	-9,81%	-22,53%
4	25-Oct-16	Intu Properties	-2,01%	-2,77%	0,28%
5	11-Sep-15	Brait	-2,12%	-2,41%	-11,69%
6	16-Jul-14	Aveng	-0,96%	-1,00%	1,40%
7	15-Feb-13	Impala Platinum	-7,83%	-10,55%	-6,81%
8	12-Jun-12	JD Group	-1,20%	-3,63%	-7,33%
9	22-Mar-12	Shoprite	-5,55%	-5,49%	-5,32%
10	15-Sep-10	AngloGold Ashanti	-3,15%	0,02%	-1,70%
11	19-May-09	AngloGold Ashanti	0,22%	-7,37%	7,93%
12	11-May-09	Acquarius Platinum	-2,75%	4,60%	11,37%
13	28-Sep-06	Network Healthcare	-1,11%	-2,15%	-0,28%
14	18-Jan-05	Aveng	-7,17%	-10,25%	-4,07%
15	31-Mar-04	Harmony Gold	-2,49%	-3,64%	2,91%
		N (Sample Size)	15	15	15
		Mean	-3,69%	-4,35%	-2,63%
		Median	-2,49%	-3,63%	-1,70%
		St Dev	3,32%	5,68%	9,31%
		t -test	-4,31***	-2,97**	-1,09

Notes: This table presents cumulative abnormal returns (CAR) around convertible bond announcements for South Africa included in the sample. Cumulative abnormal stock returns are measured over the window (-1,0), (-1, 1) and (-10,0) relative to the announcement date, using a market model estimated over trading days -250 to -10. It reports the mean, median, and standard deviation of the CAR, as well as t-test test statistics assessing whether the CARs are significantly different from zero.

* Represents significance at the 10% significance level.
** Represents significance at the 5% significance level.
*** Represents significance at the 1% significance level.

The results in Table 4 show that only 1 out of the 15 (7%) of the convertible bond announcements results in positive CAR for the -1 to 0 event window, 2 out of 15 (30%) for the -1 to 1 event window, and 7 out of 15 for the (47%) for the -10 to 0 days event window. However the results for the -10 to 0 days event windows was not significant. The first two event windows' results were significant, and therefore we conclude these to be significantly different from zero. Specifically given the negative sign, that the CARs are significantly negative for the -0 to 1 and -1 to 1 event windows. This finding is consistent with the results reported by Dann and Mikkelson (1984), Davidson et al (1995) and Arshanapalli, et al., (2004) who found significant negative cumulative abnormal returns in relation to convertible bond issue announcements.

Following Abhyankar and Dunning (1999), this study conducted further analyses to examine the wealth effects of convertible bonds by currency of issue and by the stated purpose of the use of the proceeds. In the following section, the duplicates of Impala were not removed, due to the relevance of the currency difference.

The results of this tests are presented in Tables 5 and 6 below.

Table 5: T test: Stock price reaction by the currency of issue

Currency	N (Sample size)	Mean	Median	t-test	
ZAR					
CAR -1 to 0	10,0	-4,05%	-2,62%	-3,59	***
CAR -1 to 1	10,0	-4,29%	-3,64%	-2,07	*
CAR -10 to 0	10,0	-1,17%	-2,17%	-0,46	
Other (GBP and USD)					
CAR -1 to 0	7	-4,79%	-3,15%	-3,14	**
CAR -1 to 1	7	-6,95%	-7,37%	-3,31	**
CAR -10 to 0	7	-6,99%	-6,81%	-1,82	

Notes: This table presents CAR as differentiated between issuances in South African Rand (the 10 issues), against foreign currencies (the 5 issues).

* Represents significance at the 10% significance level.
** Represents significance at the 5% significance level.
*** Represents significance at the 1% significance level.

The results in Table 5 show that there is a significant negative CAR irrespective of whether the convertible bonds were issued in rand or other currencies, for all event windows, only lacking significance for the event window days -10 to 0,. The results in

Table 5 also show that the convertible bonds issued in rand value have statistically significant negative means for the convertible bonds issued in rand value which are all respectively less negative across the relevant event windows than the degree of negative for the foreign denominated convertible bonds. The finding of the significant negative announcement period returns is consistent with the findings of Abhyankar and Dunning (1999) and Kim and Stulz (1992).

Lastly, this study also conducted a test to determine the significance the wealth effects based on the purpose or stated use of the proceeds. Given that the other stated uses were not commonly used, the focus for this analysis is limited to the proceeds directed towards the repayment of debt and the general purpose since they were the most stated reasons for issuing convertible bonds, as selected from the original population excluding Steinhoff.

Table 6: T test: Stock price reaction by the stated use of proceeds

Use of funds	N (Sample size)	Mean	Median	t-test
Repay Debt				
CAR -1 to 0	7	-6,12%	-7,17%	-3,98 **
CAR -1 to 1	7	-7,37%	-9,81%	-2,54 **
CAR -10 to 0	7	-5,67%	-4,07%	-1,26
General Corporate Purposes				
CAR -1 to 0	7	-3,27%	-2,01%	-2,64 **
CAR -1 to 1	7	-5,29%	-3,63%	-3,32 **
CAR -10 to 0	7	-2,10%	-1,70%	-1,01

Notes: This table presents CAR as differentiated between application of funds, split between repaying debt, and general corporate purposes.

* Represents significance at the 10% significance level.
** Represents significance at the 5% significance level.
*** Represents significance at the 1% significance level.

Based on the results in Table, both stated uses have statistically significant negative means for all event windows other than the -10 to 0 days event window for which it is negative, but not statistically significant. The mean for the issues towards the corporate general purpose have a significant negative mean of up to -7.37% while those issued towards the repayment

of debt have a significant negative mean of up to -5.29%. The findings of the negative means is consistent with Abhyankar and Dunning (1999).

5 Conclusion

Overall, the tests conducted show that the announcement of convertible bonds issuance had a negative wealth effect in South Africa. This study examined the wealth effects of issuing convertible bonds in South Africa. Although the results are promising, the study should be repeated in future years when more data becomes available. The study examined the announcements of the convertible bonds that were issued for the period between 2004 and 2017. The review of the announcements showed that the majority of the convertibles were issued in the local currency. In addition, this study discovered that South African companies issued convertible bonds for various purposes. A review of the announcements based on the stated use of proceeds of convertible bonds shows that the majority of companies issued convertibles mainly for the purpose of repaying debt and for corporate general purposes. After identifying the differences in the currency of issue and the stated uses of the proceeds of convertible bonds, the CARs were calculated followed by various tests to determine the wealth effects of convertible bond announcements. At a broad level, the study found that the convertible bond announcements had significant negative price reactions. In addition, further tests were conducted to examine the wealth effects based on whether the issuance was based on local or foreign currency and the results showed significant negative mean CARs irrespective of the currency of issue. An additional test was also conducted to analyse the CAR for issuances made in local currencies and those issued based on foreign currency. Local currency convertible bonds are significantly negative, to a larger extent than what foreign denominated convertible bonds are.

Similarly, further tests were also conducted to examine the wealth effects of the stated uses of the proceeds of convertible bonds. The first test conducted in this regard examined the wealth effects of the use of proceeds to repay debt and for corporate general purpose, that is, the two stated uses which turned to be the most common reasons why companies issued convertible bonds. The results of these two

separate tests showed significant negative CARs irrespective of whether the issue was for repaying debt or the corporate general purpose.

5.2 Limitations of the study

Certain limitations were noted for this study. Firstly, very few companies in South Africa issued convertible bonds between 2004 and 2017. As a result regressions could not be performed on the determinants of convertible bonds. Furthermore, many companies that issued convertible bonds mainly used the proceeds to finance debt or to finance corporate general purpose, thus, separate tests could not be performed based on the other stated uses of the proceeds of convertible bonds. Furthermore, tests on other forms of raising funding could have been tested also. Therefore, the limitations for this study could also be exploited by other researchers in order to broaden the body of knowledge in this area.

5.3 Recommendation for future research

At this stage, due to the small population of convertible bonds issued in South Africa, it is probably best to follow a qualitative approach when researching convertible bonds in South Africa. The study can be extended in the future to measure the CAR over varying periods, as this study only looked at the CAR achieved over the three days around the announcement date. Other prior studies have looked at the CAR achieved over periods ranging up to a year post the announcement.

6. References

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