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Preface

The 2014 SAAA Western Cape Regional Conference was presented in partnership with the Southern African Accounting Association. All papers submitted for the 'refereed category' were subjected to a rigorous process of blind peer review.

Objective of conference:

The SAAA Western Cape Regional Conference aims to contribute towards the achievement of the SAAA vision of promoting excellence in Accountancy Higher Education and Research in Southern Africa. By providing a regional research and information-sharing platform, academics can play an active and leading role in the Accountancy Professions in the regional context.

Review process and comments:

The papers were submitted to two experts within an independent, South African University for blind review. Comments and suggested amendments from the reviewers were communicated to authors and the reviewers decided on the acceptance of the papers for presentation at the conference and inclusion in the conference proceedings. Experts also declined certain papers and these were not presented at the conference.

Pierre Andre Hamel

Regional representative of the Western Cape and convener of the conference: Southern African Accounting Association

Proceedings of the 2014 SAAA Regional Conference

TABLE OF CONTENTS   **Page**

TAX001 by Shaun Parsons

WHAT IS BITCOIN? THE POTENTIAL TAX CONSEQUENCES OF TRANSACTING IN VIRTUAL CURRENCY IN SOUTH AFRICA

ABSTRACT

In recent months, Bitcoin has been in the news repeatedly, and in some respects marks the arrival of virtual currency into the mainstream consciousness.

In May 2013 the United States Government Accountability Office released a report on its understanding of the possible tax consequences arising from Bitcoin- and other related virtual currency transactions. In response to that report, this paper is an initial investigation into the tax consequences of such transactions in the South African context.

The findings of this initial investigation are that each of the acquisition, exchange and disposal of Bitcoins activities represents a separate transaction with clearly identifiable tax consequences. In each there has been an accrual and amount can be determined. The tax consequences depend on whether the amount is capital or revenue in nature.

The conclusion of this paper is that there are no theoretically valid tax-saving advantages to transacting in Bitcoins. Any perceived tax saving is likely linked to the anonymity of Bitcoin transactions and the resultant frustration of tax enforcement. This issue of effective enforcement is of the taxation of virtual currency transactions is worthy of consideration for further research.

Key words: Bitcoin, virtual currency.

INTRODUCTION AND RESEARCH OBJECTIVE

In recent months, Bitcoin has been in the news repeatedly, and in some respects marks the arrival of virtual currency into the mainstream consciousness. In the midst of popular interest in the subject, one of the considerations for users is whether virtual currency offers any opportunities for tax saving.

The taxation of virtual currencies was recently considered by the United States Government Accountability Office in its report on the matter to the US Senate Committee on Finance. Informed by this report, the aim of this study is to establish whether virtual currencies offer any valid tax-saving advantages over legal tender. Specifically, the objective of this paper is to:

- Determine and analyse the nature of virtual currencies in general, and Bitcoin in particular;

- Identify the distinct transactions underlying the use of Bitcoin, from acquisition to disposal;

- Determine the tax consequences of each of these transactions; and

- Consider possible solutions to the challenges of enforceability of taxation in respect to anonymous transactions.

This study will focus on Bitcoin transactions, although passing mention will be made of other virtual currencies.

For the purpose of this paper, consideration will be limited to transactions involving residents. The issue of source will not be considered, but is potentially worthy of further research.

What is virtual currency?

Virtual currency may be defined as "a digital unit of exchange that is not backed by a government-issued legal tender". (United States Government Accountability Office, 2013: 3). Virtual currency is further distinguishable by the fact that it exists in computer code rather than in paper or coins. Virtual currency is therefore a phenomenon of the internet age, which facilitates its transfer.

Virtual currencies may exist within either "closed-flow", "open-flow" or "hybrid" systems tender (United States Government Accountability Office, 2013: 4-5).

- A closed-flow system is one in which the currency may only be used to buy virtual goods and services (such as purchasing entry to the next stage of a computer game). Such currency may be purchasable from outside the system, but cannot be withdrawn from the system.

- In contrast, in an open-flow system, virtual currency can be used to purchase both virtual and physical goods and services, and it may be possible to exchange it for legal tender.

- A hybrid system is one where digital currency can be used only to purchase virtual goods and services, but a secondary market exists (either formally or informally) to facilitate the exchange of virtual currency for legal.

Computer games such as World of Warcraft have hybrid systems (United States Government Accountability Office, 2013: 5), while Second Life represents an open-flow system where the game's Linden Dollars can be exchanged for US Dollars (United States Government Accountability Office, 2013: 5). Lest those outside the gaming community think that this is a trivial topic, in the third quarter of 2010 total transactions denominated in Linden Dollars amounting to USD $150 million (United States Government Accountability Office, 2013: 9), and by the end of 2012 there were USD $30 million worth of Linden Dollars in existence (Grinberg, 2012: 171).

Bitcoin is somewhat different from virtual currencies that derive their existence from computer games. While the primary use of game-related currencies is in the context of that game's virtual world,

Bitcoin's primary purpose is to act as a direct substitute for legal tender, and is both accepted in real-world transactions and exchangeable for cash in the real world.

Bitcoin is quickly gaining both critical mass and public attention. At its inception, a Bitcoin was worth less than one US cent (Grinberg, 2012: 164). Since then, its value has risen to highs of USD $237 per Bitcoin (United States Government Accountability Office, 2013: 8). Currently, a Bitcoin trades at around USD $198, giving a total value in circulation of USD $2.4 billion (Bitcoin Watch, 2013).

Germany has recently recognised Bitcoin as a "unit of account", which, although not exactly the same as designating it a currency, does add to its legitimacy. In contrast, Thailand has declared it illegal to transact with or trade in Bitcoins (Arthur, 2013: 2).

What is (a) Bitcoin?
In 2009, an anonymous programmer operating under the pseudonym Satoshi Nakamoto released the software for Bitcoin. Bitcoin is "a digital, decentralized, partially anonymous currency, not backed by any government or other legal entity, and not redeemable for gold or other commodity" (Grinberg, 2012: 160). Although a virtual currency, it may be traded on third-party exchanges for real money, and may be used to buy real-world goods "such as coffee or web development services" (United States Government Accountability Office, 2013: 5). A number of non-profit organisations, including Wikileaks, accept Bitcoin donations (Grinberg, 2012: 160).

Since its inception, Bitcoin has attracted interest from technophiles, anarchic elements, speculators, and the criminal underworld (Grinberg, 2012: 165). Users are attracted to its anonymity, lack of transaction costs, and the built-in protection against dilution of its value through interventions in the money supply. Opponents point to the degree to which anonymity fuels criminal activity such as money laundering, sales of contraband, and tax evasion. There are also questions over the security of the currency against hackers (Grinberg, 2012: 175).

How are Bitcoins obtained?
Bitcoins already in existence may be acquired when accepted as currency in a transaction, or they may be purchased on a number of Bitcoin exchanges. In order to hold or transact in Bitcoins a user needs a Bitcoin "wallet", an electronic record that is either installed on a computer or accessed online.

Bitcoins come into existence through a process referred to as "mining". At the same time, Bitcoin mining is the process that protects the integrity of Bitcoin transactions. Although Bitcoin transactions are anonymous, there is a public record of every Bitcoin transaction that ties each unique Bitcoin to a user account (Grinberg, 2012: 163). To protect against fraud and guard the unique identity of each Bitcoin, every transaction needs to be sequentially validated to prove that it is valid and unique. This is accomplished through "mining".

Proceedings of the 2014 SAAA Regional Conference

In order to be engage in Bitcoin mining, a participant downloads and installs software on a computer. This software uses the host computer's processing power to "solve complex equations" that validate a block of Bitcoin transactions (United States Government Accountability Office, 2013: 6). Once a computer has solved an equation, that block of transactions is accepted by the Bitcoin network. The network requires the computing power of the participants to perform this action, and the incentive to participants is that the network releases a batch of new Bitcoins to the computer that successfully solves the equation the fastest.

The complexity of the equations to be solved has increased to the point that it would now take a year or more for a single computer to mine 50 Bitcoins, and the increase in the number of miners participating has greatly reduced the probability of receiving the reward. Participants are now combining their processing power so as to improve their chances of success, and sharing the resultant reward (Grinberg, 2012: 167). A Bitcoin-mining computer currently costs in the region of USD $5 000 - $6 000 on eBay (eBay).

The Bitcoin programme is designed to limit the total supply of Bitcoins in the market to 21 million by the year 2140. In order to achieve this, the number of Bitcoins issued in each successful mining operation is halved every four years. A successful miner currently receives 25 Bitcoins (United States Government Accountability Office, 2013: 6), and there are currently around 11.9 million Bitcoins in circulation (Bitcoin Watch, 2013).

Bitcoins may be exchanged between holders via their Bitcoin wallets or via email, and may be traded on a number of third-party Bitcoin exchanges, of which Mt Gox is the largest (Grinberg, 2012: 197).

What is the IRS position on Bitcoin?

The United States Government Accountability Office (GAO) in its report on virtual currencies has indicated that it does not believe that there are tax consequences associated with virtual currencies that exist in closed-flow systems, since these cannot be converted into either legal tender or real-world goods and services (United States Government Accountability Office, 2013: 10-11). However, it also acknowledges that supposedly closed-flow systems may 'leak' into the real world and become hybrid systems, which could lead to tax consequences.

For hybrid and open-flow systems, the GAO identifies the following activities, all of which *may* have tax consequences (the report is not definitive on any of these activities):

- The receipt of virtual currency in payment for the supply of real-world goods and services;
- The receipt of legal tender in payment for the supply of virtual goods and services;

- The conversion into legal tender of virtual currency received in payment for the supply of virtual goods and services via a computer game company's own exchange; and
- The receipt of Bitcoins as the product of successful Bitcoin mining (United States Government Accountability Office, 2013: 10-12).
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WOULD ACTIVITIES INVOLVING BITCOINS BE SUBJECT TO INCOME TAX IN SOUTH AFRICA?

The purpose of this paper is to consider in the South African context the tax consequences of Bitcoin activities, and specifically to determine whether these have the potential to legally avoid, delay or reduce the imposition of tax. Specifically, does taxation only occur at the point that Bitcoins are exchanged for legal tender? Alternatively, is taxation at any point reduced through the application of a lower rate of taxation than had the transaction been denominated in legal tender?

Proper recognition of the tax consequences of virtual currency depend on the correct and complete identification of the transactions involved. Based on the preceding discussion on the nature and use of Bitcoin, there are three distinct transactions involved in the Bitcoin life-cycle, being:

- The acquisition of new Bitcoins through mining
- The receipt of Bitcoins in exchange for goods and services
- The disposal of Bitcoins, either for legal tender or for good and services

Once these activities are properly understood, it is clear that each activity is a separate transaction for tax purposes.

In order to be taxable in the South African context, each activity would need to result in either gross income or a capital gain. Gross income is defined in section 1 of the Income Tax Act No. 58 of 1962 (the Income Tax Act) as "the total amount, in cash or otherwise, received or accrued to or in favour of … during such year or period of assessment, excluding receipts or accruals of a capital nature".

Also potentially relevant is paragraph (c) of the definition of gross income, which includes in gross income "any amount, including any voluntary award, received or accrued in respect of services rendered or to be rendered…" Notably, the paragraph (c) inclusion does not exclude capital receipts.

Taxability of Bitcoin mining
The first activity or transaction is potentially the most complex – that of mining Bitcoins. In *WH Lategan v Commissioner for Inland Revenue* [1926] 2 SATC 16 at 19 the court held that "amount" encompasses "every form of property earned by the taxpayer whether corporeal or incorporeal which had a money value". The value of the Bitcoins that a miner receives in a successful mining operation

can readily be valued on a number of Bitcoin exchanges at the date of receipt, and therefore satisfies the criteria of an "amount".

An amount accrues at the point of unconditional entitlement to an amount (*Mooi v Secretary for Inland Revenue* [1972] 34 SATC 1 at 11). Here it would not be correct to think of the amount as being the right to receive cash, since Bitcoins are not backed by legal tender and do not represent a right to receive anything further. Rather, the issue is when the Bitcoins themselves accrue to the miner, which is the point at which he or she becomes unconditionally entitled to them. This occurs at the conclusion of a successful mining operation, at which point the Bitcoins are awarded to the successful miner.

The question that then remains is whether the amount received in mining is capital or revenue in nature.

In order to engage in this activity, participants need to download and install specialised software, and to be successful it is now likely that they would have to purchase suitably powerful computer hardware as well.

There is therefore a distinct element of seeking and working for Bitcoin income as part of a scheme of profit-making. There is also a lottery element to how Bitcoins are awarded to miners (How does Bitcoin work?), that may bring with it an element of fortune.

In *Commissioner for South African Revenue Services v Wyner* [2003] 4 All SA 541 (CSA) at 14 the court distinguished between income "designedly sought for and worked for" and "fortuitous" income, the former being revenue in nature and the latter capital. Income generated from activities conducted with a "profit-making purpose" is revenue in nature, while income from other activities is generally not (*Commissioner for Inland Revenue v Pick 'n Pay Employee Share Purchase Trust* [1992] 54 SATC 271(A) at 54).

In *Morrison v Commissioner for Inland Revenue* [1950] 16 SATC 377 the court held that a professional gambler's winnings were not capital in nature because they formed a part of his or her business.

On the basis of this distinction, it is likely that the elements of conducting a business required for successful Bitcoin mining would outweigh any considerations of luck, and the resultant income would be revenue in nature.

There may also be grounds for an argument that, since part of the function of the mining operation is to provide processing power to the Bitcoin network, the miner has rendered a service to the network, for which he or she has been compensated. If this is the case, the amount would fall within paragraph (c) of the definition of gross income, and the distinction between capital and revenue would be a moot point.

Taxability of Bitcoin-denominated transactions

The second activity is that of conducting transactions in which Bitcoins are received in exchange for goods and services. As in Bitcoin mining, the receipt of Bitcoins in exchange for goods or services would satisfy the conditions of an amount received by or accrued to the taxpayer.

In this instance it is submitted that the nature of the underlying transaction – whether it was conducted as part of a scheme of profit-making – would determine whether the receipt were capital or revenue in nature, and that it is denominated in Bitcoins would not alter this outcome any more than the physical nature of a receipt in any other non-cash transaction.

If the receipt were in respect of services rendered the amount would be included under paragraph (c) of the definition of gross income irrespective of whether it were capital or revenue in nature.

Taxability of profits on disposal of Bitcoins

The final activity is that of disposing of Bitcoins, either for legal tender or for goods and services. From (2.1) and (2.2) above it should be clear that it cannot be argued that there are no tax consequences to acquiring or transacting in Bitcoins until they are converted into cash. The conversion into cash is a further transaction, the tax consequences of which must be separately determined. Alternatively, Bitcoins may not be exchanged for cash but once again given in payment for goods or services.

If the Bitcoins were received through mining or in settlement of a transaction, an amount would have been established at the point of receipt (or accrual) and the tax consequences of that amount dealt with at that point, so here the focus is on any change in value from the point of acquisition to disposal. Alternatively, if the Bitcoins were purchased on an exchange and subsequently disposed of, it is the nature of this income that must be considered.

In determining whether this income is capital or revenue in nature, the courts would likely seek to identify the intention with which the Bitcoins were acquired and held (*Commissioner for Inland Revenue v Stott* [1928] 3 SATC 253 at 262). Assets acquired or held with a revenue intention are akin to trading stock, and the income on disposal is revenue in nature.

It seems unlikely that Bitcoins acquired in settlement of an underlying transaction would be classified as trading stock at the point of acquisition, although the manner in which the taxpayer holds and disposes of them may indicate a change of intention such that they become trading stock subsequent to acquisition. Unless this is the case, the further income resulting in changes in value between acquisition and disposal would be capital in nature. It would therefore be excluded from gross income, although it would have capital gains tax consequences.

Bitcoins mined or purchased for cash may be trading stock if the intention is to dispose of them at a profit. However, there are other conceivable reasons for acquiring Bitcoins. They may be acquired as a store of wealth, which is especially possible when one considers that Bitcoin is popular among those with distrust for conventional investment and government-controlled legal tender. An analogous transaction may the purchase and disposal of Kruger Rands, which the court has held could be capital in nature when purchased "for keeps" and disposed of for some reason other than to take advantage of the opportunity to sell at a profit (*Commissioner for Inland Revenue v Nel* [1997] 59 SATC 349). However, if the taxpayer consistently purchases at a low price and sells at a higher price, it will be difficult to refute that he or she has a business in dealing in Bitcoins (*Commissioner for Inland Revenue v Nussbaum* [1996]58 SATC 283 at 293), and the resultant income will probably be revenue in nature.

The taxability of Bitcoin transactions

Proper and complete identification of the transactions in the "life-cycle" of Bitcoin ownership reveals that there is no potential tax saving from transacting in Bitcoins instead of legal tender. Each distinct transaction is subject to tax, and the rate at which that transaction is taxed is dependent on whether the receipt is revenue in nature or is received for services rendered, not on the conceptual nature of Bitcoin. Bitcoin mining is likely to consistently be included in gross income, while transacting in and disposing of Bitcoins will depend on the intention of the taxpayer.

However, although the application of the Income Tax Act may be clear, this is only half of the story. Part of the attraction of Bitcoin is its anonymity, which has the potential to facilitate tax evasion. Previously, the volumes of virtual currencies in circulation allowed them largely to be ignored, but the GAO has in its report acknowledged that the growth of virtual currencies may now warrant more attention.

Consideration will now be given to the issue of enforcement of taxation on anonymous Bitcoin transactions.

ENFORCEMENT OF TAXATION

The anonymity of Bitcoin ownership and transactions gives users the power not to declare their full income and, in so doing, to evade tax. Three possible means of improving enforcement will be considered here.

The first possible means to facilitate enforcement is to educate taxpayers. This was the approach recommended by the United States GAO, and was considered an appropriate response to the volume of Bitcoin transactions. It would be possible for the South African Revenue Service (SARS) to provide South African taxpayers with similar guidance.

The problem with this approach is that the information must reach taxpayers, and that it assumes a desire to comply on the part of taxpayers. This seems optimistic given the nature of Bitcoin.

The second approach is to regulate Bitcoin usage. The motivation behind Germany designating Bitcoin a "unit of account" was to regulate the taxation of Bitcoin transactions in that country (Arthur, 2013: 1). It may be possible to do something similar in South Africa. If the volume of transactions justified this, it may be possible to require the issue of a tax certificate similar to the IT3(b), which could also be reconciled to submissions directly to SARS in the manner currently used for IRP5's.

This approach faces both legal and practical obstacles. In law, Bitcoin does not appear to meet the definition of "financial instrument", since it does not embody any contractual right or obligation. There does not seem to be any other category into which Bitcoin might fall that offers any enforcement advantages. An existing category would therefore have to be expanded or a new category created. Practically, the issue of a tax certificate does not offer aid enforcement unless there is an effective means of enforcing reporting to SARS – something that is still not in place for IT3(b)'s.

The third approach is to allow Bitcoin's own desire for legitimacy to bring about compliance, and to create the necessary pressures to achieve this. While Bitcoin remains a minority alternative it can continue to write its own rules, but if it wishes to participate in the mainstream economy it may be forced to make concessions.

Facebook and Twitter are two analogous organisations that chose to curtail previous freedoms in order to gain legitimacy, and specifically to pursue listings on stock exchanges. While censorship in such mediums may be taboo, both companies have recently censored offensive content in response to public pressure (Kelion, 2013) and (Brady, 2013: 1-3).

Bitcoin has already faced considerable negative publicity for its role as the preferred currency of website "The Silk Road", where users could anonymously purchase any number of illegal items, including drugs and weapons. The Silk Road was closed down in a sting operation by the FBI on 25 October 2013. This operation was itself facilitated by the use of Bitcoins (Mendoza, 2013: 2).

If Bitcoin is to claim a future in the mainstream economy as something more than the currency of criminals and tax evaders, and particularly if those behind the virtual currency or the related third-party exchanges are looking towards exit strategies, the anonymity of users may in some part have to be sacrificed. This may prove to the most effective driver in facilitating tax enforcement in the long term.

CONCLUSION AND AREAS FOR FURTHER RESEARCH

The emergence of Bitcoin and other virtual currencies into the mainstream consciousness poses some interesting questions to the tax community. The issue is now significant enough for the United States

Government Accountability Office to have taken note. To date, no formal position by the South African Revenue Service has been made public.

When properly understood, at least three separate types of transactions involving Bitcoin exist. In each, there is a date of receipt or accrual at which an amount can be determined. The defining factor in determining whether that amount will be included in gross income or subject to capital gains tax is whether the underlying transaction is capital or revenue in nature.

This means that, although the peculiarities of Bitcoin bring with it some challenges, the use of Bitcoin does not represent an opportunity for the legal avoidance, delay or reduction of taxation.

The purpose of this paper has been to understand the nature of Bitcoin and to consider the taxability of Bitcoin transactions. However, in doing so it becomes clear that the main challenge to taxation of Bitcoin transactions going forward is that of enforceability. Some initial thoughts on this topic have been included in this study. If the use of Bitcoin in South Africa increases, the issue of enforceability will become increasingly attractive as an area for further research. Other possible areas for further research are issues of source with respect to Bitcoin transactions and the application of Exchange Control regulations to Bitcoin.

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TAX003 by Lee-Ann Steenkamp

CAN SOUTH AFRICA'S TAX TREATIES UNLOCK THE GATEWAY TO AFRICA FOR FOREIGN INVESTORS? AN EXAMINATION OF OUR DIVIDENDS WITHHOLDING TAX REGIME.

ABSTRACT

South Africa is generally considered to be the gateway to Africa. The main objective of this paper is to analyse whether South Africa's double tax agreements (DTAs) can act as a stimulus for attracting overseas investors. The paper examines South Africa's dividends withholding tax (DWT) regime to determine whether our DTAs can unlock this so-called gateway. Both a literature review and an empirical study were performed. A brief examination of the OECD and UN model conventions is first conducted. Thereafter, the paper considers South Africa's DWT regime. This is done by addressing the dividends tax provisions in the Income Tax Act and thereafter by scrutinising each of South Africa's 73 DTAs in force to identify the relevant withholding tax rates. These results are then summarised in table format and illustrated by means of graphs. It appears that South Africa's DTAs mostly follow the rates prescribed by the OECD model. It is submitted that South Africa seems to have a deliberate tax treaty policy aimed at ceding taxing rights to other countries.

1. INTRODUCTION

'South Africa is the gateway to Africa' – this is a phrase often bandied about in the financial press. Given South Africa's location, its strength in financial services and its banking infrastructure, it is conceivable that many companies may have a strategy of investing in Africa, which could include an investment in South Africa. But does the abovementioned axiom still hold true?

Proceedings of the 2014 SAAA Regional Conference

South Africa's induction into the BRICS club was celebrated with fanfare, but it is debatable whether the country's inclusion was justifiable.[1] In terms of economic ranking or population size, countries such as Indonesia, Turkey, Mexico or South Korea might have been more likely additions, as each significantly outranks South Africa in both dimensions (Boulle & Chella 2014:103). One might also question whether the idea of a single gateway into Africa is dated, as countries like Egypt, Kenya, Mauritius and Nigeria (amongst others) present overseas investors with attractive opportunities to enter Africa. As the *Economist* (2012) comments -

> '[i]t did indeed once serve as a landing slot for investors wary of venturing into shakier African countries to the north. But in the past couple of decades the continent as a whole has become a lot more peaceful, democratic and stable. As a result, investment has been pouring in—and often bypassing South Africa. Some African countries, with economies growing twice as fast, are challenging its claim to be the region's obvious first stop for investors.'

South Africa's membership of the Southern African Development Community (SADC) is also perhaps worth mentioning.[2] The main objectives of the SADC treaty are to achieve development and economic growth and alleviate poverty, through increased regional integration (SADC 1993). Most SADC countries have withholding taxes for dividend, interest

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[1] The concept of BRIC (Brazil, Russia, India and China) was first conceived in 2001 by Goldman Sachs as part of an economic modelling exercise to forecast global economic trends over the next half century. South Africa was invited to attend the third BRIC summit in Sanya, China, on 14 April 2011. See http://www.brics5.co.za/about-brics/.

[2] The SADC was established in 1992 and comprises Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. See http://www.sadc.int/about-sadc/overview/history-and-treaty/.

and royalty payments and sector-specific incentives are offered to attract foreign direct investment into their economies (Yinusa 2013:16).[3]

Nevertheless, the South African government should be wary of assuming that foreign investors will choose South Africa as an entry point for all African investments. As Chimhanzi (2012:2) cautions, South African businesses are at risk of becoming complacent about proactively and aggressively seizing opportunities for foreign investment.[4] That being said, the South African National Treasury announced in the 2010 Budget review (National Treasury 2010:78), and reiterated in the 2011 Budget Review (National Treasury 2011:73), that it intended to promote South Africa as a gateway to investment into Africa. Indeed, South Africa's corporate and business framework, as well as exchange-control and corporate-tax laws, were subsequently examined and, in some instances, amended. [5]

Even so, if government is indeed serious about enhancing South Africa's role as a potential gateway into Africa, a good place to start would be an appraisal of the withholding tax rates in our double tax agreements (DTA). Accordingly, it is the purpose of this paper to examine South Africa's dividends withholding tax regime.

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[3] One of the methods which a country could use to access investment into a region is by the centralisation of finances by investors, and through coordination and administration of their investments in that country. This could be achieved by setting up a headquarter company (Legwaila 2013:1). However, due to the complexity of the income tax provisions governing headquarter companies, this regime is considered beyond the scope of this paper.

[4] Chimhanzi also admonishes that, while the African continent does offer opportunities, there is a growing level of competition among the various countries to attract foreign investors.

[5] An example is the introduction of the headquarter company regime. During 2010, tax rules were amended to enable regional investments to flow through South Africa without being taxed. National Treasury identified specific barriers that deterred foreign multinational companies from establishing headquarter companies in South Africa. These barriers have been addressed by the insertion of s 9I to the Income Tax Act and relief provisions that apply specifically to headquarter companies.

2. RESEARCH OBJECTIVE, METHOD AND SCOPE

2.1 Research objective

In light of the provisions of the model tax conventions developed by the Organisation for Economic Cooperation and Development (OECD) and the United Nations (UN), it is the objective of this paper to compare and contrast the tax treaty policy in respect of the withholding tax rates for dividends in South Africa's DTAs with (a) African countries and (b) countries in the rest of the world.

An analysis of tax treaty design is a telling indicator of a country's public policy; as such, this paper seeks to contribute to a better understanding of a developing country's (i.e. South Africa) policies regarding the attraction of foreign investors without sacrificing vital tax revenue. This comparative exercise will assist in determining:

- The extent to which the treaty expands (or not) the scope for the source taxation of passive investment income; and
- The policy it reflects on withholding tax rates on dividends.

2.2 Research method and scope

Proceedings of the 2014 SAAA Regional Conference

Both a literature review and an empirical study were performed. The research is a descriptive study of, and reference to, statutory law, tax treaties, published articles and textbooks.[6] The paper is structured as follows:

(i) The paper commences with a brief examination of the OECD and UN models, highlights certain interpretational aspects and concisely analyses South Africa's tax treaty network.

(ii) The paper subsequently considers South Africa's dividend withholding tax regime. This is first done by addressing the dividends tax provisions in the Income Tax Act No. 58 of 1962, as amended (the Act). Thereafter, the dividend articles in each of the DTAs currently in force are scrutinised so as to identify the relevant withholding tax rates. These results are then summarised in table format and illustrated by means of graphs.

(iii) Finally, the paper draws inferences from the above results and concludes with some recommendations.

It is considered well beyond the scope of this paper to address the concepts of residence, permanent establishment and beneficial ownership.[7]

3. THE OECD AND UN MODELS AND SOUTH AFRICA'S DTAs

3.1 Background to the OECD and UN Model Conventions

In 1963 the OECD Model Tax Convention on Income and Capital (OECD model) was prepared by developed countries of the world in order to embody the rules and proposals of capital exporting countries (Oguttu 2007:242).The developing countries responded to the success of the OECD model by developing their own model convention under the auspices of

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[6] This paper builds on prior research and aims to offer arguments as to how a government could reconsider its tax treaty policy. See, among others, Brooks (2009), Mazansky (2009), West (2009), Elliffe (2011), Steenkamp (2013) and Steenkamp (2014).

[7] For leading South African textbooks which incorporate these international tax matters, see, for example, Clegg & Stretch (2013), De Koker & Williams (2013), De Koker & Brincker (2010) and Olivier & Honiball (2011).

the UN in 1980.[8] According to Oguttu (2007:242), this model was drafted between developed and developing countries and attempts to reflect the interests of developing countries. Although it is based upon the OECD model, the UN Model Double Taxation Convention between Developed and Developing Countries (UN model) retains much greater source country taxation (Brooks 2009:2). The acceptance of the OECD model over other available standards, such as the UN model for example, could possibly be explained by the fact that the OECD model is sponsored by the most developed countries of the world that are, not coincidentally, also the major capital exporting countries (Steenkamp 2013:1109).

3.2 Interpretational rules

The interaction between the provisions of a DTA and the provisions of the Act has been the subject of much scholarly debate. A concomitant problem relates to the use of interpretational aids, such as the OECD Commentary, foreign case law, the Vienna Convention and commentaries of jurists and academics. However, it is not the purpose of this paper to delve into this plethora of interpretational rules, nor to contribute to the aforementioned debate. Suffice it to say that the main point of contention seems to be how a DTA and the Act should be interpreted to make ordinary sense in relation to each other. In this context, Brincker (2010:par12.7.1) identifies the following possible approaches:

- The DTA will always override the provisions of the Act;
- The provisions of a DTA should, as far as possible, be reconciled with the provisions of domestic law; or
- To the extent that domestic law is specifically worded, it should take preference.

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[8] As the OECD model was drafted by representatives of major western industrialised countries, lower-income, developing countries were concerned that it resulted in too large a reduction in source country tax (Brooks 2009:2).

The Constitution deals with international agreements in s 231, with international customary law in s 232 and with the application of international law in s 233.[9] Olivier and Honiball (2011:303) state that, as a treaty is classified as an international agreement, it has to be applied in accordance with s 231 of the Constitution. Section 232 of the Constitution provides that international customary law is law in the Republic unless it is inconsistent with the Constitution or an Act of Parliament. Basically, a tax treaty is a type of international agreement which becomes part of the Act through the provisions of s 108, read with s 231 of the Constitution. When the national executive of South Africa enters into a DTA with the government of any other country, and the agreement is ratified and published in the *Government Gazette*, its provisions are effective to the same extent as if they had been incorporated into the Act.

The following question therefore arises: should DTAs be interpreted according to domestic law interpretation principles applicable to tax statutes, or should they be interpreted according to the internationally accepted interpretation principles which are used for international agreements in general?

Brincker (2010:par12.7.7) suggests the following approach:

(i) The provisions of the DTA and the Act should first be interpreted in such a way so as to be consistent with each other and in terms of s 233 of the Constitution.

(ii) If the wording of a DTA conflicts directly with that of the Act, it appears that the provisions of the Act will prevail.

3.3 South Africa's treaty network

As regards South Africa's tax treaty network, the latest information on the South African Revenue Service (SARS) website indicates that South Africa has a total of 73 tax treaties in force (some of which have been amended by protocols). Of this total, 21 are with African

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[9] In terms of s 231(5) of the Constitution, treaties entered into by South Africa before the 1996 Constitution are considered as binding on the country.

countries (refer to Table 1 in Appendix A) and 52 with the rest of the world (refer to Table 2 in Appendix A).

Most countries impose significant withholding taxes on interest, dividends and royalties paid to non-residents (Oguttu 2007:241). The payment of high withholding taxes is typically relieved when a DTA has been signed between two countries. Consequently, the investors in the treaty countries can benefit from the reduced rates of withholding tax (Oguttu 2007:241).

Over the past few years, a number of existing DTAs have been renegotiated and/or amended by protocols. This is due, in part, to the fact that South Africa has introduced a withholding tax on dividends (see par 4.2 below). Existing treaties which allow a zero withholding tax (as opposed to the 15 percent levied in terms of the Act) result in leakage to the South African *fiscus*. Accordingly, a minimum withholding tax of five percent on dividends had to be incorporated in the DTAs. South Africa's withholding tax regime pertaining to dividends is discussed below.

4. SOUTH AFRICA'S WITHHOLDING TAX REGIME

4.1 Background

Despite the fact that a state may have the right to impose tax, it may not be in a position to collect taxes due to it. To obviate this problem, a state can impose a withholding tax on payments to non-residents. However, there are two sides to this coin: although a withholding tax is an ideal tax from the point of view of the tax collector, from the point of view of the investor, it has an inherent drawback in that it is always imposed on the gross amount (Olivier & Honiball 2011:356).[10]

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[10] The drawback for the investor is that no deductions may be claimed in the source state. It may, however, be possible for the non-resident to register for tax in the state in which the taxes were withheld and claim

It should be borne in mind that a withholding tax is merely a collection method. In other words, before it can be imposed it should first be established whether the particular contracting state has the right to impose tax in terms of that treaty. Furthermore, although a treaty stipulates the maximum rate of tax that may be imposed, it does not prescribe the rate, nor the collection method. Although this paper will not address this problem, it should be noted that varying withholding tax rates create the opportunity for what is known as 'treaty shopping'.[11] Moreover, if a treaty rate is higher than the domestic rate, the latter is applicable (Olivier & Honiball 2011:360).

It should be pointed out that not all amounts paid to non-residents are subject to withholding tax. Currently, the Act provides for the following six withholding taxes (albeit not all of them in effect as yet), to be levied on:

- Dividends – ss 64D to 64N;

- Royalties – ss 49A to 49G;

- Interest – ss 50A to 50H;

- Foreign entertainers and sportspersons – ss 47A to 47K;

- Disposal of immovable property – s 35A; and

- Service fees – ss 51A to 51H.

The provisions pertaining to withholding taxes on dividends will be discussed in the following paragraph.

4.2 South Africa's Income Tax legislation pertaining to dividends tax

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expenditure incurred in producing the income on which the tax was withheld under assessment (Olivier & Honiball 2011:356).

[11] Olivier and Honiball (2011:357) explain that treaty shopping occurs when the recipient of the amount which is subject to withholding tax, interposes an entity which is a resident of one of the contracting states solely for the purpose of making use of the lower withholding tax rate provided for under a specific tax treaty.

The new dividends tax provisions are contained in ss 64D to 64N of the Act and the tax is generally levied at 15 percent on dividends paid. Dividends tax replaced the secondary tax on companies (STC), which was levied at a flat rate of 10 percent. The dividends tax is a withholding tax, as the tax is borne by the shareholder (as opposed to the company, as was the case under the STC regime). In terms of the definition of 'dividend' in s 64D, read with s 1, the dividends withholding tax ('DWT') applies only to dividends from South African companies and dividends from foreign companies which are listed on a South African stock exchange.

Although the duty to withhold dividends tax is imposed at a corporate level, the liability for the DWT rests upon the beneficial owner.[12] If a person (whether the beneficial owner, the company declaring the dividend or the regulated intermediary) is required to withhold any dividends tax, s 64K(1)(*c*) states that that person must pay that amount (less any amount refundable) to the Commissioner by the last day of the month following the month during which the dividend is paid by that person. If the company distributes an asset *in specie*, the amount of the dividend is deemed to be the market value of the asset on the date the dividend is deemed to be paid.[13]

Section 64F provides for a number of persons who are exempt from the dividends tax (for example South Africa tax resident companies, public benefit organisations and micro businesses) and applies to dividends paid in cash and dividends credited to the shareholder's loan account, whereas s 64FA grants exemptions for *in specie* dividends. Section 64G

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[12] Per the definition in s 64D, a 'beneficial owner' means the person entitled to the benefit of the dividend attaching to a share. Haupt (2013:412) remarks that the beneficial owner need not be the registered owner of the share. The registered owner could, for example, be an agent or nominee holding the share on behalf of the written undertaking given by the beneficial owner. Moreover, the dividend definition in s 1 clarifies that, from 1 April 2012, the dividend does not have to be paid to a shareholder - it merely has to be paid 'in respect of' a share in the company.

[13] See s 64E(3)(*b*) in this regard.

provides for the withholding tax mechanism. Notwithstanding that the obligation to withhold dividends tax falls on the company *declaring* the dividend (in terms of s 64G(1)), the company *paying* the dividend is exempted from the DWT in certain circumstances. These instances are as follows:

- Section 64G(2)(*a*): if the person to whom the dividend payment is made has furnished the distributing company with a declaration, which must be accompanied by a written undertaking (both in the prescribed form), from the beneficial owner that the dividend is exempt from the DWT or is subject to a lower rate in terms of the applicable DTA (in terms of s 64G(3)).

- Section 64G(2)(*b*): if the beneficial owner forms part of the same group of companies as the company paying the dividend. Note that the term 'group of companies' is defined in s 1, read with s 41.

- Section 64G(2)(*c*): if the payment is made to a regulated intermediary (as defined in s 64D). The regulated intermediary is, itself, exempt from withholding tax in a number of situations – refer to s 64H(2) in this regard.

4.3 The dividend articles in DTAs

In terms of a DTA, jurisdiction to tax dividend income is shared between the source and residence states. In terms of Art 10(1) of the OECD Model, dividends paid by a company which is a resident of the source state (e.g. South Africa) to a resident of the residence state (e.g. Canada), may be taxed in the residence state (i.e. Canada). The source state is permitted to tax the income using a withholding tax applied to the gross payment, limited to a particular rate. The residence state is permitted to tax the residual. Therefore, if the source country allows a higher DWT in its DTA, it has effectively retained its taxing rights. Conversely, if a lower DWT is provided for in its DTA, the source country has in effect ceded its taxing rights to the residence country.

Both the OECD and UN models provide for split rates of withholding tax for dividend payments. If the taxpayer has a significant investment in the corporation paying the dividend, the withholding rate is typically lower than if the taxpayer is only holding a so-called portfolio investment. It is therefore necessary to distinguish between a significant investment (hereafter referred to as 'qualifying companies'), to which the lower rate will apply, and a portfolio investment (hereafter referred to as 'other companies and individuals').

In making this distinction, the OECD model has a significantly higher ownership threshold (25 percent) than the UN model (10 percent). The UN model commentary to Art 10(1) indicates that the 10 percent threshold is merely illustrative (UN 2012:177). The former Group of Experts[14] lowered the 25 percent to 10 percent as non-residents in certain developing countries are limited to a 50 percent share ownership and 10 percent is a significant portion of such permitted ownership.

In terms of the withholding tax rates for significant investments, the OECD model prescribes a withholding tax of 5 percent. For portfolio investments, the maximum withholding tax is set at 15 percent. Paragraph 2 of the model reserves the right to tax to the state of source of the dividends; i.e. to the state of which the company paying the dividends is a resident. This right to tax is, however, limited considerably.[15]

The UN model does not prescribe any withholding tax rates. Per the UN model commentary to Art 10(1), the former Group of Experts was unable to reach a consensus on the maximum

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[14] An ad hoc *Group of Experts on Tax Treaties between Developed and Developing Countries* was established in 1968 by direction of the UN Economic and Social Council. This group was made up of tax officials and other tax experts from 20 developed and developing countries, who were to consider ways and means for facilitating the DTAs between developed and developing countries (Holmes 2007:59).

[15] The OECD model commentary to Art 10 notes that the 15 percent appears to be a reasonable maximum figure. A higher rate could hardly be justified since the state of source can already tax the company's profits (OECD 2010:187).

tax rates to be permitted in the source country (UN 2012:178). It was noted that members from the developing countries, who essentially preferred the principle of the taxation of dividends exclusively in the source country, considered that the rates prescribed by the OECD model would entail too large a loss of revenue for the source country. The UN model therefore leaves these percentages to be established through bilateral negotiations.

4.4 Analysis of the comparative study

The DWT rates in South Africa's DTAs are portrayed in Appendix B as follows: Table 3 represents African countries and Table 4 represents countries in the rest of the world. The tables differentiate between the DWT rates for qualifying companies and those for non-qualifying investors (this distinction was addressed in the discussion of the ownership thresholds in par 4.3 above).[16]

Below are the results of the comparative study.[17] Table 5 and Figure 1 below relate to

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[16] For example, in the DTA with Algeria, Art 10(2) states the following:

'However, such dividends may also be taxed in the Contracting State of which the company paying the dividends is a resident and according to the laws of that State, but if the beneficial owner of the dividends is a resident of the other Contracting State, the tax so charged shall not exceed:

(a) 10 per cent of the gross amount of the dividends if the beneficial owner is a company which holds at least 25 per cent of the capital of the company paying the dividends; or

(b) 15 per cent of the gross amount of the dividends in all other cases.'

[17] The author acknowledges the constructive comment made by one of the anonymous reviewers, namely that it would be useful to see a comparative table for other so-called 'gateway' countries to see how they approach DWT rates in their treaties. This comparison is an area for future research already identified by the author. The next part of this ongoing research project would be to further differentiate between high, middle and low income countries as well as to distinguish between developed and developing economies. The UN Statistics division and the classifications by the World Bank would be applied. The final part of the project would be to compare the withholding tax rates applicable to the other types of passive income, namely royalties and interest.

qualifying companies and Table 6 and Figure 2 pertain to other companies and individuals. Note that the graphs illustrate the various withholding tax rates for DTAs with Africa (in red, expressed as a percentage of the 21 DTAs in force), DTAs with the rest of the world (in purple, expressed as a percentage of the 52 DTAs in force), as well as the total of all treaties in force.

Table 5: Comparison of DWT rates in South Africa's tax treaties for qualifying companies			
Rate	Treaties with African countries (n = 21)	Treaties with countries from the rest of the world (n = 52)	All treaties (n = 73)
5%	5	37	42
10%	8	9	17
15%	2	1	3
Notes A or B[18]	4	3	7
Other[19]	2	2	4
Total	**21**	**52**	**73**

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[18] Note A: There are no applicable relief provisions.

Note B: The source state may not impose a withholding tax. The amount shall only be taxable in the state in which the recipient is a resident, subject to certain requirements (*inter alia* beneficial ownership).

[19] The treaty with Mozambique indicates a DWT rate of eight percent and with Nigeria, 7.5 percent. The treaty with Germany indicates 7.5 percent and with Israel, 25 percent.

Figure 1
DWT rates applicable to qualifying companies
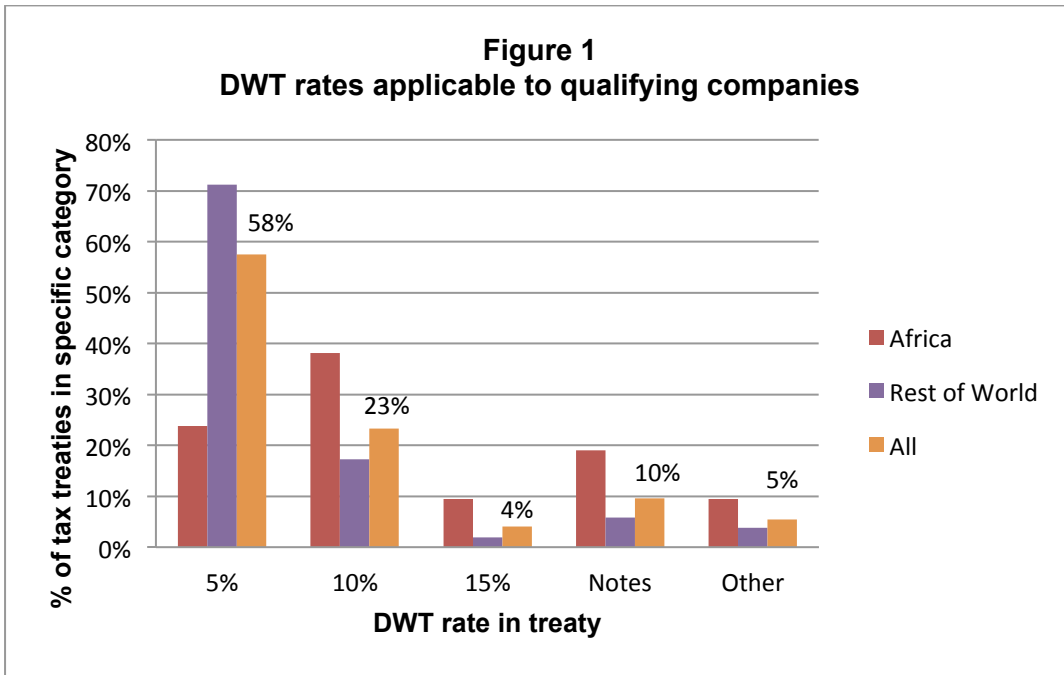
For significant investments (i.e. qualifying companies), it will be recalled that the OECD model prescribes a DWT of five percent. It is clear from Figure 1 above that the majority of DTAs with non-African countries, and consequently 58 percent of all treaties, follow this approach. Interestingly, the bulk of DTAs with African countries allow for a 10 percent DWT. This could ostensibly be an indicator that South Africa wishes to attract more foreign investments from overseas countries, by relaxing the DWT rate for non-African countries.

Table 6: Comparison of DWT rates in South Africa's tax treaties for non-qualifying investors			
Rate	Treaties with African countries (n = 21)	Treaties with countries from the rest of the world (n = 52)	All treaties (n = 73)
10%	4	11	15
15%	11	36	47
20%	2	0	2
Notes A or B	4	3	7
Other[20]	0	2	2

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[20] The treaty with China indicates a five percent DWT rate and the treaty with Israel, 25 percent.

Total	21	52	73

Figure 2
DWT rates applicable to non-qualifying investors
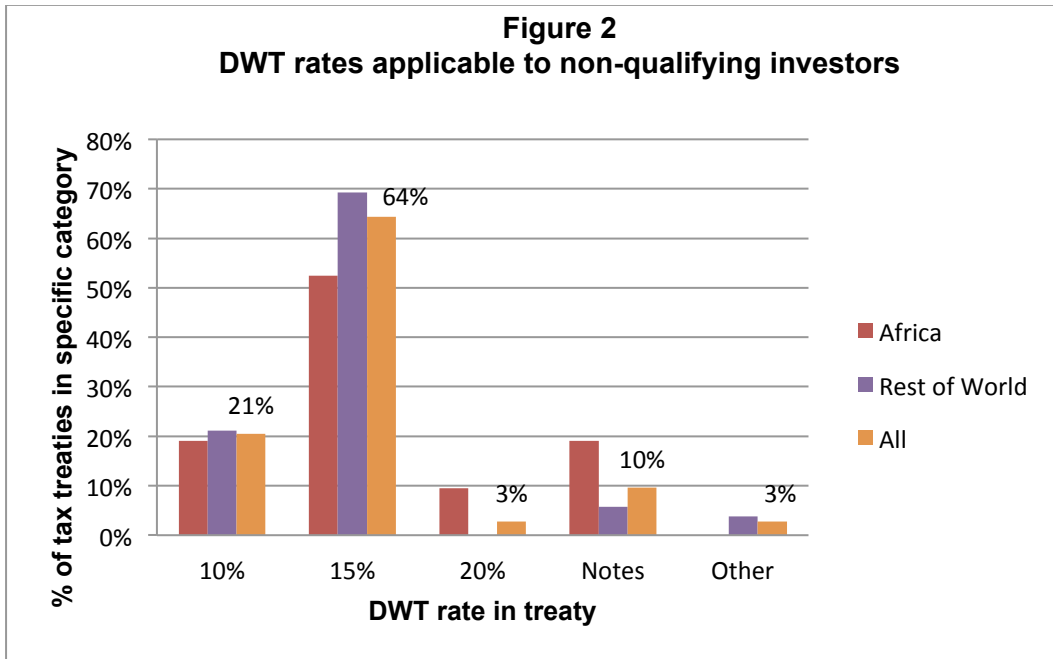
For portfolio investments (i.e. non-qualifying investments), it should be recalled that the OECD model prescribes a DWT of 15 percent. It is evident from Figure 2, above, that the majority of DTAs with both African and non-African countries, and consequently 64 percent of all treaties, follow this approach. A significant percentage of DTAs (i.e. 21 percent) allow for a 10 percent DWT.

4.5 General observations from the study

An analysis of its treaties demonstrates that when South Africa concludes DTAs with developed, capital-exporting countries from which it hopes to attract investment, it appears to cede its taxing rights to those countries through a low DWT rate. Yet, when it negotiates DTAs with developing countries (particularly in Africa), it seems that South Africa cedes its taxing rights to those countries through a higher DWT. The latter phenomenon could perhaps be explained by South Africa wishing to aid other African countries; indeed, they could arguably be countries in which South African businesses are more likely to invest than the other way around (Mazansky 2009:145).

Mazansky (2009:147) remarks that South Africa's withholding tax rates are generally less favourable than countries with similar economies (such as Mauritius and the Seychelles). He postulates that this could be ascribed to South Africa's treaty negotiators implementing a policy of aiding other African countries by allowing them to retain taxing rights at the expense of South Africa. The argument could be advanced that, notwithstanding the fact that developing countries advanced the UN model so as to retain greater source taxation (UN 2012:vii), South Africa appears to have a deliberate tax treaty policy aimed at ceding taxing rights to other countries (Steenkamp 2014:550).[21]

5. CONCLUSION

By creating a favourable DWT regime, a country may trade off a small amount of potential immediate tax revenues in exchange for the attraction of significant foreign investment. This could eventually translate into more economic growth, jobs, infrastructure, regional integration and, in the long run, a larger tax base.[22] Mazansky (2009:149) proposes that the optimal solution would be for South Africa's treaty negotiators to adhere to the OECD model as a basis for negotiating treaties with other developing countries.

Oguttu (2014:57) cautions that, since the domestic withholding tax rates are generally uniformed at 15 percent, it is of the utmost importance that our treaty negotiators bargain for better rates for South Africa.[23] In this case, we might be in a position to 'enhance our

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[21] The author recognises that this policy is in all likelihood aimed at encouraging foreign investment, especially by capital-exporting developed countries.

[22] Mauritius is a classic example, as the island offers a corporate tax rate of 3%, no capital gains tax and no DWT; unsurprisingly, it has long been favoured by international investors as a gateway for investment into Africa (Holmes 2013).

[23] Yet, at the same time, the author acknowledges that high withholding taxes can be a deterrent to foreign investment, as investors prefer to base investments in jurisdictions with low withholding tax rates.

attractiveness as a viable and effective location from which businesses can extend their African operations' (National Treasury 2010:78).

Although South Africa may have ideal economic and infrastructural advantages for the establishment of foreign investments, it is common knowledge that investors do not consider such economic advantages in isolation – they also consider foreign taxes as part of their investment appraisals (Oguttu 2011:64). Part of this consideration is the available treaty network, especially within Africa if South Africa is to position itself as the gateway into Africa. The country's challenge would be to make its existing treaty network (already the widest in Africa)[24] work to its best advantage.

The results from this study seem to indicate that South Africa's DTAs mostly follow the rates prescribed by the OECD model. It was also submitted that South Africa appears to have a deliberate tax treaty policy aimed at ceding taxing rights to other countries. Consequently, this paper concurs that there is 'a fine line between being the gateway or opening the floodgates for revenue to flow out' (Lermer & Pinnock 2013:36).

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APPENDIX A – South Africa's double tax agreements

No.	Country	Government Gazette number	Publication date	Date of entry into force
	Table 1: South Africa's double tax agreements with African countries[25] **(in force as at 13 March 2014)**			
1	Algeria	GG 21303	21 June 2000	12 June 2000
2	Botswana[26]	GG 26342	12 May 2004	20 April 2004
3	Democratic Republic of Congo	GG 35805	24 October 2012	18 July 2012
4	Egypt	GG 19706	22 January 1999	16 December 1998
5	Ethiopia	GG 28494	10 February 2006	4 January 2006
6	Ghana	GG 29856	18 May 2007	23 April 2007
7	Lesotho[27]	GG 17948	22 April 1997	9 January 1997
8	Malawi[28]	GG 1479	13 August 1971	2 September 1971
9	Mauritius[29]	GG 18111	2 July 1997	20 June 1997
10	Mozambique[30]	GG 31983	13 March 2009	19 February 2009
11	Namibia[31]	GG 19780	19 February 1999	11 April 1999
12	Nigeria	GG 31241	22 July 2008	5 July 2008
13	Rwanda	GG 33475	27 August 2010	3 August 2010

[25] Available at: http://www.sars.gov.za/Legal/International-Treaties-Agreements/DTA-Protocols/Pages/DTAs-and-Protocols-(Africa).aspx.

[26] A protocol with Botswana was signed on 21 May 2013 in Pretoria. The protocol has been ratified in South Africa, but not in Botswana.

[27] The treaty with Lesotho is in the process of renegotiation or has been finalised, but not yet signed.

[28] The treaty with Malawi is in the process of renegotiation or has been finalised, but not yet signed.

[29] The treaty with Mauritius was renegotiated and signed on 17 May 2013 in Maputo. The treaty has been ratified in South Africa, but not in Mauritius.

[30] A protocol with Mozambique is in the process of negotiation or has been finalised, but not yet signed.

[31] The treaty with Namibia is in the process of renegotiation or has been finalised, but not yet signed.

14	Seychelles	GG 25646	30 October 2003	29 July 2002
	Seychelles Protocol	GG 35396	6 June 2006	15 May 2012
15	Sierra Leone	Proclamations 299 of 1946, 271 of 1954 and 32 of 1961	-	5 October 1960
16	Swaziland[32]	GG 27637	1 June 2005	8 February 2005
17	Tanzania	GG 30039	4 July 2007	15 June 2007
18	Tunisia	GG 20728	15 December 1999	10 December 1999
19	Uganda	GG 22313	24 May 2001	9 April 2001
20	Zambia[33]	See Proclamations 174 of 1956 and 60 of 1960	-	31 August 1956
21	Zimbabwe[34]	GG 1234	24 September 1956	3 September 1956

New treaties with four other African countries are in the process of negotiation and ratification. These countries are Cameroon,[35] Gabon,[36] Kenya[37] and Sudan.[38]

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[32] A protocol with Swaziland is in the process of negotiation or has been finalised, but not yet signed.

[33] The treaty with Zambia is in the process of renegotiation or has been finalised, but not yet signed.

[34] The treaty with Zimbabwe is in the process of renegotiation or has been finalised, but not yet signed.

[35] The treaty with Cameroon is in the process of negotiation or has been finalised, but not yet signed.

[36] The treaty with Gabon was negotiated and signed on 22 March 2005 in Pretoria. The treaty has been ratified in South Africa, but not in Gabon.

[37] The treaty with Kenya was negotiated and signed on 26 November 2010 in Nairobi. The treaty has been ratified in South Africa, but not in Kenya.

[38] The treaty with Sudan was negotiated and signed on 7 November 2007 in Cape Town. The treaty has been ratified in South Africa, but not in Sudan.

			Table 2: South Africa's double tax agreements with the rest of the world[39] (in force as at 13 March 2014)		
No.	Country	Government Gazette number	Publication date	Date of entry into force
1	Australia	GG 20761	24 December 1999	21 December 1999
	Australia Protocol	GG 31721	23 December 2008	12 November 2008
2	Austria	GG 17965	30 April 1997	6 February 1997
	Austria Protocol[40]	GG 35049	28 February 2012	1 March 2012
3	Belarus	GG 25914	15 January 2004	29 December 2003
4	Belgium[41]	GG 19437	2 November 1998	9 October 1998
5	Brazil[42]	GG 29073	28 July 2006	24 July 2006
6	Bulgaria	GG 27517	22 April 2005	27 October 2004
7	Canada	GG 17985	7 May 1997	30 April 1997
8	China (People's Republic)	GG 22041	2 February 2001	7 January 2001
9	Croatia	GG 18460	21 November 1997	7 November 1997
10	Cyprus[43]	GG 19638	22 December 1998	8 December 1998
11	Czech Republic	GG 18603	7 January 1998	3 December 1997
12	Denmark	GG 16891	22 December 1995	21 December 1995
13	Finland	GG 16862	1 December 1995	12 December 1995
14	France	GG 16681	27 September 1995	1 November 1995
15	Germany[44]	GG 3898	25 May 1973	28 February 1975

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[39]Available at: http://www.sars.gov.za/Legal/International-Treaties-Agreements/DTA-Protocols/Pages/DTAs-and-Protocols-(Rest-of-the-World).aspx.

[40] Protocol with Austria is in the process of renegotiation or has been finalised, but not yet signed.

[41] Protocol with Belgium is in the process of negotiation or has been finalised, but not yet signed.

[42] Protocol with Brazil is in the process of negotiation or has been finalised, but not yet signed.

[43] Protocol with Cyprus is in the process of negotiation or has been finalised, but not yet signed.

16	Greece	GG 24996	3 March 2003	14 February 2003
17	Grenada	Proclamations 229 of 1946, 271 of 1954 and 32 of 1961	-	5 October 1960
18	Hungary	GG 17438	13 September 1996	5 May 1996
19	India[45]	GG 18545	12 December 1997	28 November 1997
20	Indonesia[46]	GG 19766	16 February 1999	23 November 1998
21	Iran	GG 19637	22 December 1998	23 November 1998
22	Ireland	GG 18552	15 December 1997	5 December 1997
	Ireland Protocol	GG 35134	22 March 2012	10 February 2012
23	Israel	GG 6577	13 July 1979	27 May 1980
24	Italy	GG 19823	8 March 1999	2 March 1999
25	Japan	GG 18391	27 October 1997	5 November 1997
26	Korea	GG 16918	26 January 1996	7 January 1996
27	Kuwait[47]	GG 29815	20 April 2007	25 April 2006
28	Luxembourg[48]	GG 21852	6 December 2000	8 September 2000
29	Malaysia	GG 29021	13 July 2006	17 March 2006
	Malaysia Protocol	GG 35190	29 March 2012	6 March 2012
30	Malta	GG 18461	21 November 1997	12 November 1997
	Malta Protocol	GG 37243	24 January 2014	17 December 2013
31	Mexico	GG 33460	24 August 2010	22 July 2010
32	Netherlands	GG 3153	18 June 1971	20 January 1972

[44] The treaty with Germany was renegotiated and signed on 9 September 2008 in Berlin. The treaty has been ratified in South Africa, but not in Germany. In addition, a protocol with Germany is in the process of negotiation or has been finalised, but not yet signed.

[45] A protocol with India was signed on 26 July 2013 in Pretoria. The protocol has been ratified in India, but not in South Africa.

[46] A protocol with Indonesia is in the process of negotiation or has been finalised, but not yet signed.

[47] A protocol with Kuwait is in the process of negotiation or has been finalised, but not yet signed.

[48] A protocol with Luxembourg is in the process of negotiation or has been finalised, but not yet signed.

	Netherlands (reneg)	GG 31797	23 January 2009	28 December 2008
	Netherlands Protocol[49]	GG 31795	23 January 2009	28 December 2008
33	New Zealand	GG 26798	17 September 2004	23 July 2004
34	Norway[50]	GG 17504	15 October 1996	12 September 1996
35	Oman	GG 25913	15 January 2004	29 December 2003
	Oman Protocol	GG 37244	29 January 2014	5 November 2013
36	Pakistan	GG 19849	17 March 1999	9 March 1999
37	Poland	GG 17201	16 May 1996	5 December 1995
38	Portugal	GG 31720	23 December 2008	22 October 2008
39	Romania	GG 16680	27 September 1995	21 October 1995
40	Russian Federation	GG 21395	20 July 2000	26 June 2000
41	Saudi Arabia	GG 31796	23 January 2009	1 May 2008
42	Singapore[51]	GG 18599	2 January 1998	5 December 1997
43	Slovak Republic	GG 20409	25 August 1999	30 June 1999
44	Spain	GG 30837	12 March 2008	28 December 2007
45	Sweden	GG 16890	27 December 1995	25 December 1995
	Sweden Protocol	GG 35268	23 April 2012	18 March 2012
46	Switzerland	GG 850	29 September 1967	11 July 1968
	Switzerland (reneg)[52]	GG 31967	6 March 2009	27 January 2009
47	Taiwan	GG 17408	3 September 1996	12 September 1996
48	Thailand	GG 17409	3 September 1996	27 August 1996

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[49] The treaty with the Netherlands has been renegotiated and amended by a protocol. The protocol is in the process of renegotiation or has been finalised, but not yet signed.

[50] A protocol with Norway was signed on 16 July 2012 in Pretoria. The protocol has been ratified in South Africa, but not in Norway.

[51] The treaty with Singapore is in the process or renegotiation or has been finalised, but not yet signed.

[52] The treaty with Switzerland was renegotiated. A protocol with Switzerland is now in the process of negotiation, or has been finalised, but not yet signed.

49	Turkey[53]	GG 29464	11 December 2006	6 December 2006
50	Ukraine	GG 27150	10 January 2005	29 December 2004
51	United Kingdom	GG 24335	31 January 2003	17 December 2002
	United Kingdom Protocol	GG 34971	2 February 2012	13 October 2011
52	United States of America	GG 18553	15 December 1997	28 December 1997

New treaties with ten other countries in the world are in the process of negotiation and ratification. These countries are Chile, Cuba, Hong Kong, the Isle of Man, Morocco, Qatar, Senegal, Syria, the United Arab Emirates and Vietnam.[54]

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[53] A protocol with Turkey was signed on 25 December 2013 in Ankara. The protocol has not yet been ratified by either country.

[54] The treaty with Chile was signed on 11 July 2012 in Pretoria and ratified in South Africa, but not yet in Chile. The treaties with all the other listed countries are in the process of negotiation, or have been finalised, but not yet signed.

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APPENDIX B – Withholding tax rates in South Africa's double tax agreements

No.	Country	Qualifying companies (%)	Non-qualifying investors (%)
	Table 3: Dividend withholding tax rates in South Africa's tax treaties with African countries		
1	Algeria	10	15
2	Botswana	10	15
3	Democratic Republic of Congo	5	15
4	Egypt	15	15
5	Ethiopia	10	10
6	Ghana	5	15
7	Lesotho	15	15
8	Malawi	*Note A*	*Note A*
9	Mauritius	5	15
10	Mozambique	8	15
11	Namibia	5	15
12	Nigeria	7.5	10
13	Rwanda	10	20
14	Seychelles (as amended by Protocol)	5	10
15	Sierra Leone	*Note A*	*Note A*
16	Swaziland	10	15
17	Tanzania	10	20
18	Tunisia	10	10
19	Uganda	10	15
20	Zambia	*Note A*	*Note A*
21	Zimbabwe	*Note A*	*Note A*

Note A: *No applicable relief provisions exist.*

	Table 4: Dividend withholding tax rates in South Africa's tax treaties with the rest of the world		
No.	**Country**	**Qualifying companies (%)**	**Non-qualifying investors (%)**
1	Australia (as amended by Protocol)	5	15
2	Austria (as amended by Protocol)	5	15
3	Belarus	5	15
4	Belgium	5	15
5	Brazil	10	15
6	Bulgaria	5	15
7	Canada	5	15
8	China (People's Republic)	5	5
9	Croatia	5	10
10	Cyprus	*Note B*	*Note B*
11	Czech Republic	5	15
12	Denmark	5	15
13	Finland	5	15
14	France	5	15
15	Germany	7.5	15
16	Greece	5	15
17	Grenada	*Note A*	*Note A*
18	Hungary	5	15
19	India	10	10
20	Indonesia	10	15
21	Iran	10	10
22	Ireland (as amended by Protocol)	5	10
23	Israel	25	25
24	Italy	5	15

25	Japan	5	15
26	Korea	5	15
27	Kuwait	*Note B*	*Note B*
28	Luxembourg	5	15
29	Malaysia (as amended by Protocol)	5	10
30	Malta (as amended by Protocol)[55]	Malta to SA: max = tax on underlying profits; SA to Malta: 5%	Malta to SA: max = tax on underlying profits; SA to Malta: 10%
31	Mexico	5	10
32	Netherlands (as amended by Protocol)	5	10

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[55] The DTA with Malta (as amended by the Protocol) prescribes varying DWT rates, depending on the payer and payee. In this regard, Art 10(2) states the following:

'However, such dividends may also be taxed in the Contracting State of which the company paying the dividends is a resident and according to the laws of that State, but:

(a) where the dividends are paid by a company which is a resident of Malta to a resident of South Africa who is the beneficial owner thereof, Malta tax on the gross amount of the dividends shall not exceed that chargeable on the profits out of which the dividends are paid;

(b) where the dividends are paid by a company which is a resident of South Africa to a resident of Malta who is the beneficial owner thereof, the South African tax so charged shall not exceed 5 per cent of the gross amount of the dividends.

This paragraph shall not affect the taxation of the company in respect of profits out of which the dividends are paid.'

		NZ to SA: 15%; SA to NZ: 5%	NZ to SA: 15%; SA to NZ: 15%
33	New Zealand[56]		
34	Norway	5	15
35	Oman (as amended by Protocol)	5	10
36	Pakistan	10	15
37	Poland	5	15
38	Portugal	10	15
39	Romania	15	15
40	Russian Federation	10	15
41	Saudi Arabia	5	10
42	Singapore	5	15
43	Slovak Republic	5	15
44	Spain	5	15
45	Sweden (as amended by Protocol)	5	15
46	Switzerland (renegotiated)	5	15

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[56] Similar to the DTA with Malta, the treaty with New Zealand also prescribes different rates in Art 10(2) –

'However, such dividends may also be taxed in the Contracting State of which the company paying the dividends is a resident for the purposes of its tax, and according to the laws of that State, but the tax so charged shall not exceed:

(a) in the case of New Zealand, 15 per cent of the gross amount of the dividends;

(b) in the case of South Africa:

(i) 5 per cent of the gross amount of the dividends if the beneficial owner is a company which holds at least 25 per cent of the capital of the company paying the dividends; or

(ii) 15 per cent of the gross amount of the dividends in all other cases.

The competent authorities of the Contracting States shall settle the mode of application of these limitations by mutual agreement. This paragraph shall not affect the taxation of the company in respect of the profits out of which the dividends are paid.'

47	Taiwan	5	15
48	Thailand	10	15
49	Turkey	10	15
50	Ukraine	5	15
51	United Kingdom (as amended by Protocol)[57]	5 or 15	10
52	United States of America	5	15

Note A: No applicable relief provisions exist.

Note B: The source state may not impose a withholding tax. The amount shall only be taxable in the state in which the recipient is a resident, subject to certain requirements (inter alia beneficial ownership).

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[57] The treaty with the UK (as amended by the Protocol) provides for different rates of DWT. Art 10(2) states the following –

'However, such dividends may also be taxed in the Contracting State of which the company paying the dividends is a resident and according to the laws of that State, but if the beneficial owner of the dividends is a resident of the other Contracting State, the tax so charged shall not exceed:

(a) 5 per cent of the gross amount of the dividends if the beneficial owner is a company which holds at least 10 per cent of the capital of the company paying the dividends; or

(b) 15 per cent of the gross amount of the dividends in the case of qualifying dividends paid by a property investment company which is a resident of a Contracting State; or

(c) 10 per cent of the gross amount of the dividends in all other cases.'

Proceedings of the 2014 SAAA Regional Conference

MAF001 by Francois Toerien and Eran Brill

THE IMPACT OF THE GLOBAL FINANCIAL CRISIS ON DIVIDEND POLICY: EVIDENCE FROM SOUTH AFRICA

1. Introduction

The global financial crisis of 2008-2009 resulted in liquidity drying up worldwide, as banks reduced lending in order to protect their balance sheets (Cornett, McNutt, Strahan & Tehranian, 2011). This in turn forced companies to rethink their liquidity management, and to substitute external credit with sources of internal liquidity such as cash and profits (Campello, Giambona, Graham & Harvey, 2010). Dividends represent one such cash outflow, and it is therefore not unreasonable to expect an event like the global financial crisis to have had an impact on the dividend policy thinking of key corporate financial decision makers. In this paper we investigate two related questions for companies listed on the Johannesburg Stock Exchange (JSE), namely: (1) whether there is any evidence that the dividend policy-related opinions of the financial directors of these companies have changed compared to before the financial crisis, and (2) whether there is, for these companies, any statistically significant change in dividend pay-out behaviour to be observed post the crisis compared to before.

The latter question is investigated as a matched pair *t*-test analysis of dividend pay-out rates before and after the crisis, while the former is addressed through a survey that by design largely mirrors similar research on dividend policy drivers conducted in 2006 by Firer, Gilbert & Maytham (2008), which we use as a baseline against which to compare our "after the financial crisis" second leg of this comparative study[58]. We limited our survey to the financial directors of JSE listed companies, whom we believe are at the core of the dividend policy decision, and therefore the highest quality source of information on this topic.

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[58] We are grateful to these three researchers for making available to us their response data, which enabled us to conduct the comparative part of this study.

The remainder of this article is structured as follows. Section 2 discusses some of the key prior research in the field of dividend policy, Section 3 explains the data and research methodology that were used, Section 4 presents and analyses our findings, and Section 5 concludes.

2. Dividends and Dividend Policy: Prior Research

Much research has over the years been published on dividend and dividend policies, one of the cornerstones of modern corporate finance theory. Although the original Modigliani-Miller Theorem (Miller & Modigliani, 1961) stated that the value of a firm in a simplified world is independent of its dividend policy, it soon became clear that in the real world, with its inefficient markets, taxes, asymmetric information and agency issues, a company's dividend policy is critically important to a range of stakeholders. For management it is a fundamental financial decision with serious cash flow and growth implications for the firm, for shareholders it is a potentially major component of their investment return[59], and for academics it supports much interesting research.

The two main avenues of dividend-related academic research has been the impact of dividend payments and policies on share prices (often researched using so-called event studies), and the motivation and drivers of management's dividend decisions (mostly researched using survey methodologies). This paper will focus on the latter.

John Lintner's pioneering study (Lintner, 1956) was the first major study to attempt to explain dividend policy decisions. Lintner's study, based on company observations and interviews with the top management of most of his twenty-eight sample firms, led him to his main finding that company managements are conservative and focus on steady and predictable dividend growth, in the belief that this is what shareholders require. As a result, he concluded that perceived shareholder expectations played a decisive role in dividend decisions, and that

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[59] In unpublished work, for example, Kahura (2007) finds that for 33% of shares listed on the JSE Top 40 index for the period 1996 to 2006, dividends represented more than 25% of total returns over this time.

dividend rates are not easily changed unless the reason is serious, sustainable and convincing to outside stakeholders[60].

Over the years several theories have been developed to either address the logic of dividends, the situations under which they are (or are not) desirable, and to explain observed dividend policy. Theories based on the relevance of dividends include the so-called "bird-in-the-hand" and "signalling" theories, as well as the tax-preference and agency theories.

The "bird-in-the-hand" theory, developed independently by Lintner (1962) and Gordon (1963), postulates that investors prefer dividends that are certain to possible (*i.e.* more risky) future capital growth, which therefore links back to the belief Lintner (1956) found amongst company management regarding shareholder expectations of predictability. Signalling theory, on the other hand, holds that management uses dividend policy (especially changes in dividend rates) to send signals to shareholders and other external stakeholders regarding the financial health of the company (see Bhattacharya, 1979), whereas agency theory sees dividends as a way for shareholders to deprive management of excess cash resources that may otherwise be wasted on projects that destroy shareholder value. Taxes are relevant to dividend policies insofar as dividends may be subject to different effective tax rates than other potential alternative cash flows, such as capital gains (see Brennan, 1970; Kalay & Michaely, 2000). Given that the interaction between South Africa's capital gains taxes and its tax on dividends changed when its fairly unique company-level tax (so-called STC) was replaced with a globally more familiar withholding tax (see Toerien & Marcus, 2014), it is possible that this may have influenced South African companies' views on dividend policy in the run-up to the implementation of this change in early 2012.

Dividend-related research is well established in South Africa. The views of the management of JSE-listed companies on dividend policy has previously been surveyed in 1980 (Sènéque

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[60] Based on Lintner's theory, it can be argued that the global financial crisis of 2008-9 represented a good opportunity for management to implement dividend policy changes, as non-company stakeholders may well have considered this a convincing reason for a change in dividend rate.

& Gourley, 1983), 2000, Marx (2001) and 2006 (Firer, Gilbert & Maytham, 2008). In all three cases management were found to be strongly biased towards continuity and stability of dividend payments. Furthermore, Sènéque & Gourley (1983) found that management considered current and future earnings to be a strong consideration. Marx (2001) found that the majority of his sample supported a target dividend pay-out policy, pursued an uninterrupted dividend record, and agreed that dividend rates should not be changed for short-term reasons. If this opinion still holds, a change in dividend rates post the recent financial crisis could be an indication that company managements consider this to be more than a temporary event.

The most recent and relevant study on South African companies' pay-out decisions is that of Firer *et al* (2008), on which as previously mentioned our study is in part based. These researchers used a modified version of a survey developed by Brav, Graham, Harvey & Michaely (2005), who in 2002 used it in combination with interviews to gauge the dividend policy opinions of US financial executives. Similar to the findings of previous and international studies, Firer *et al* (2008) found that South African managers, shortly before the global financial crisis, remained conservative and reluctant to cut dividends. In contrast to US managers, who seemed to target absolute dividend growth (Brav *et al*, 2005), South African executives seemed more focused on pay-out ratios.

A number of things have changed internationally and in South Africa since 2006, or have not been previously considered in dividend policy surveys. Clearly on a global level the most important of these is the financial crisis of 2008-9, which was the key motivation for our study. Other South Africa-specific dividend-relevant factors that had not previously been considered were the change in the South African dividend tax dispensation, the possible role of Black Economic Empowerment (BEE)[61], and exchange control and international shareholding

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[61] Black Economic Empowerment refers to policy measures driven by the South African Government aimed at increasing the participation of black South Africans in the economy (including the private sector). Several early BEE schemes aimed at transferring shareholding in listed companies to black South Africans depended on

considerations in dividend policy. We therefore also included these aspects as new elements in our comparative study.

3. Data and Methodology

The core of our research consisted of a survey of financial directors of JSE-based companies to assess their dividend considerations within the theoretical frameworks discussed in Section 2 above. The survey was conducted in mid-2011, at which point the financial crisis was deemed recent enough to potentially impact dividend decision-making. At that point there were 358 companies listed on the Main Board of the JSE. However, the removal of listed property companies on the basis that these entities are legally bound to distribute most of their earnings and that there is therefore little pay-out discretion involved, as well as the exclusion of duplicate listings (*e.g.* Investec PLC), holding companies and low-voting right shares, resulted in a population of 308 shares.

A modified and updated version of the surveys developed by Brav *et al* (2005), and subsequently modified and used by Firer *et al* (2008), was used for this research. The six-page questionnaire, which was sent to the financial directors of the final population of 308 companies mentioned above, addressed (amongst other things) the quantitative metrics used to set dividend targets, the factors that potentially play a role in dividend decisions, general company views on dividends and related issues, and the preferred alternative uses of dividend cash. The responses thus obtained were compared with those obtained by Firer *et al* in 2006 in order to assess the possible impact of the intervening financial crisis on financial directors' dividend policy thinking.

In the second part of our research, we assessed the actual impact of the financial crisis on the dividend policy of JSE-listed companies by conducting pairwise matched pair *t*-tests on dividend pay-out ratios of JSE-listed companies before, during, and after the financial crisis.

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increasing or steady dividend streams to repay the debt raised to finance these schemes, and hence BEE considerations could potentially be relevant to dividend policies.

We defined 2008-2009 as the financial crisis period and, in order to maximise the chances this event having an effect, we only considered the two year period after the crisis (2010-2011) to represent the post-crisis test period. This also had the advantage of matching our survey responses, which were obtained in 2011. Lastly, we considered a matching pre-crisis period (2006-2007).

In order to facilitate a matched pair analysis and the calculation of meaningful dividend pay-out ratios, our sample was restricted to those companies that were listed on the JSE Main Board for the full period 2006-2011, and were profitable throughout. The latter is necessary as losses (*i.e.* negative earnings) not only result in meaningless calculated pay-out ratios, but can also be argued to remove nearly all discretion management has as to dividend policy. In addition, we excluded all listed property companies from our sample for the reasons previously mentioned. Our final sample consisted of 134 listed companies.

Annual dividend per share and earnings per were obtained from the McGregor BFA database, and company pay-out ratios were determined by dividing the former into the latter. For each company, we calculated three two-year pay-out ratio averages, being for the immediate pre-crisis period (2006-7), the crisis period (2008-9), and the immediate post-crisis period (2010-11). We then ran simple matched pair *t*-tests to determine whether there were any statistically significant differences between the paired means across the three selected periods.

4. Research findings, analysis and discussion

For our survey, a total of 60 usable responses were obtained, equating to a 19.5% response rate. This compared favourably with the final response rates of 16% and 15% of, respectively, Brav *et al* (2005) and Firer *et al* (2008). As indicated in Table 1 below, 44 respondents (or 73%) represented listed companies with turnovers in excess of 1 billion Rand, and more than

50% represented turnovers of 5 billion Rand or above. Our sample, although fairly representative by sector, is therefore slightly biased towards larger listed companies[62].

Table 1: Response profile by company annual revenue (Rand)

Annual revenue	< 200 mn	200mn < 1bn	1bn < 5bn	5bn < 20bn	20bn+
No. of companies	3 *(5%)*	13 *(22%)*	13 *(22%)*	14 *(23%)*	17 *(27%)*

In the tables that follow, the results of our 2011 post-crisis survey will be contrasted to those of the 2006 pre-crisis survey of Firer *et* al (2008), and hence these two results will be presented in the columns indicated by "2011" and "2006", respectively, where applicable.

 As shown in Table 2, of the responding companies, the majority (90%) paid dividends during the prior three years, which was in line with the Firer *et al's* 2006 results, as shown in the right-hand column.

Table 2: 3-Year pay-out history of respondents

	2011	2006
Only paid dividends	52%	45%
Paid dividends and repurchased shares	38%	39%
Neither paid dividends nor repurchased shares	7%	16%
Only repurchased shares	3%	0%

Interestingly, when asked what they would do if they could hypothetically reset their dividend policies all over again, financial directors seemed slightly more inclined than before to repurchase shares, but overall (as in 2006) still strongly favoured traditional dividend payments (Table 3). The 20% preference for share repurchases without dividend payments was unexpectedly high, and may indicate a perception in 2011 (relative to 2006) of share undervaluation.

Table 3: Hypothetical first pay-out preference of financial directors

"If I was hypothetically deciding to pay out capital for the first time, my first payment would be:"

	2011	2006

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[62] This is further confirmed by the fact that one third of the responding companies employed more than 10,000 people, and two-thirds more than 2,500.

Dividends	58%	58%	We
A combination of dividends and share repurchases	23%	33%	next
Share repurchases only	19%	8%	turn

to the key issue of dividend targeting. Lintner (1956) and subsequent studies, including prior

South African ones, indicate that company management nearly always have a target in mind

when making a pay-out decision. Brav *et al* (2005), however, found that in the US this was

more likely to be a target dividend per share than a target pay-out ratio. Our 2011 result (see

Table 4) confirmed Firer *et al's* (2008) finding that South African financial executives

overwhelmingly target dividends per share (dividend rate) in the pay-out decision which.

There is some indication that, since the financial crisis, growth in dividends per share has

become less important relative to other targets, indicating perhaps a less optimistic outlook

that previously.

Table 4: Dividend targeting

"When you make dividend decisions, do you target (tick one):"

	2011	**2006**	
Dividend as % of earnings	63%	52%	As
Level of dividends per share	19%	7%	previou
Dividend yield	8%	2%	sly
Growth in dividend per share	8%	14%	indicate
Do not target at all	2%	14%	

d, one of the main objectives of this study was to investigate whether the global financial crisis

had changed management's considerations when making the pay-out decision. Respondents

were therefore asked to rate specific factors as impacting on their pay-out decision on a 5-

point rating scale ranging from "very important" to "very unimportant". In order to reduce each

set of responses to a single comparable number, these responses are reported in Table 4

according to a weighted scaling formula as follows: *Weighted score = (% "Very Important"*

responses x 2) + (% "Important" responses x 1) + (% "Neutral" responses x 0) + (%

"Unimportant" responses x -1) + (% "Very Unimportant" responses x -1). A weighted score of

2 therefore represents the highest possible importance of a factor, and -2 the lowest, with zero being neutral.

With respect to the factors impacting dividend policy as shown in Table 5, the biggest increases in importance to management since the financial crisis relate to the maintenance of historical dividend payments (+0.33) and the stability of future earnings (+0.16), and the biggest declines are the availability of investment opportunities and merger and acquisitions (-0.25 each).

Table 5: Factors affecting the dividend pay-out decision

"How important are the following factors to your company's dividend decision?"

(Rated from "very important" = 2 to "very unimportant" = -2)	2011	2006	Diff.*	
Stability of future earnings	1.43	1.27	+0.16	*Differ*
A sustainable change in earnings	1.38	1.31	+0.07	*ence*
Availability of good investment opportunities to pursue	0.98	1.23	-0.25	
Maintaining consistency with historic dividend policy	1.04	0.71	+0.33	*=*
Merger and acquisition strategy	0.76	1.01	-0.25	*weig*
Having cash/liquid assets > desired cash holdings	0.66	0.73	-0.07	*hted*

2011 score – weighted 2006 score

These findings are fully consistent with post-financial crisis expectations, seemingly indicating a greater focus on future earnings stability and dividend consistency, which possibly results from decreased confidence in the ability to achieve these objectives. Similarly, it is not surprising that there appears to be less appetite for investments and mergers and acquisitions post the crisis compared to before, as these obviously involves risk, greater financial commitments, and in uncertain times a smaller chance of success. In addition, considering the "bird-in-the-hand" theory, it can be argued that shareholders would all the more prefer dividends to uncertain capital growth in uncertain times. Therefore, as per the findings of Lintner (1956) and others' that management generally frame pay-out decision in terms of

what they think shareholders prefer, these alternative uses of cash would become less important relative to management in more uncertain times.

Next, respondents were asked to indicate, again on a five-point scale, their degree of agreement with five dividend-related statements as shown in Table 6. Results are again reported on a weighted basis, as explained previously.

Table 6: Company views with regards to dividends

"Rate these statements with regards to your company's view on dividends?"

(Rated from "Strongly agree" = 2 to "Strongly disagree" = -2)	2011	2006	Diff.*
Dividends convey information on the company to investors	1.14	1.04	+0.10
We use dividends to show we can afford to borrow externally	-1.13	-1.17	+0.04
There are negative consequences to reducing dividends	0.79	0.84	-0.05
We make dividends decisions after our investment plans are final	0.73	0.85	-0.12
Dividends are as important to share valuation as 15-20 years ago	0.59	0.66	-0.07

* Difference = weighted 2011 score – weighted 2006 score

As can be seen, the change in responses between 2006 and 2011 was small throughout. As before, respondents most strongly agreed that dividends convey information to investors, in accordance with signalling theory, but paradoxically agreed least that they would use dividends to signal an ability to borrow. Interestingly, the latter did not, as one might have expected, change much post the crisis.

Respondents were also asked what the most likely alternative use for the cash used to pay dividends was for their companies. As can be seen in Table 7, it does not appear that the financial crisis has had much effect on the appetite for share repurchases. However, it is notable that there has been a strong shift in emphasis from increased investment to debt reduction, which would be fully consistent with expectations during a major global liquidity crisis.

Table 7: Best alternative use of dividend cash.

"Of the funds used to pay dividends, the most likely alternative use would be:"

	2011	2006	Change
Debt reduction	29%	8%	+21%
Share repurchases	21%	21%	0%
Increased investment	19%	34%	-15%
Cash retention	9%	13%	-4%

Lastly, financial directors were asked to indicate whether certain factors which had not previously been investigated played a role in their dividends decisions. As can be seen from Figure 1, which depicts these factors and the relevant responses, 60% of the respondents indeed indicated that the financial crisis affected dividend thinking, followed by the dividend tax dispensation at 42%. BEE rated much lower at 20% (mainly those companies that had a large BEE scheme in place), and the other two related factors tested (international shareholders and South Africa's exchange control regulations) were by comparison unimportant in dividend decision making.

Figure 1: Responses to other factors relevant to the dividend decision
"Do the following affect your dividend decision?"
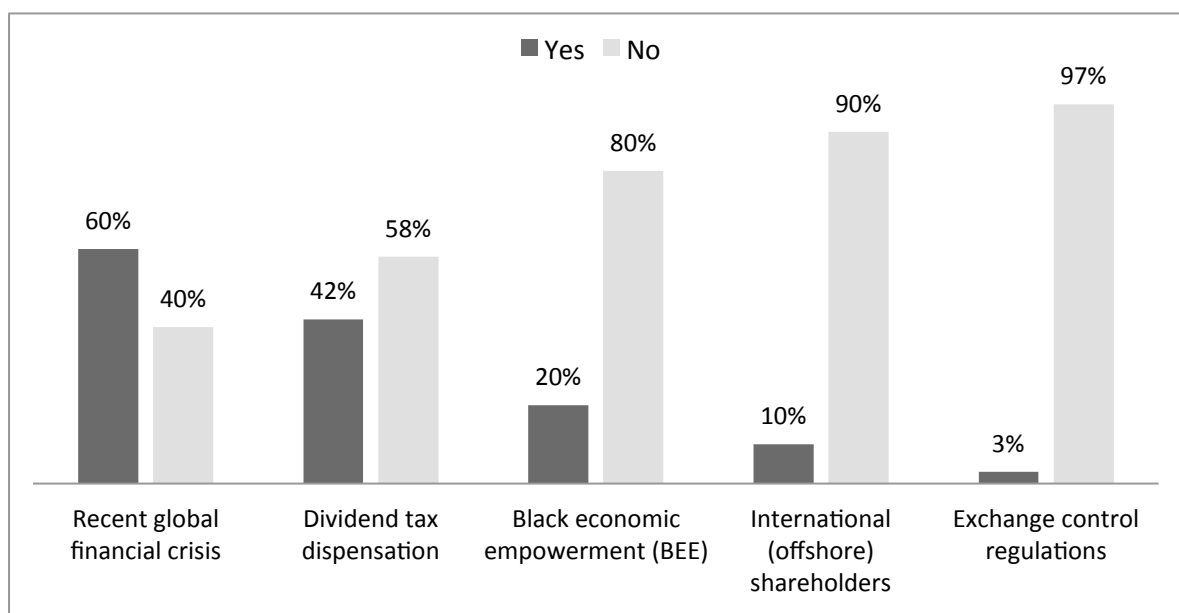
As the final part of this research project, we attempted to determine whether there is any statistical evidence that the pay-out ratios of JSE-listed firms had indeed been affected by the financial crisis, in line with the 60% of our sample of financial directors who indicated that the

crisis had an impact on their dividend decisions. The statistical outputs of the matched pair comparisons of 2-year average pay-out ratios before, during and after the financial crisis, are summarised in Table 7, below.

Table 8: Statistical output of matched pair comparisons

	2006-7 vs. 2008-9		2008-9 vs. 2010-1		2006-7 vs. 2010-1	
Mean	0.445	0.411	0.411	0.538	0.445	0.538
Variance	0.300	0.112	0.112	2.067	0.300	2.067
Observations	137		137		137	
P(T<=t) one-tail	0.189		0.233		0.153	
P(T<=t) two-tail	0.377		0.467		0.305	

It is clear that even if a non-directional hypothesis is tested (*e.g.* that the mean pay-out ratio differs for any combination of the above periods) the statistical evidence does not support the rejection of the null hypothesis that this is not the case. In all cases the observed p-values are well in excess of any reasonable significance level. Therefore, even though we find some evidence that management's dividend pay-out thinking has been affected by the global financial crisis, we do not find sufficient statistical support for the hypothesis that this has (at least by 2011) filtered through into actual pay-out behaviour. One reason, consistent with nearly all prior research, may well be the utmost importance that management generally seems to allocate to dividend consistency, and in South Africa specifically dividend rates (Marx, 2001; Firer *et al*, 2008).

5. Conclusion

The global financial crisis of 2008-2009 was one of the most significant negative economic events of the last twenty years, potentially forcing companies to rethink their capital policies and liquidity management. In this paper we attempted to find evidence that the dividend policy thinking and/or the actual dividend behaviour of South African companies listed on the JSE was affected by this crisis.

A comparison of the results of our 2011 dividend policy survey of financial directors of JSE-listed companies to those of a similar survey conducted before the crisis provides only limited evidence of changes in dividend policy thinking over the period, despite 60% of our sample indicating that the crisis did affect their dividend decisions. Similarly, we do not find statistically convincing evidence of a change in actual pay-out ratios when comparing the respective two-year pre-crisis, crisis- and post-crisis periods.

It is possible that the well-documented aversion of company managements to change dividend policies may explain the lack of the expected change in dividend behaviour, especially if management considered the financial crisis to be a temporary event.

On the other hand, we did find indications of some change in dividend policy thinking, which is worth exploring in further (probably survey-based) research. Specifically, we find that debt repayment features more prominently as an alternative to dividends than before, and investments and acquisitions less so. There is also evidence that dividend consistency and future earnings stability increased in importance as factors influencing managements' dividend thinking, perhaps indicating that they consider these issues to be more uncertain than before.

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MAF 002 by Myles Coelho, Carlos Correia, Darron West

AN APPLICATION OF ALTMAN'S Z AND Z-EM MODELS TO DETERMINE FINANCIAL DISTRESS AND CORPORATE FAILURE ON THE ALTERNATIVE EXCHANGE (AltX)

Abstract

The JSE Alternative Exchange (AltX) experienced a siginificant decline in equity values from 2008 to 2012. The decline in equity values of companies listed on the AltX has raised the question of whether companies listed on the AltX have a high likelihood of corporate failure. This study applies the Altman Z-Score and the Altman Z-EM models in order to identify trends in the levels of corporate solvency of AltX listed companies. Bond equivalent ratings are calculated in order to further determine the credit quality of companies listed on the AltX.

The study found over the period tested that there was an increase in the liklihood of corporate failure of AltX listed companies on the basis of the Altman Z-EM score but less on the basis of the Altman Z-score. The Altman Z-score was able to predict 2/3 of the companies that failed within the period one year prior to bankruptcy. Yet there remains, a significant number of AltX companies with high corporate ratings with 27% of companies reflecting an equivalent AAA rating and 31% of companies reflecting a rating within the range AA to A-. In 2012 the Altman Z-score was predicting corporate failure for 9 companies (16%) and the Z-EM Bond equivalent ratings were indicating failure for 12 companies (22%). In comparison, in June 2011, 16% of the top 100 companies on JSE had Z-scores that were reflecting potential corporate failure. Therefore, the AltX is reporting similar scores to the Main Board, but with a significant number of companies with AAA and AA equivalent ratings. Yet, the AltX continues to perform poorly in terms of market capitalisation and number of listings. The study further found that low levels of financial leverage was the largest contributor to the solvency of companies listed on the AltX.

Introduction

The financial crisis of 2008 and 2009 had a dramatic effect on financial markets globally. Over that two year period the equity values of companies listed on the JSE declined by 30%. However, the AltX experienced a decline in equity values of approximately 60%. The AltX consists primarily of smaller companies. Subsequent to the financial crises of 2008 and 2009, the JSE Main Board has made a strong recovery and the index had increased by approximately 100% to the end of 2012. The AltX index on the other hand incurred further losses of approximately 50% from its position at the end of 2009 to the position at the end of 2012. The objective of this study is to evaluate whether the negative perception of the AltX is reflected by measures indicating financial distress and potential corporate failure.

Proceedings of the 2014 SAAA Regional Conference

The research questions addressed by the study are:

- Do AltX companies reflect high high levels of financial distress and high probabilities of corporate failure as indicated by their respective Altman Z and Z-EM scores?
- What are the bond rating equivalents of AltX companies? Do the bond rating equivalents of AltX companies indicate a high probability of future financial distress?
- Was the Altman Z-score able to predict the companies that failed in the period 2009-2012? Which AltX companies are expected to fail based on their Z-scores in 2012?
- How do the bond rating equivalents compare between 2008 and 2012? Has there been a fall in the credit quality of the AltX companies as indicated by their ratings?

Subsequent to 2009, the AltX has significantly underperformed relative to the JSE Main Board and the AltX has seen seven corporate failures and nine delistings, these making up 21% of the companies listed on the AltX. Therefore, subsequent to the 2008-2009 financial crisis, the question is what has happened to the corporate solvency of these smaller cap companies? Have the effects of the 2008-2009 financial crisis perhaps only been realised by smaller companies years after the event occurred?

Therefore, the objective of this study it to calculate the Altman Z-Score and Altman Z-EM Scores for all companies listed on the AltX for period 2008 to 2012 in order to assess the corporate solvency of these companies and gain insight into the financial components that make up the respective corporate failure prediction models when applied to these companies. Additionally, the Altman Z-Scores and Altman Z-EM Scores of companies that had entered into corporate failure during the period shall be analysed in order to assess how accurate the corporate failure predictors have been in predicting these corporate failures.

Review of prior studies

There are a number of quantitative methods currently in use to predict corporate failure. These include accounting based methods which are either univariate or multivariate, market based methods using an options contingent claims model such as Merton or Moody's KMV option model and increasingly also the use of neural networks. Then there are models devised by the rating agencies to indicate default risk.

Beaver (1967) matched the ratios of failed with non-failed firms for up to 5 years prior to failure. Beaver found that ratio analysis could be employed to predict corporate failure. Beaver identified the cash flow to debt ratio as an important ratio in predicting corporate failure. Liquidity ratios, profitability ratios and insolvency ratios were significant ratios used in univariate studies. Deakin (1972) tested Beaver's ratios in a multivariate setting but accuracy of this model was limited for the hold-out sample. The most important contributor to the field

of failure prediction is Ed Altman (1968) who devised a Z-score model using multiple discriminant analysis (MDA) that was based on accounting data and to a limited extent the market value of equity.   It was found that the classification accuracy of the Z-score model was 94% for the original sample one year prior to bankruptcy and 96% for the holdout sample. Using the lower limit of 1.81 to determine corporate failure, the accuracy level for the original sample was still high at 88% and was 92% for the holdout sample. More importantly, the model was later applied in predictive samples for over 300 companies in the years 1969 to 1999 and achieved high levels of predictive accuracy in relation to forecasting bankruptcy. When using the lower limit of 1.81, the model managed to achieve an accuracy level of 75% for 1969-75, 78% for 1976-95 and 84% for 1997-99 for one year prior to bankruptcy.

Year prior to failure	Original sample (33)	Holdout sample (25)	1969-1975 Predictive sample (86)	1976-1995 Predictive sample (110)	1997-1999 Predictive sample (120)
1	94%	96%	82%	85%	94%
2	72%	80%	68%	75%	74%

Altman's Z-score method for predicting financial distress continues to be a useful predictor of corporate financial distress. Other countries devised their own accounting based models using MDA. For example, Taffler (1982) devised a successful proprietary failure prediction model for the UK. Altman (1984) and Altman and Narayanan (1997) published international surveys of failure prediction models in such countries as Japan, Germany, Switzerland, Brazil, Australia, England, France, Ireland, Canada, Korea, Mexico, Singapore, Malaysia, the Netherlands and Turkey. Ohlson (1980) found four factors that were statistically significant in predicting corporate failure within a year of occurrence; a company's size, capital structure, financial performance and liquidity.

In South Africa, Truter (1996) tested Altman's Z-EM model by using a sample of 30 failed companies and matching these companies to 30 non-failed companies on the basis of industry sector, size and financial year ends. Truter found that the Z-EM score had an overall accuracy rate of 75% but with a Type I error rate of only 17%.   Agarwal and Taffler (2007) tested an accounting based corporate failure prediction technique (Taffler Z-Score) against market based corporate failure prediction techniques. Agarwal and Taffler (2007) found that neither model necessary outperformed the other, and both methods are useful for predicting corporate failure. Charitou et al (2004) selected a sample of 51 publically traded industrial companies in the United Kingdom that had failed between 1988 and 1997 and that had published financial statements in the three years preceding corporate failure.   In applying Altman's Z-Score, Charitou et al (2004) found the Z-Score to be 83% accurate one year

before corporate failure, 63% accurate two years before corporate failure, and 68% accurate three years before corporate failure. Charitou et al (2004) further found that the market value of equity over total debt and the retained earnings over total assets ratio to be the most statistically significant of the five ratios used in the Altman Z-Score.

Correia (2009) calculated the Altman Z-Score and the Altman Emerging Market Z Score (Z-EM Score) and found that companies listed on the AltX were not subject to a high likelihood of corporate failure. Correia (2009) found that only 7% of companies listed on the AltX had a high likelihood of corporate failure according to the Altman Z-Score and 11% according to the Altman Z-EM Score. Correia (2009) further attributed the low levels of corporate failure likelihood to low levels of financial leverage on the AltX. Correia (2009) further converted the Altman (1995) Z-EM Scores to bond equivalent ratings as performed by Altman (2005). Correia (2009) found that 63% of companies listed on the AltX would be classified as investment grade and 37% of companies listed on the AltX would be classified as junk according to the bond equivalent ratings.

Background to the Altx

The Alternative Exchange (AltX) is the secondary securities exchange to the Johannesburg Securities Exchange (JSE). The AltX consists of smaller cap companies compared to the main board. The primary objective of the AltX provides these smaller cap companies with access to additional capital in order to facilitate their high growth profiles. In terms of the AltX listing a requirements, a company listing on the AltX is required to appoint a designated advisor who performs a due diligence on the company to determine whether the company is suitable to be listed on the exchange. Furthermore, the company is required, with the assistance of the designated advisor, to submit a business plan to the JSE Issuer Services. Thereafter the board of the directors of the company are to make a presentation to the AltX advisory committee. (Johannesburg Securities Exchange)

With respect to listing requirements, a company wishing to list on the AltX is required have an issued share capital in excess of R2 million and have at least 100 shareholders. There are no requirements for the company in terms of pre-tax profit or profit history for companies wishing to list on the AltX. Since its establishment in 2006, the market capitalisation of the AltX grew considerably leading up to 2008 and 2009 where it sharply declined by approximately 80% (refer to figure 1). Subsequently, the JSE has seen significant growth whereas the AltX experienced a steady decline. In 2009, the dramatic fall in the equity values raised the question as to whether the companies listed had not fully recovered from the financial crisis

experienced in 2009 and accordingly are still subjected to higher levels of risk of corporate failure.
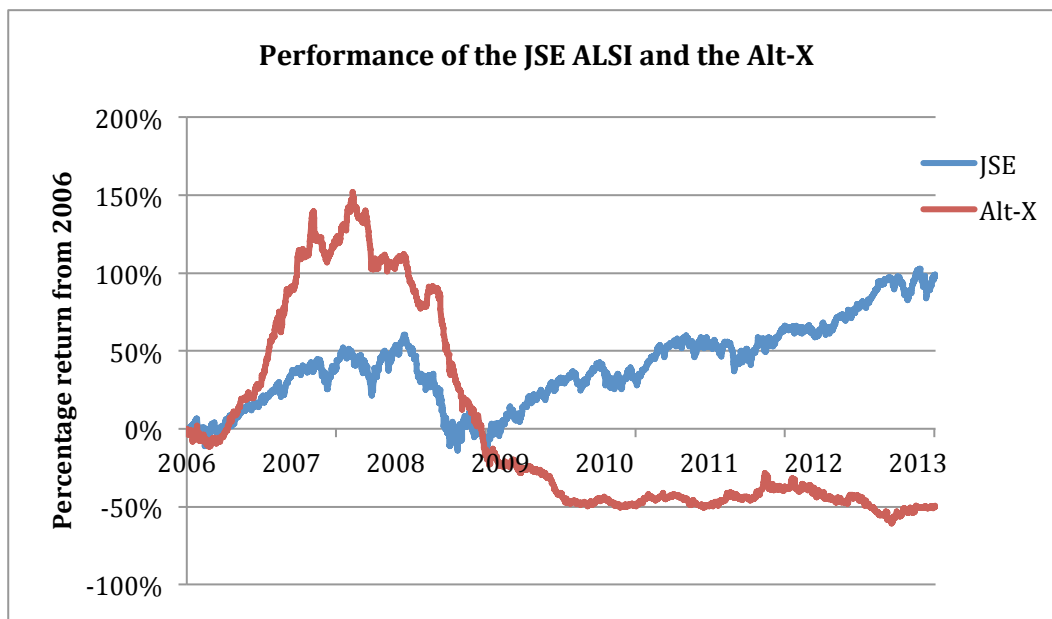
Figure 1: The Performance of the JSE ALSI and the AltX

Correia (2009) demonstrated that 60% of companies trading on the AltX were trading at market values below their equity book value. As at the end of 2012, there are still numerous companies listed on the AltX that remain in such a position, although the average price to book ratio has increased over the period tested from 2008 to 2012, indicating a recovery from 2009 to 2011 and thereafter a stabilisation of the price to book ratios. In 2012, there were 30% of companies trading with a price-book ratio below one. In 2012 about 30% of companies were making losses.
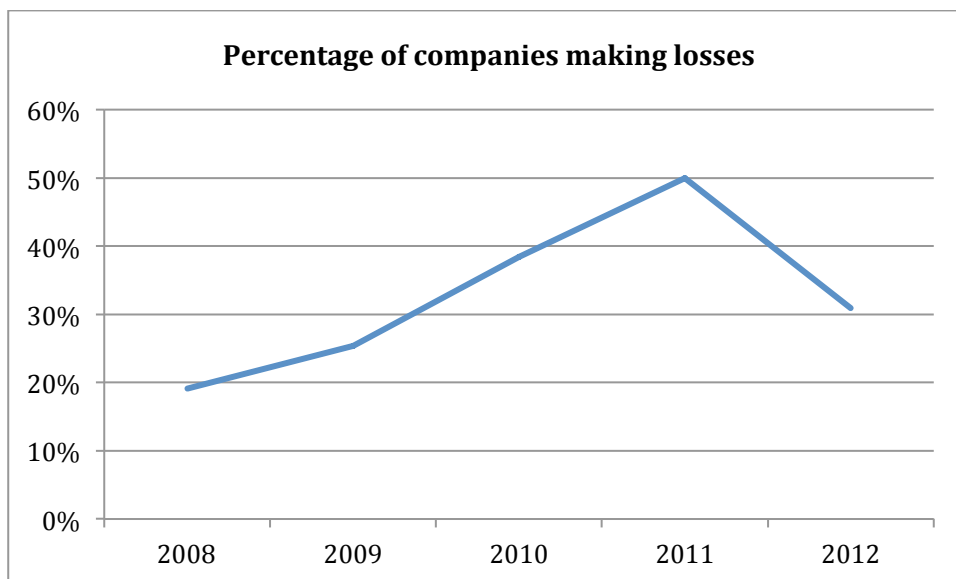
Figure 2: Percentage of AltX companies incurring losses

Based on the above factors, it appears that the companies listed on the AltX over this period have struggled to achieve profitability following the financial crisis of 2009 and accordingly from a corporate failure predictability perspective, the AltX is of particular interest. Over the period 2008 to 2012, there have been eight bankruptcies on the AltX, four of which have come from the technology and industrials sector whereas only one bankruptcy occurred in the consumer services sector. Correia (2009) performed an analysis of the stocks listed on the AltX using 2008 financial year to determine whether the falling share prices was indicative of corporate failure by calculating the Z-Score and Z-EM Scores. Correia (2009) found using the Altman Z-Score and the Altman Z-EM Score that only 11% and 6% of companies respectively were expected to fail. A large contributor to this result was that companies listed on the AltX had relatively low levels of financial leverage In that study Correia (2009) concluded that the companies listed on the AltX were not subject to high probabilities of corporate failure. This study covers the four periods subsequent to the Correia's (2009) study and allows for the retrospective analysis of the findings at the time.

Altman defined corporate failure as a company that is legally bankrupt and placed in liquidation (Altman, 1968). Similarly, other studies have defined corporate failure as when a company files for bankruptcy in terms of chapter five and six of United States brankruptcy laws (Ohlson, 1980), and the legal definition according to the United Kingdom Insolvency Act of 1986 (Charitow et al, 2004). Beaver (1966) defined corporate failure as a inability of a company to pay its debts as they fall due through corporate actions such as bankruptcy, default on debt payments, overdrawn bank balances, or failure to pay a preference dividend to shareholders (Beaver, 1966). Deakin (1972) defined corporate failure as companies that had entered into bankruptcy, insolvency or liquidation. The South African Companies Act

defines financial distress as when it is unlikely that a company will be able to pay all of its debts as and when they fall due within a 6 month period and a company shall become insolvent within a 6 month period. Therefore, for the purposes of this study, corporate failure, financial distress, or any other synonm thereof shall be defined as when a company is placed in liquidation.

DATA

Data was selected for all companies listed on the AltX from 2008 to 2012 excluding financial services companies and property funds. The data was extracted from McGregor BFA. The data was processed through an excel model calculating the Z and Z-EM scores. In Correia's (2009) study on the application of Altman Z-score and Z-EM scores to the AltX, differences were identified when using the market value of equity at the date of the financial statements and using the market value of equity three months after the financial statement date to allow investors to take the information disclosed within the financial statement into the share price. This study uses the mid-year market value of equity to give an even basis for comparison year on year.

Altman's Z-Score and Z-EM Models

Altman's Z-Score is calculated as follows:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

X_1 = Working capital / total assets
X_2 = Retained earnings / total assets
X_3 = Earnings before interest and taxes / total assets
X_4 = Market value of equity / book value of debt
X_5 = Sales / total assets

The calculated Altman Z Score can be classified and interpreted into three different categories: companies that are expected to fail (less than 1.81), companies that are expected to not fail (above 2.99), and companies where it is uncertain as to whether they will fail or not (between 1.81 and 2.99).

Unlike the Altman Z-score, the Z-EM score has the advantage that it can be applied to companies not traded on a formal exchange and its application is not limited to manufacturing companies but it can rather be applied to all companies (Altman E. , 2005). Therefore for the purposes of this study, this method may be more relevant than the Altman Z-Score as it better fits the profile of companies traded on the AltX.

The Z-EM Score is calculated as follows:

$$Z\text{-EM} = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 + 3.25$$

X_1	=	Working capital / total assets
X_2	=	Retained earnings / total assets
X_3	=	Operating income / total assets
X_4	=	Book value of equity/ book value of debt

The variables used in the formula are consistent with that of the Z-Score and do not require any modification. The book value of equity is the only new variable introduced and includes all equity components such as share capital, preference capital, retained earnings, or it can be calculated otherwise as a company's total assets less its total liabilities. The final constant term in the score has been calculated as the median of the Z-Scores for failed companies in the United States and serves as a base line for determined default level bond equivalent ratings. Once the Altman Z-EM Score has been calculated, a bond rating equivalent can be determined. The bond equivalent rating table has been derived from an analysis of financial statements (Altman E. , 2005) and is set out in Annexure 1. Similar to the classifications in Altman's (1968) Z-Score, companies with a rating BBB and higher are considered to be safe, companies with ratings between BBB- and B are considered to be in the grey zone, and companies with bond equivalent ratings below B are considered to be in financial distress (Altman E. , 2005).
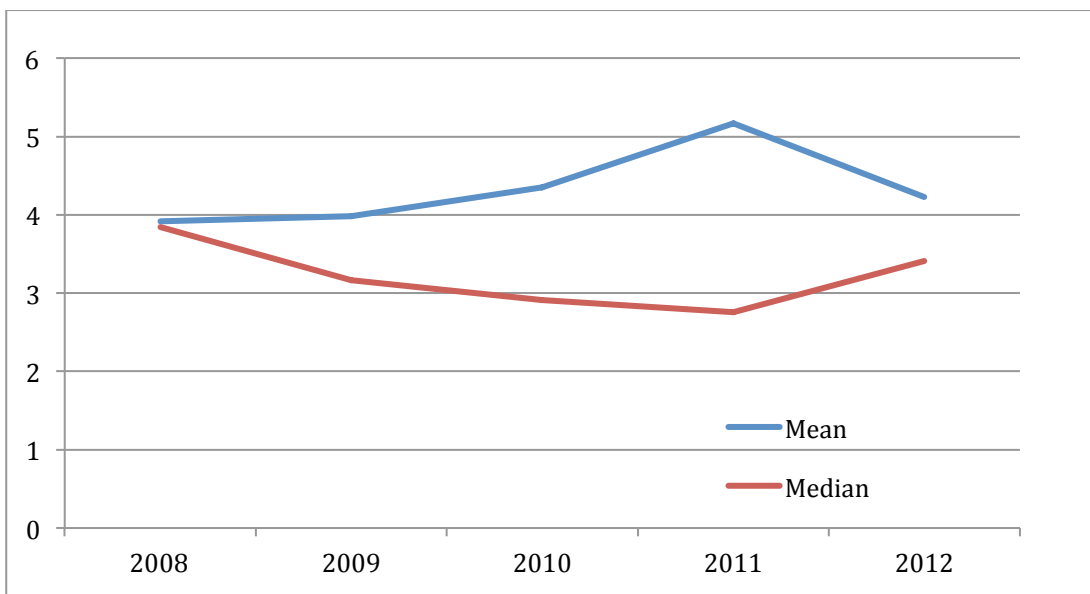
Figure 3: The mean and median Z-scores for the AltX for 2008-2012

With respect to the average Z-Scores of companies, the largest contributor to the Z-Scores for the companies listed on the AltX has been the market value of equity over total liabilities followed by the turnover over total assets component of the formula followed by the market value to total liabilities ratio and the retained earnings to total assets. Interesting, the 2011 year, with the highest mean Z-Scores in the period tested was the year where the mean earnings before interest and taxes over total assets and the working capital over total assets ratios had turned into negatives, which would have seemingly brought down the mean Z-Scores of companies listed on the AltX. However, this was substantially offset by an increase in the market value of equity over total debt ratio. The contribution made by the sales over total assets ratio appears to have remained fairly consistent over the period. The median Z-score did perform as well as the mean Z-score. It shall be interesting to see if the Z-EM Scores which exclude the market value of equity component and look at book values alone would yield different results particular when considering that the AltX index has substantially underperformed the JSE Main Board.

The Accuracy of the Altman Z-Score

Over the period, six non-financial companies listed on the AltX filed for bankruptcy. To assess the accuracy of the Altman Z-Score, we isolated the firms that entered into bankruptcy and calculated the Altman Z-Scores for the two financial years preceding bankruptcy. The results of the analysis are presented below:

	1 year	**2 years**
Expected not to fail	17%	17%
Uncertain	17%	33%
Expected to fail	66%	50%
	100%	100%

Therefore the Z-Score appears to be reasonably able to forecast when a company is expected to enter bankruptcy. To further assess the accuracy of the Z-Score in predicting bankruptcy, the Z-Scores of the companies listed on the AltX that had not entered into bankruptcy over the period was calculated for the period and presented in the table below (referred to as a type 2 error in previous literature).

	2008	**2009**	**2010**	**2011**	**2012**
Expected not to fail	78%	72%	70%	70%	71%
Uncertain	14%	18%	19%	20%	19%
Expected to fail	8%	10%	11%	11%	10%

	100%	100%	100%	100%	100%

The results appear to be consistent year on year with approximately 70% of the companies listed on the AltX over the period having Z-Scores indicative of firm survival. Of concern is the number of firms with Z-Scores that indicate expected corporate failure. From the previous analysis, it is fair to assume that a firm with a 'expected to fail' Z-Score may only declare bankruptcy a few years after initially achieving such a Z-Score. Therefore, those companies with low Z-Scores in years 2010 to 2012 may still enter into bankruptcy subsequent to this study. However, the 'expected to fail' companies in earlier periods such as 2008 and 2009 are of concern as, if the model holds true, these companies would have expected to enter into bankruptcy in the period. Although this study would be limited as numerous possible actions may have occurred subsequently that may have rescued the companies from financial distress.

To study what has subsequently occurred to the companies listed as likely to fail in 2008 and 2009, the Z-Scores of these companies was calculated for the 2012 financial year with the exception of one company which was taken private in 2011 and accordingly the 2011 financial year results were used in the analysis. From the analysis it appears that a 64% of companies classified as expected to fail in 2008 and 2009 that have not declared bankruptcy in the period have remained in the same classification in the 2012 calculated Z-Score classification. Despite the above, 36% of companies have over the period been able to trade out of their distressed position.

Altman Z-EM score

The Altman (1995) Z-EM Score is perhaps more interesting and relevant to this study on the AltX as it was specifically designed for companies operating in emerging markets and it is not restricted to manufacturing companies as the Altman Z-Score is (Altman E. , 2005). The Z-EM Score does not include any consideration for the market price of equity as the Altman (1968) Z-Score does. This will perhaps deal with the criticism of the Z-Score such as the reliability of prices on the AltX. It may be argued due to the exchange not having sufficient liquidity and volume in order to achieve a price that is representative of the fair value of the equity instruments. The Z-EM Score uses data from the financial statements of AltX companies. For purposes of calculating the bond equivalent ratings of companies listed on the AltX, 3.25 had been added to the first calculation of the Z-EM score as discussed earlier and the data presented is inclusive of this amount. Accordingly, using the Z-EM score with the 3.25 included therein, the results of the EMS score can be broadly classified into the following categories:

Z-EM > 5.85	Unlikely to fail
4.35 < Z–EM < 5.85	Uncertain as to whether failure shall occur or not
Z–EM < 4.35	Likely to fail

According to the Altman Z-EM Scores calculated over the period, more companies on the AltX are expected to fail than that calculated using the Altman (1968) Z-Score. Correia (2009) found that approximately 11% of companies were likely to fail using the Altman Z-EM score in the 2008 year. This study found that approximately 75% of companies listed on the AltX were unlikely to fail, 16% of companies were likely to fail and it was uncertain as to whether 9% of companies would or would not fail. The findings of this study are accordingly consistent with that of Correia's (2009) findings with respect to the Altman Z-EMS scores of AltX listed companies in 2008. However, in subsequent years, there has been a substantial increase in the number of companies likely to experience corporate failure, reaching a peak in 2011 of 34% and thereafter declining in 2012 to 22%.
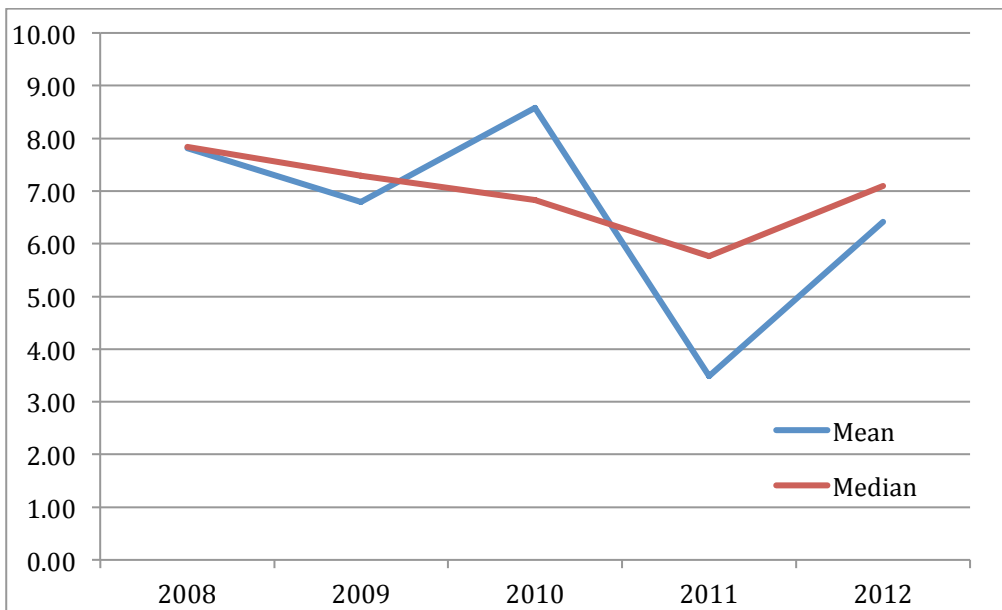
Figure 4: The mean and median Z-EM scores for 2008-2012

In Figure 5, we set out the number of companies per category using Altman's Z-EM scores to determine the liklihood of failure.
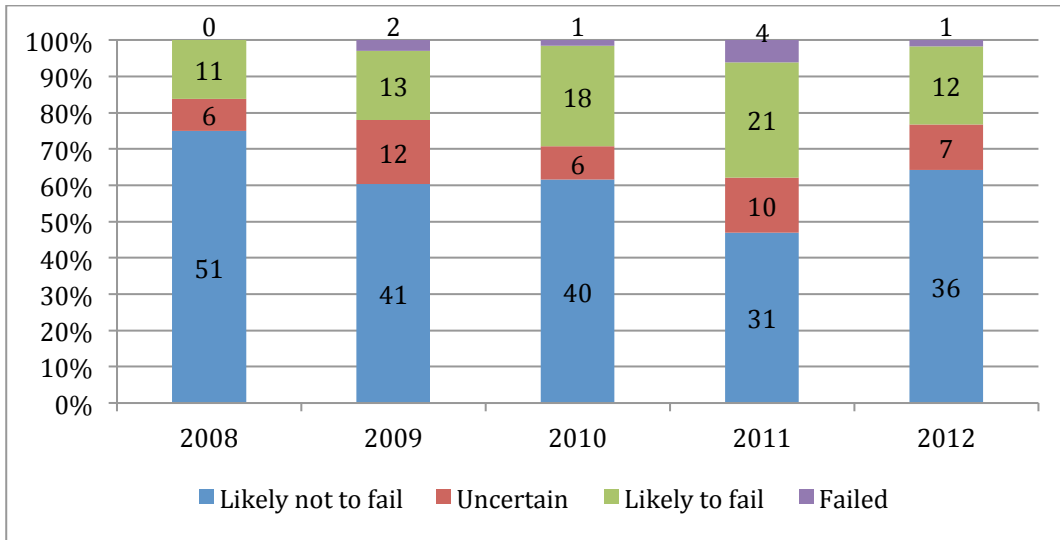
Figure 4: Z-EM scores and the liklihood of failure – number of companies

In analysing the components of the Z-EM Score, it appears as though the equity to total liabilities of the companies listed on the AltX has been the most significant contributor to the Z-EM scores. This is consistent with Correia's (2009) finding that companies listed on the AltX are typically subject to low levels of financial leverage. Similar to the findings of the Altman (1968) Z-Score analysis, the decline in the earnings before interest and taxation over total assets has had the most dramatic impact on the Z-EM scores over the period as well as the fall in the working capital over total assets ratio, which may be expected to move hand in hand with the earnings over total assets ratio as falling or negative cash generation from operations would be expected to diminish the working capital base of a company.

Accuracy of Z-EM Score

Over the period, six non-financial and non-property based corporate failures had occurred on the AltX. Although the population used is small to make firm conclusions, it is still of interest to analyse how accurate the Alman Z-EM score has been over the period tested. It seems that of the six bankruptcies, the Altman Z-EM Score only successfully predicted corporate failure for one of the companies in the two years preceding corporate failure. In this study, the Altman Z-EM score had successfully predicted the corporate failure for the same company in both years, and the other five companies all had Z-EM Scores indicating that they were unlikely to fail.

	1 year	**2 years**
Expected not to fail	83%	83%
Uncertain	-	-
Expected to fail	17%	17%

	100%	100%

Further analysis is performed on those companies within the period that have not entered into corporate failure. The population size in this case is considerably larger as it includes the data of companies for the entire period tested, being 300 observations.

	2008	**2009**	**2010**	**2011**	**2012**
Likely not to fail	76%	61%	61%	48%	65%
Uncertain	10%	20%	10%	17%	13%
Likely to fail	14%	20%	30%	35%	22%
	100%	100%	100%	100%	100%

Accordingly, the Altman Z-EM Score appears to have a very large type 2 error, in that it has predicted a substantial number of corporate failures that have as yet not occurred. Although, it has to be acknowledged that there is a possibility that companies indicated as likely to fail in years 2011 and 2012 may still enter into corporate failure subsequent to the period of this study and thereby validate the score.

Bond equivalent ratings

Correia (2009) performed an analysis of the bond equivalent ratings of companies listed on the AltX in 2008 and found 63% of the bonds to be investment grade and 37% of the bonds to be junk high yield grade according to the Moody's and Standard and Poors' bond rating classification. To extend and derive insight into the analysis performed using the Altman Z-EM score, the bond equivalent ratings of AltX companies were calculated.

Altman (2005) developed a method of determining the corporate bond rating for an emerging market company based on the company's Altman Z-EM score. The bond equivalent rating is based on the ratings of Standard & Poor and Moody's (Correia, 2009) yet for the purposes of presentation the Standard & Poor's bond ratings were used here. As discussed above, the Altman Z-EM Scores were converted to bond equivalent ratings using Annexure 1 as developed by Altman (2005).

Bond Equivalent Rating	2008	%	2012	%
AAA	26	46%	15	27%
AA+/AA/AA-/A /A-	9	16%	17	31%
BBB+/BBB	10	17%	4	7%
BBB-/BB+ /BB/B+	6	10%	7	13%
B/B-/CCC	6	11%	5	9%
D	0	0%	7	13%
	57	100%	55	100%

There has been a fall in the bond equivalent ratings over the four year period, particularly in relation to AAA ratings. Yet there remain in 2012, about 52% of AltX companies that would be allocated a greater than AA bond rating. From AAA to BBB would be classifed as investment grade and therefore in 2008, 79% of AltX firms were investment grade (according to the Altman 2005 criteria) whilst in 2012, this was 65%. Although there has been a reduction in credit quality as reflected by these ratings, there is a significant number of companies with very strong ratings.   The actual bond rating equivalents are set out in Annexures 1 and 2. According to the bond equivalent ratings, a large proportion of companies listed on the AltX are rated as AAA over the period tested. Although it must be noted that the percentage companies in the category has fallen from approximately 46% to 27% over the five year period..   Furthermore, there are a substantial number of D rated companies, which has steadily risen over the period.

In 2012, according to their Z-scores, there are 9 companies that are expected to fail within the next few years.
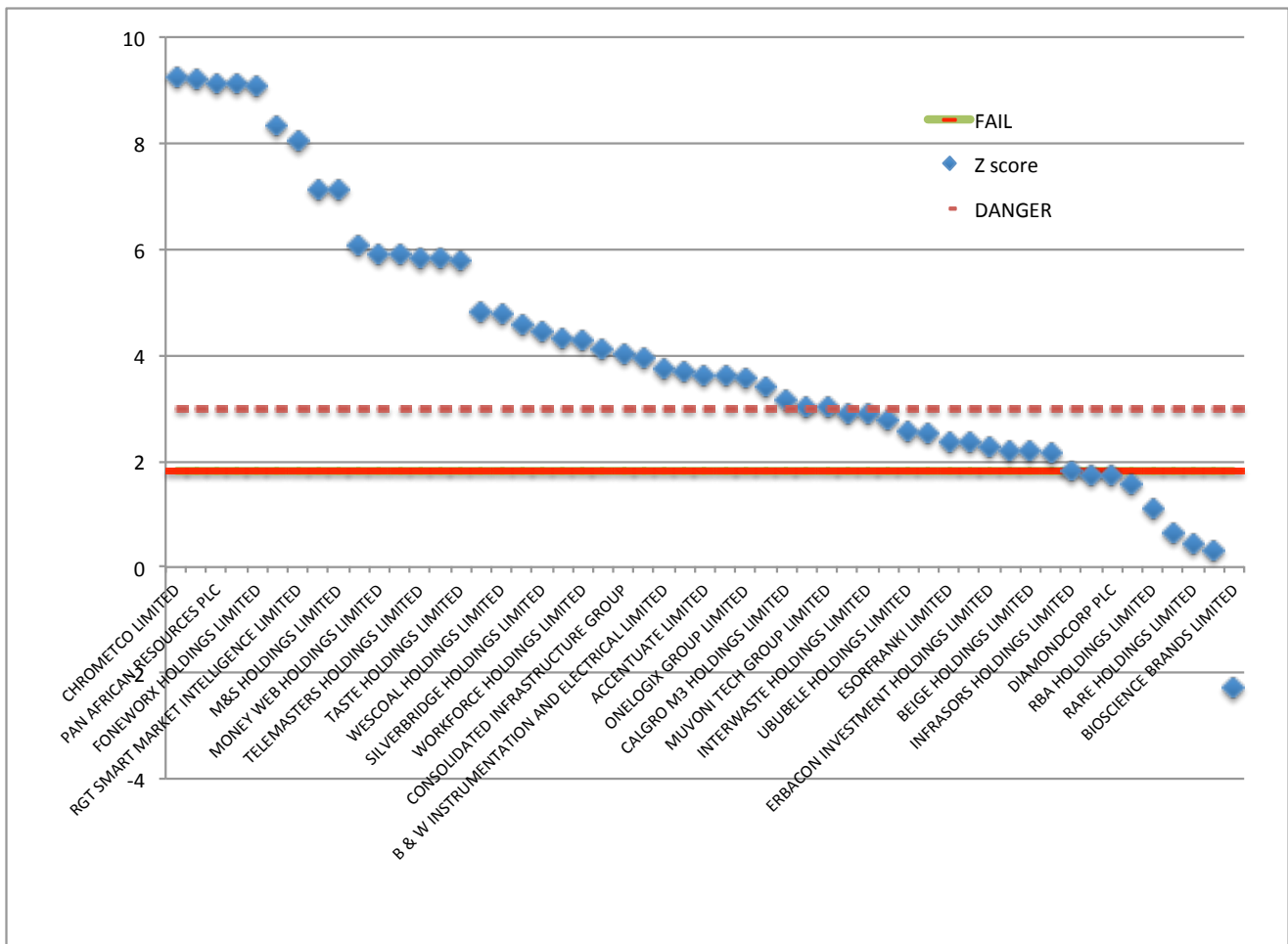
Figure 5: Altman Z-scores and the likelihood of failure for all companies in 2012

Similarly to the results found by Correia (2009), there are a large proportion of companies listed on the AltX that may be considered to be investment grade according to the bond equivalent ratings. Furthermore, the proportion of investment grade companies on the AltX appears to be diminishing given the decline in investment grade bond equivalent ratings. The Altman Z-Score of companies listed on the AltX were calculated and it was found that according to the Z-Score that there was an increase in corporate failure risk in 2009, which had subsequently decreased over the period up to 2012. The Z-Score levels calculated in 2008 indicated that only approximately 11% of companies listed on the AltX were likely to experience corporate failure. This amount increased substantially to 30% in the 2009 year, which appears to have been driven primarily by the falling earnings to total assets ratio. The Z-Scores of companies subsequently improved and by the end of the 2012 year the Altman Z-Score indicated that approximately 15% of companies were likely to fail. However, this has been driven greatly by an improvement in the market value to total liabilities levels of companies listed on the exchange an improvement in the earnings before interest and tax over total assets ratios. The market value over total liabilities ratio is of interest as it is

perhaps indicative of a change in preferred capital structure over time period, with the debt ratios of companies decreasing.

The Altman Z-EM Scores of companies listed on the AltX was calculated and it was found that the average Z'EM score had declined over the period but had improved in 2012. This is in contrast to the Altman Z-Score calculations which indicated an improvement in corporate solvency over the period. Although this may appear to be somewhat contradictory, both predictors have a seemly large standard deviation from 2009 to 2011 and accordingly the mean results may be skewed accordingly. When analysing the median of the Z-Score and Z-EM Score, both indicate that corporate solvency over the period had steadily declined.

The Altman Z-EM Score further found over the period that the proportion of companies expected to enter into corporate failure had increased from approximately 18% to 22% over the period. The bond equivalent ratings of companies listed on the AltX was thereafter calculated and found that a large proportion of companies had investment grade bond equivalent ratings, but this had declined from 79% in 2008 to 65% in 2012. In 2008, approximately 46% of companies had AAA bond equivalent ratings according to their bond equivalent ratings. By 2012, this amount had declined to 27% and the proportion of companies with D grade bond equivalent ratings had increased from 5% to 10%. Based on the above factors, there appears to be a marginal increase in corporate failure risk over the period 2008 to 2012 in the wake of the financial crisis of 2008 and 2009. Nevertheless a large proportion of companies listed on the exchange still have low levels of corporate failure likelihood. Consistent with the findings of Correia (2009), the low levels of corporate failure likelihood has been greatly influenced by the low levels of financial leverage of companies on the exchange, which has over the period tested indicated a trend to more conservative capital structures.

Conclusion

The study found over the period tested that there was an increase in the liklihood of corporate failure of AltX listed companies on the basis of the Altman Z-EM score but less on the basis of the Altman Z-score. The Altman Z-score was able to predict 2/3 of the companies that failed within the period one year prior to bankruptcy. Yet there remains, a significant number of AltX companies with high corporate ratings with 27% of companies reflecting an equivalent AAA rating and 31% of companies reflecting a rating within the range AA to A-. In 2012 the Altman Z-score was predicting corporate failure for 9 companies (16%) and the Z-EM Bond equivalent ratings were indicating failure for 12 companies (22%). In comparison, in June 2011, 16% of the top 100 companies on JSE had Z-scores that were reflecting potential

corporate failure. Therefore, the AltX is reporting similar scores to the Main Board, but with a significant number of companies with AAA and AA equivalent ratings. Yet, the AltX continues to perform poorly in terms of market capitalisation and number of listings. The study further found that low levels of financial leverage was the largest contributor to the solvency of companies listed on the AltX. Whilst the number of corporate failures on the AltX is far too limited to derive firm conclusions, the results suggest that Altman's Z-score is much more effective in predicting corporate failure than the Z-EM score. Perhaps this reflects the single aspect of Altman's Z-Score which is not based on accounting data: the market capitalisation of the company's equity.

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ANNEXURE 1: Bond rating equivalent scores per Altman (2005)

Rating	EM Score range	
AAA		>8.15
AA+	7.60	8.15
AA	7.30	7.60
AA-	7.00	7.30
A+	6.85	7.00
A	6.65	6.85
A-	6.40	6.65
BBB+	6.25	6.40
BBB	5.85	6.25
BBB-	5.65	5.85
BB+	5.25	5.65
BB	4.95	5.25
BB-	4.75	4.95
B+	4.50	4.75
B	4.15	4.50
B-	3.75	4.15
CCC+	3.20	3.75
CCC	2.50	3.20
CCC-	1.75	2.50
D		<1.75

ANNEXURE 2: Bond rating equivalent scores per Altman (2005) in 2008

COMPANY	Em + 3.25	Z-EM Score
AEA	52.57	AAA
CMO	18.95	AAA
ALM	15.38	AAA
GDN	13.94	AAA
DTH	12.18	AAA
IFC	11.74	AAA
IMU	11.58	AAA
BWI	11.45	AAA
ATR	11.44	AAA
OLI	11.26	AAA
BIK	11.16	AAA
ABK	10.81	AAA
TAS	10.72	AAA
MYD	10.32	AAA
ANS	10.26	AAA
RBA	10.26	AAA
TLM	9.46	AAA
WKF	9.31	AAA
ABU	9.25	AAA
PLC	8.75	AAA
PAN-AF	8.72	AAA
RLF	8.69	AAA
BWK	8.47	AAA
ELI	8.38	AAA
CGR	8.34	AAA
BSS	8.25	AAA
ESR	7.62	AA+
IRA	7.61	AA+
ERB	7.58	AA
CIC	7.40	AA
ACE	7.36	AA
WTL	7.35	AA
AET	7.26	AA-
POY	6.70	A
SBG	6.69	A
SFH	6.35	BBB+
CSP	6.24	BBB
ISB	6.21	BBB
WEA	6.19	BBB
TFX	6.19	BBB
IWE	6.17	BBB
RAR	6.16	BBB
HWW	6.15	BBB
TCS	6.04	BBB
RAC	5.87	BBB
PSV	5.71	BBB-
HUG	5.53	BB+
WSL	5.08	BB
PNG	5.03	BB
VOX	4.99	BB
CEL	4.61	B+
1Time	4.15	B
IDE	4.01	B-
MKX	3.95	B-
KCM	3.62	CCC+
DLG	2.85	CCC
IPS	2.19	CCC-

ANNEXURE 3: Bond rating equivalent scores per Altman (2005) in 2012

COMPANY	Em + 3.25	Z-EM Score
CHROMETCO LIMITED	23.15	AAA
ISA HOLDINGS LIMITED	22.66	AAA
FONEWORX HOLDINGS LIMITED	15.73	AAA
MINE RESTORATION INVESTMENTS LIMITED	15.65	AAA
POYNTING HOLDINGS LIMITED	14.34	AAA
PAN AFRICAN RESOURCES PLC	12.86	AAA
RGT SMART MARKET INTELLIGENCE LIMITED	12.24	AAA
MONEY WEB HOLDINGS LIMITED	11.33	AAA
ELLIES HOLDINGS LIMITED	10.78	AAA
B & W INSTRUMENTATION AND ELECTRICAL LTD	10.25	AAA
CONSOLIDATED INFRASTRUCTURE GROUP	9.52	AAA
CHEMICAL SPECIALITIES LIMITED	9.03	AAA
ROLFES HOLDINGS LIMITED	8.80	AAA
ACCENTUATE LIMITED	8.65	AAA
INFRASORS HOLDINGS LIMITED	8.16	AAA
AH-VEST LIMITED	8.11	AA+
M&S HOLDINGS LIMITED	8.05	AA+
M&S HOLDINGS LIMITED	8.05	AA+
ANSYS LIMITED	8.01	AA+
TELEMASTERS HOLDINGS LIMITED	8.00	AA+
TELEMASTERS HOLDINGS LIMITED	8.00	AA+
TASTE HOLDINGS LIMITED	7.81	AA+
NUTRITIONAL HOLDINGS LIMITED	7.63	AA+
GOODERSON LEISURE CORPORATION LIMITED	7.58	AA
WESCOAL HOLDINGS LIMITED	7.53	AA
MUVONI TECH GROUP LIMITED	7.44	AA
CALGRO M3 HOLDINGS LIMITED	7.16	AA-
WORKFORCE HOLDINGS LIMITED	7.09	AA-
ONELOGIX GROUP LIMITED	7.03	AA-
PSV HOLDINGS LIMITED	6.90	A+
BSI STEEL LIMITED	6.85	A
RACEC GROUP LIMITED	6.47	A-
INTERWASTE HOLDINGS LIMITED	6.16	BBB
IMBALIE BEAUTY LIMITED	5.95	BBB
INSIMBI REFRACTORY & ALLOY SUPPLIES LIMITED	5.88	BBB
ESORFRANKI LIMITED	5.87	BBB
SANTOVA LIMITED	5.81	BBB-
UBUBELE HOLDINGS LIMITED	5.57	BB+
MORVEST BUS GROUP LIMITED	5.55	BB+
HARDWARE WAREHOUSE LIMITED	5.48	BB+
DIAMONDCORP PLC	5.19	BB
BEIGE HOLDINGS LIMITED	5.15	BB
S A FRENCH LIMITED	4.77	BB-
TOTAL CLIENT SERVICES LIMITED	4.27	B
RBA HOLDINGS LIMITED	4.12	B-
SILVERBRIDGE HOLDINGS LIMITED	4.08	B-
IPSA GROUP PLC	3.87	B-
W G WEARNE LIMITED	2.77	CCC
RARE HOLDINGS LIMITED	1.58	D
ERBACON INVESTMENT HOLDINGS LIMITED	1.14	D
ALERT STEEL HOLDINGS LIMITED	0.94	D
HUGE GROUP LIMITED	0.74	D
BRIKOR LIMITED	0.04	D
BIOSCIENCE BRANDS LIMITED	-11.62	D
AFRICAN EAGLE RESOURCES PLC	-41.19	D

ACC001 by Mark Graham, Taryn Miller

In Pursuit of Concise Integrated Reports

ABSTRACT

All companies listed on the Johannesburg Stock Exchange (JSE) are required to produce an Integrated Report, on an 'apply or explain' basis, for financial years that commenced on or after 1 March 2010. This is in accordance with s8.63 of the JSE Listing Requirements (JSE, 2013), which requires companies to apply (or explain with reasons why they are not) with the principles of the King Report on Governance for South Africa (King III) which recommends preparation of an Integrated Report (Institute of Directors (IoD) 2009: 12).

King III defines integrated reporting as 'a holistic and integrated representation of the company's performance in terms of both its finance and sustainability'(Institute of Directors, 2009:64). However, guidance as to the content and format of the Integrated Report has only recently been developed.

According to the International Integrated Reporting Council's (IIRC) discussion paper, one of the five guiding principles for an Integrated Report is 'conciseness, reliability and materiality' (IIRC, 2011:3). The IIRC's framework for Integrated Reporting, published in December 2013 reaffirms this principle, now referred to simply as 'conciseness' (IIRC, 2013 b:21). One way in which companies can report more concisely, is to include summarised financial statements in the Integrated Report, as permitted by the new Companies Act (Companies Act No. 71 of 2008, 2011:S29(3)).

The objective of this study is to examine whether or not there is a trend towards more concise integrated reports by South African (SA) companies, both in terms of overall length as well as the length of the financial statement component. In addition, this study examines the content of

summarised financial statements of the companies choosing to report in this way, to determine the consistency (or variation) in those aspects that have been reported.

The sample consisted of the 2012 and 2011 Integrated Reports of the 50 largest SA companies listed on the JSE with financial year-ends on or before 30 September.

The study found that the Integrated Report has not become more concise. However, the financial statement component of the Integrated Report was found to be significantly more concise due to more companies choosing to report summarised financial statements. The effect of the reduced length of this component was however counteracted by a significant increase in the length of the non-financial statement component. Furthermore, the study found that there is wide diversity in the content that companies have chosen to include in their summarised financial statements, although almost all reported the main four Statements (being the Statement of financial position; Statement of profit or loss and other comprehensive income; Statement of changes in equity and a Statement of cash flows) and a headline earnings reconciliation.

Keywords: integrated report; conciseness; summarised financial statements

INTRODUCTION

Integrated reporting and the main product thereof, an Integrated Report, is largely in its relative infancy both locally and internationally. However, JSE-listed companies have been required to produce Integrated Reports since 2011 (for financial years ending 28 February 2011 and thereafter), and the concept of an Integrated Report is gaining serious momentum world-wide according to a report released by UBS (Hudson, Jeaneau, & Zlotnicka, 2012:8). The International Integrated Reporting Council (IIRC) in December 2013 released its International Integrated Reporting Framework (IIRC, 2013 b) and many others, including, preparers of reports, academics, analysts,

businessmen and other stakeholders are engaged in contemplating the essence of the ideal Integrated Report.

One of the guiding principles of an Integrated Report is 'conciseness' (IIRC, 2011, 2013 a, 2013 b). This principle of 'conciseness' is a welcome one, given that South African companies have historically produced annual reports that are well above-average in length (Black Sun, 2011), and the volumes of disclosures provided have resulted in difficulty in discerning relevant from irrelevant information according to the International Auditing and Assurance Standards Board (IAASB) (2011).

The new Companies Act No. 71 of 2008 ('the Act') allows companies to report summarised (as opposed to a full set of) financial statements to shareholders (Companies Act No. 71 of 2008, 2011:S29(3)). The objective of this study is to examine whether there is a trend towards more concise Integrated Reports, and whether this is due to the concession in the Act. Furthermore, the content of summarised information provided was examined, to determine the consistency (or variation) in those aspects that have been reported.

BACKGROUND

In South Africa, the King Report on Corporate Governance (King III) was among the first to introduce the concept of an Integrated Report. King III defines integrated reporting as '*a holistic and integrated representation of the company's performance in terms of both its finance and sustainability*'(Institute of Directors, 2009:64). The Johannesburg Stock Exchange (JSE) requires that South African listed companies apply with King III principles (or publically explain why they are not) (JSE, 2013), and therefore requires companies to produce an Integrated Report (Insitute of Directors, 2009). This has been the requirement since 2011, and South African companies were amongst the first en-masse world-wide to attempt to report in the way described by King III.

Proceedings of the 2014 SAAA Regional Conference

In order to provide assistance to South African companies preparing their first Integrated Report in 2011, a discussion paper titled 'Framework for Integrated Reporting and the Integrated Report' was issued by the Integrated Reporting Committee of South Africa (2011). This was followed shortly thereafter by another discussion paper issued by the International Integrated Reporting Council (IIRC): 'Towards integrated reporting. Communicating Value in the 21st century' (IIRC, 2011), and later by a practice note on this aspect of King III by the Institute of Directors (2012) . Mervyn King (after whom the King III report is named) is the chairman of the IIRC, highlighting the extent to which South Africa is involved in the Integrated Reporting global journey. The IIRC released its International Integrated Reporting Framework in December 2013 (IIRC, 2013 b). A consultation draft of this framework was released (in April 2013) for public comment (IIRC, 2013 a).

The IIRC defines Integrated Reporting as '*a concise communication about how an organisation's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value over the short , medium and long term."* (IIRC, 2013 b:7).

Not only does 'conciseness' feature in the definition above, but it is also part of one of the seven guiding principles to preparing and presenting an Integrated Report, namely '*conciseness, reliability and materiality*' (IIRC, 2011:3) and named *'conciseness'* in the final Framework released in December 2013. (IIRC, 2013 b:21)

The IIRC recognises that judgement is required in distinguishing information that is material and reliable, for inclusion in the Integrated Report, from that which is less relevant and which could be made accessible elsewhere (for example on the company's website) (IIRC, 2011:13). Obtaining an appropriate mix of conciseness, reliability and materiality, is therefore not without challenge. However, it is a much-needed change from the past, which was dominated by lengthy and complex annual reports that frequently obscured relevant information.

The need to eliminate irrelevant or immaterial information in annual reports has been widely acknowledged as a priority. In the United Kingdom, the Financial Reporting Council (FRC) published 'Cutting clutter. Combating clutter in annual reports' in 2012, to aid companies in this process. This publication pleads the case to reduce clutter, where 'clutter' implies immaterial disclosures that inhibit recognising and understanding relevant information, as well as boiler-plate disclosures that remain unchanged from year to year (FRC, 2012). The International Accounting Standards Board (IASB) has also conducted a survey which led to a forum in January 2013 that discussed the disclosure-overload problem (IASB, 2013).

Mervyn King has also strongly affirmed the need for concise reporting. Professor King is quoted as saying that "[companies] must get used to writing concise integrated reports of no more than 30 pages"(Cranston, 2011). The need for and desirability of concise Integrated Reports is therefore a common goal for many involved in the reporting process.

One way in which companies can make progress towards more concise Integrated Reports, is to take advantage of the concession in the new Companies Act to report summarised financial statements, as opposed to a full set of financial statements. Previously, South African companies would typically embed their full set of International Financial Reporting Standards (IFRS) financial statements within their annual reports. The new Companies Act still requires that a full set of annual financial statements be prepared, but allows companies to distribute summarised financial statements to shareholders (Companies Act, No. 71 of 2008, 2011:s29(3)), subject to the requirements of s29(3)[63].

However, neither the Act, nor its Regulations, nor any IFRS standards, deal with the form and content of 'summarised financial statements'. Therefore to provide guidance, the JSE issued a

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[63] S29(3) essentially requires an explicit statement that the financial information provided is only a summary; details of the level of assurance provided for the summary; details of the person responsible for the preparation of the summary and information on how to obtain the full set of financial statements.

guidance letter titled 'Summary of financial Information', which stated that summarised financial statements must be:

- In compliance with the Conceptual Framework for Financial Reporting requirements of IFRS and the AC500 standards, and

- As a minimum, contain the information required by IAS 34: Interim financial reporting (IAS 34), and a statement confirming that it has been so prepared (JSE, 2011).

IAS 34 applies to interim financial reports, being reports for a period shorter than an entity's full financial year. Interim financial statements are therefore not the same as summarised financial statements, however the JSE has prescribed the use of the presentation and disclosure requirements within IAS34 as the minimum content of 'summarised financial statements'. These requirements, according to the International Accounting Standards Board's (IASB) IAS 34 are:

- Condensed statements of:
  - o financial position;
  - o profit or loss and other comprehensive income;
  - o cash flows; and
  - o changes in equity.
- Selected explanatory notes, to the extent that they explain events and changes that are significant to an understanding of the changes in financial position and performance.
- Other key disclosures such as segment information, changes in the composition of the entity, dividends paid and fair value disclosures for financial instruments (IASB, 2012).

Therefore, if South African companies choose to include summarised financial statements in their Integrated Reports, they must comply with the JSE directive above, and this will result in a more concise Integrated Report than one in which the full set of financial statements is included.

Two studies have been performed on the prevalence and length of summarised or full financial statements in the Integrated Report: one by the Integrated Reporting Committee of South Africa (IRC) and one by Deloitte.

In 2012, the IRC commissioned a research survey of the 2011 financial year-end Integrated Reports of the largest 100 companies listed on the JSE, to examine the status of integrated reporting in South Africa, including the prevalence of summarised financial statements within the reports and the length of the report and its financial statement component. The results of the survey were published in a press release titled 'Significant changes in the way in which JSE listed companies report.' (SAICA, 2012).

In the same year, Deloitte also conducted research on South African companies' Integrated Reports for financial years ending between March 2011 and February 2012, which included approximately 150 listed companies, and was published in the 3rd edition of a report titled 'Integrated Reporting. Navigating your way to a truly integrated report' (2012b). Deloitte's research focused on the quality and extent of integrated reports over this period, and assessed these reports on a number of different aspects, one being their content and structure, which included identifying the prevalence of summarised financial statements in the integrated reports and report length.

The results from the research conducted by SAICA and Deloitte are presented in Table 1:

Table 1: IRC (2012) and Deloitte (2012b:28) findings: inclusion of summarised annual financial statements

	IRC	**Deloitte (period 3[64])**
% of companies choosing to include summarised annual financial statements	18%	20%

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[64] 'Period 3' refers to companies in the Deloitte sample with financial year-ends between October 2011 and February 2012.

These results show that a small (but not insignificant) proportion of companies are currently utilising the concession in the Act to report summarised financial statements.

The IRC's findings on average page lengths are summarised in Table 2:

Table 2: Extract of IRC's findings: Report length (no. of pages) (SAICA, 2012)**:**

	Total sample	Total sample subdivided as follows:	
		Companies that included summarised financial statements	Companies that included a full set of financial statements
Average length overall	179 pages	124 pages	Not provided
Average length of financial statement component	Not provided	11 pages	70 pages

These findings indicate that the average length of the Integrated Report was greatly reduced when companies chose to include summarised financial statements (124 pages on average for these companies, compared to 179 pages on average for the sample as a whole). This was largely due to the reduced page length of the financial statement component, which was an average of 70 pages in length where a full set of financial statements was provided, and an average of 11 pages in length when summarised financial statements were provided.

Deloitte's study identified the page length of the Integrated Report *excluding* the full set of financial statements (if reported). Their study was therefore based on data that included pages containing summarised financial statements (for those companies reporting in this way) in the total page number count. Although this methodology does not allow for an easy comparison of Deloitte's findings with that of the IRC's, the results are still noteworthy, and are summarised in Table 3:

Table 3: Extract of Deloitte's findings: Report length (Deloitte, 2012b:27-28)

	No. of pages (excluding full set of financial statements if reported)					
Year-ends:	**0-50**	**50 – 80**	**80 – 100**	**100 – 150**	**>150**	**Total**
October 2011 - February 2012 "period 3"	24%	33%	7%	22%	14%	100%
June 2011 – September 2011 "period 2"	Data not provided, but "majority are between 80 – 120 pages in length" ((Deloitte, 2012a:27))					
March 2011 – May 2011 "period 1"	Data not provided					

The results show an improvement in conciseness in that the majority of companies in period 3 (57%) had 80 pages or shorter for their Integrated Report (excluding the full set of financial statements if reported); whereas in period 2, the majority were between 80 and 120 pages. Although this provides some evidence of a trend towards conciseness, Deloitte did state that they believe most companies 'are still struggling with embedding the principle of conciseness' (Deloitte, 2012b:21).

In summary, the IRC and Deloitte found that approximately 18% - 20% (Table 1) of companies chose to report summarised financial statements. Furthermore, the IRC also found that by including summarised financial statements, the overall page length (and the page length of the financial statement component) greatly reduced (Table 2). Deloitte found that the page length of the overall report excluding full financial statements (if reported) is becoming more concise (Table 3). These findings are based on samples comprising largely of 2011 (and earlier) Integrated Report data.

METHODOLOGY

The companies included in this study are the 50 largest companies (based on their market capitalisation at 31 December 2012) listed on the JSE with financial year-ends on or before 30

September (refer Appendix A). The 2012 and 2011 Integrated Reports of these companies were analysed.

All companies were regarded as being eligible to be included in the study other than Tsogo Sun Holdings Ltd, which merged with Gold Reef Resorts Ltd and therefore did not prepare an Integrated Report for 2011. The final sample therefore comprised 49 companies.

The market capitalisation of the 49 companies in the sample amounted to R4.072 billion, which represented 52% of the total market capitalisation (amounting to R7.745 billion) of the JSE at 31 December 2012.

The report that has been reviewed is the one labelled as the Integrated Report. For dual listed companies who do not necessarily produce an Integrated Report, the information contained in their Annual Report has been evaluated. In all cases, either the online PDF version or hard copy of the report was reviewed.

The following aspects of the Integrated Reports were identified:

- Page length of the entire report;
- Page length of the financial statement component; and (by implication)
- Page length of the non-financial statement component, and
- Whether full or summarised annual financial statements were included.

The pages specified in the Audit Report were used to determine the page length of the full set of financial statements (when reported). In order to identify the pages that contained summarised financial information (when reported), pages that contained any information that would normally form part of the annual financial statements were judged to be appropriate for inclusion in the tally.

In calculating the page length of the financial statement component, pages containing the Directors' Report; Audit Committee Report; Remuneration Report and reports containing lists of subsidiaries were excluded.

Where companies included both summarised and a full set of financial statements in their Integrated Reports, such companies were classified as having provided a 'full' set of financial statements.

Pick 'n Pay Holdings Ltd and Pick 'n Pay Stores Ltd were analysed as one company for the purpose of this study as they produced a combined Integrated Report. This report contained summarised financial statements for both companies. The sum of the page count of both sets of summarised financial statements was used as the page count of the financial statement component for Pick 'n Pay.

The sample was tested for normality using the chi squared test. The test found that the data is not normally distributed (p-value = 0), and therefore the assumptions for using the t-test statistical analysis were not met. A non-parametric statistical analysis test, the Wilcoxon matched-pairs signed-ranks test (Wilcoxon test), was therefore used to determine whether the change in page length from 2011 to 2012 was significant, both for the overall report and for each of the components (financial statement and non-financial statement).

A one-tailed test was performed, therefore the sum of the positive ranks was used as the appropriate test statistic value (T+). As there were a number of tied-ranks, a normal approximation was applied to the test statistic value, and a corresponding p-value obtained for a lower-tail test.

Furthermore, in order to compare the length of the components of the Integrated Reports of those companies reporting summarised financial statements with those reporting a full set of financial statements, the sample was divided into these two subsets, and the same data was identified and analysed, namely:

- Page length of the entire report;
- Page length of the financial statement component; and (by implication)
- Page length of the non-financial statement component.

Finally, in order to gain an understanding of the nature of the summarised information, those Integrated Reports that included summarised financial statements were analysed with respect to the following key information 'pieces', such as the name given to the summarised financial statements; whether an audit report and basis of presentation accompanied the summarised financial statements; whether or not there was any reference to IAS 34; which Statements were reported and which other common or meaningful note disclosures were provided.

RESEARCH FINDINGS

1. Conciseness of the Integrated Report

The key findings are summarised in the Table 4:

Table 4: Results for the sample

	2012	**2011**	**Increase/(decrease)**
Number of companies including a full set of financial statements	32 (65%)	40 (82%)	(8); (17%)
Number of companies including summarised financial statements	17 (35%)	9 (18%)	8; 17%
Average page length of report	181	190	(9)
Average page length of financial statement component	59	76	(17)
Average page length of non-financial statement component	122	114	8

The study found that the number of companies opting to include summarised financial statements in their Integrated Reports increased from 9 in 2011 to 17 in 2012, an increase of 17%. However, the average length of Integrated Reports diminished only slightly from 190 pages in 2011 to 181 pages

in 2012. This slight decrease comprised a large decrease in the average length of the financial statement component (from 76 pages in 2011 to 59 pages in 2012), which was partially offset by an increase in the page length of the non-financial statement component (from 114 pages in 2011 to 122 pages in 2012).

The decrease in the average page length for the financial statement component is likely due to the increase in the number of companies opting to include summarised financial statements.

The increase in the non-financial statement component is possibly due to many companies having reported their Memorandums of Incorporation (MoI) in their 2012 Integrated Reports. The changes to the Companies Act have resulted in many companies needing to amend their MoI's, and the Integrated Report has been used by some companies as the vehicle for communicating these changes. This communication can amount to a number of pages (for example, Aspen Pharmacare Holdings Ltd provided seven pages of MoI information), and is therefore a likely reason for the increase.

Chart 1 indicates that more companies are producing shorter Integrated Reports (34 companies produced reports shorter than 195 pages in 2012, whereas only 28 companies did so in 2011).
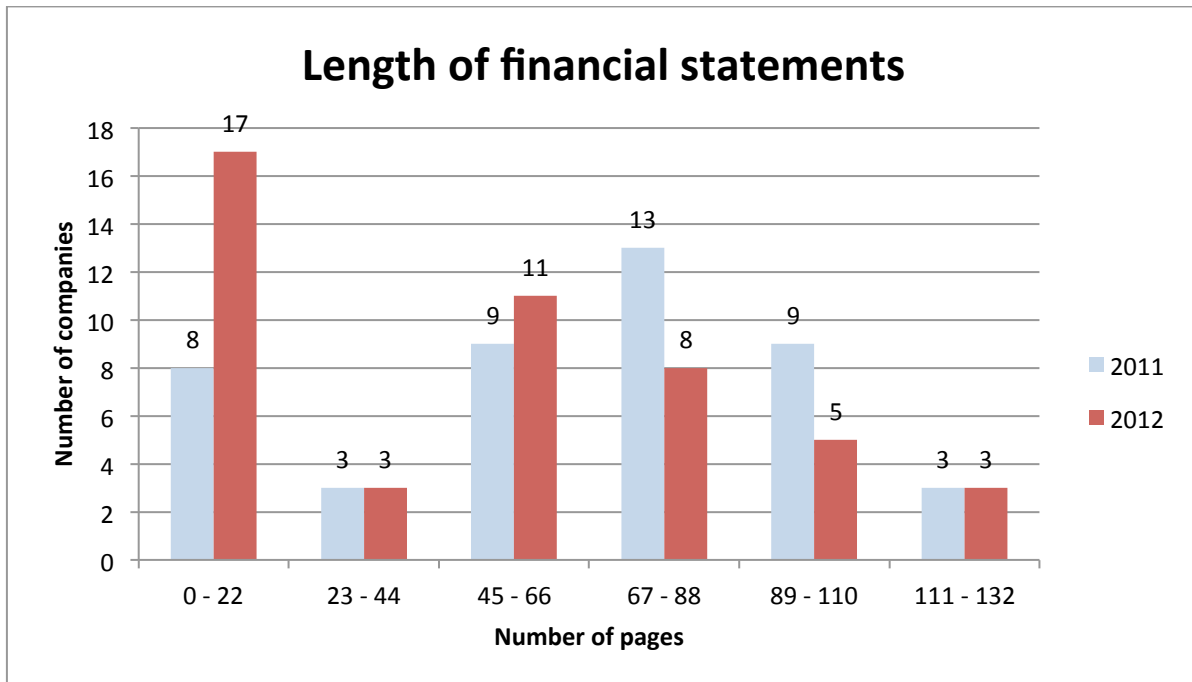
Chart 1: Length of Integrated Report
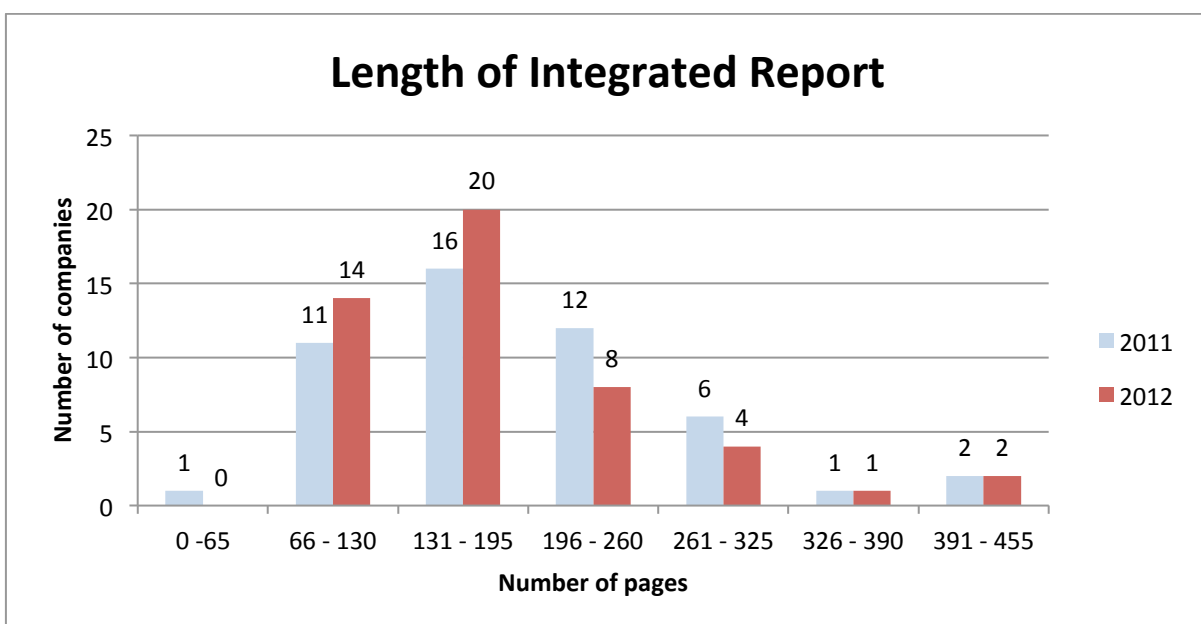
Proceedings of the 2014 SAAA Regional Conference

The second chart indicates that more companies are producing shorter financial statements (31 companies produced financial statements of less than 66 pages in 2012, whereas only 20 did so in 2011).

Chart 2: Length of financial statement component

It therefore appears as if the Integrated Report and the financial statement component are becoming more concise.

The findings were analysed statistically in order to determine whether the change in length from 2011 to 2012 was indeed significant. The results of the Wilcoxon one-tailed test were as follows:

- The overall page length of the Integrated Report was not significantly different in 2012 compared to 2011 (test statistic value (T+) of 488)

- The length of the financial statement component was significantly less in 2012 compared to 2011 (test statistic value (T+) of 259, at 0.2% level of significance)

- The length of the non-financial statement component was significantly longer in 2012 compared to 2011 (test statistic value (T+) of 864, at 0.2% level of significance).

Therefore in conclusion, Integrated Reports have not become more concise, even though the financial statement component has become more concise. This is due to the significant increase in the length of the non-financial statement component, possibly as a result of the additional MoI disclosure provided by many, as mentioned above.

All the companies in the sample that chose to report summarised financial statements in 2011 continued to do so in 2012, apart from African Bank Investments Ltd. Due to this company being an obvious exception, the Wilcoxon test was also reperformed for the sample excluding African Bank Investments Ltd, and the results were in line with those stated above.

In order to directly compare the page lengths of the components of the Integrated Reports for the two subsets of the sample (those companies that included summarised financial statements and those that included a full set of financial statements), the following results are presented:

Table 5: Results for companies including summarised financial statements

	2012	2011
Number of companies	17	9
Average page length of Integrated Report	134	133
Average page length of financial statement component	10	11
Average page length of non-financial statement component	124	122

Table 6: Results for companies including a full set of financial statements

	2012	**2011**
Number of companies	32	40
Average page length of Integrated Report	206	203
Average page length of financial statement component	84	91
Average page length of non-financial statement component	122	112

The following discussion refers to the data presented in both Table 5 and Table 6 above.

Summarised financial statements averaged 10 pages in length in 2012 (in line with 11 pages in 2011), whereas a full set of financial statements averaged 84 pages in length in 2012 compared to 91 pages in 2011. Summarised financial statements are therefore significantly more concise than a full set of financial statements, and this has resulted in a more concise Integrated Report overall (134 pages on average versus 206 pages on average). This result is in line with the IRC's findings, as discussed above.

It is interesting to note that the non-financial statement component is actually slightly longer for companies who include summarised financial statements (124 pages in 2012 and 122 pages in 2011) than for those that report a full set of financial statements (122 pages in 2012 and 112 pages in 2011). Although the length is not significantly different between the two subsets, the results do indicate that companies opting to include summarised financial statements have not been able to reduce their non-financial statement content.

2. Content of the summarised financial statements

Growthpoint Property Ltd (Growthpoint) included summarised financial statements spanning only two pages. These were the most concise summarised financial statements in the sample, and included a simplified income statement and simplified balance sheet and an accompanying reconciliation of the amounts in the simplified statements to the statutory statements.

The following observations were made with respect to the remaining 16 companies that included summarised financial statements. Firstly, in respect of the titles given to the summarised information:

Table 7: Titles given to summarised financial statement information

Summary/summarised	7
Abridged	5
Condensed	3
Abridged & summarised	1
Total	**16**

There is therefore a variety of titles that have been used, although the most popular appears to be 'summary' or 'summarised'.

Secondly, other observations include the fact that eleven companies included an Audit Report/opinion for the summarised financial statements; thirdly, ten companies stated that the information complied with IAS 34, and fourthly, 14 included some basis of presentation. Imperial Holdings had the longest summarised financial statements (34 pages) which included a comprehensive basis of presentation that reported details of new accounting policies adopted; the impact of discontinued operations; subsequent events; operating segment descriptions and the impact of a change in estimate.

All 16 companies included a Statement of Financial Position, a Statement of Profit or Loss and Other Comprehensive Income; a Statement of Changes in Equity and a Statement of Cash Flows. However, five of the companies included a condensed Statement of Cash Flows which varied in layout. Naspers Ltd, for example, presented three lines for cash flows from operating, investing and financing activities (without separately disclosing the underlying cash flow items). Sasol Ltd was

less extreme in their presentation, condensing only the cash outflows for additions to non-current assets (without specifying the underlying asset-type acquired).

Other common content included, fifthly, segmental information, which was provided by 14 of the 16 companies. Three companies – Imperial Holdings Ltd, Nampak Ltd and PPC Ltd - included complete segmental disclosure as required by IFRS 8 Operating Segments.

Sixthly, all 16 companies included a headline earnings reconciliation to basic earnings.

Lastly, the Table 8 summarises other note disclosures that were presented:

Table 8: Analysis of note disclosures

	No. of companies (sample = 16)
Analysis of expenses	8
Capital commitments	8
Reconciliations of non-current assets (in some format)	7
Business combinations	5
Share capital movements	5
Contingent liabilities	5
Details of items within operating profit	4
Composition of revenue	4
Related parties and transactions	3
Exceptional items	2
Discontinued operations	1
Financial instrument fair value disclosure	1

Not all of the disclosure items listed above would have been relevant to each company; however the findings do indicate that there is a variety of note disclosure that has been reported. There appears to

be some consistency in companies choosing to disclose the nature of expenses recognised, capital commitments, as well as the non-current asset reconciliation. Interestingly, the fair value disclosure for financial instruments was only reported by one company, even though this is mentioned as a key disclosure in IAS 34.16A(j). The omission of this disclosure may, once again, be due to the immateriality or lack of financial instruments measured at fair value for the companies in the sample.

CONCLUSION

The results of this study show that companies are not reporting more concise Integrated Reports. However, more companies (a 17% increase from 2011) have chosen to report summarised financial statements, and this has significantly reduced the length of the financial statement component of the Integrated Reports. Furthermore, the length of the non-financial statement component was found to have increased significantly, possibly due to companies having included lengthy disclosure related to the amendments to their MoI.

Finally, the nature of the summarised financial statements varied both with respect to title and in content. There was consistency in that all companies (apart from Growthpoint Ltd) reported the four main Statements (although some included a condensed Statement of Cash Flows) and a headline earnings reconciliation. Most reported segmental information, a basis of presentation and a statement of compliance with IAS 34. However there was a large variation in the nature of additional note disclosure provided.

AREAS FOR FUTURE RESEARCH

Some areas for further research have been identified. Further research to examine whether there is any relationship between the quality of the Integrated Report (measured according to an external ranking, for example, the EY Excellence in Integrated Reporting rankings) and its conciseness, may provide further useful and relevant information in the area of Integrated Reporting.

A study into understanding why companies choose to report summarised or full financial statements (including identifying the reasons for African Bank Investments Ltd decision to resume reporting full financial statements), could provide useful insights into the requests and demands that shareholders are making in this regard.

Finally, replicating this study in future years to determine whether the trend to towards conciseness and to report summarised financial statements does continue will enhance the results of this study.

APPENDIX A

Companies included in the sample:

 1   African Bank Investments Ltd
 2   African Rainbow Minerals Ltd
 3   Aspen Pharmacare Holdings Ltd
 4   Assore Ltd
 5   AVI Ltd
 6   Barloworld Ltd
 7   BHP Billiton Plc
 8   Bidvest Ltd
 9   Brait SE
10   Capitec Bank Holdings Ltd
11   Clicks Group Ltd
12   Compagnie Financiere Richemont SA
13   Discovery Holdings Ltd
14   Distell Group Ltd
15   Firstrand Ltd
16   Growthpoint Properties Ltd
17   Harmony GM Co Ltd
18   Impala Platinum Holdings Ltd
19   Imperial Holdings Ltd
20   Investec Plc
21   Life Healthcare Group Holdings Ltd
22   Lonmin Plc
23   Mediclinic International Ltd
24   MMI Holdings Ltd
25   Mr Price Group Ltd
26   Nampak Ltd
27   Naspers Ltd
28   Netcare Ltd
29   Pick n Pay Stores Ltd
30   Pioneer Foods Group Ltd
31   PPC Ltd
32   Rand Merchant Insurance Holdings Ltd
33   Redefine Properties Ltd
34   Reinet Investments S.C.A
35   Remgro Ltd
36   Reunert Ltd
37   RMB Holdings Ltd
38   SABMiller Plc
39   SAPPI Ltd
40   Sasol Ltd
41   Shoprite Holdings Ltd
42   Steinhoff International Holdings Ltd
43   The Foschini Group Ltd

44 The Spar Group Ltd
45 Tiger Brands Ltd
46 Tongaat Hullett Ltd
47 Truworths International Ltd
48 Vodacom Group Ltd
49 Woolworths Holdings Ltd

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EDU002 by Jacqui Kew, Alex Watson

IMPROVING CONCEPTUAL UNDERSTANDING THROUGH MOTHER TONGUE INTERVENTION? UNINTENDED LEARNINGS

Abstract

Purpose – The purpose of this paper is to explore the unintended learnings that have occurred on a College of Accounting project that aims to improve conceptual understanding through mother tongue intervention. The authors reflect briefly on the intention and development of the mother tongue intervention, discuss the unintended learnings that occurred during the first phase of the project and indicate further areas of research with respect to the intervention.

Design/methodology/approach – An action research approach is being employed to explore whether or not the mother tongue intervention will improve conceptual understanding of accounting students at the College of Accounting. This paper documents the unintended learnings that have occurred in the first phase of the project.

Findings – The unintended learnings from the project include an improved understanding of the complexities of developing a culture of principle (or framework) based teaching at a university, a clearer understanding of identifying "threshold concepts" in financial reporting and a clearer understanding of how African students view the use of mother tongue interventions over the course of their degree.

Originality/value – This paper makes an interesting contribution to understanding how mother tongue interventions are viewed by first language Xhosa and Zulu students as well as developing a deeper understanding of the complexities involved in principle (or framework) based teaching. The paper also identifies further areas of research that the existing project will allow.

Introduction

The shortage of skills and the poor demographic representation of Black African[65] chartered accountants within the chartered accountancy profession have been well documented (SAICA, 2008). Improving both the total number of qualified chartered accountants as well as the skewed demographic profile of the profession is hampered by the higher failure rate of Black African learners' at most tertiary institutions. The reasons for the higher failure rate are grounded in the relatively poorer quality of secondary education, numerous socio-economic issues facing Black African learners (Munro et al, 2013 and Jaffer et al, 2007), as well as the added difficulty facing second/third language English speakers with respect to accessing academic discourse offered exclusively in English (Gerber et al, 2005 and De Hart et al, 2011).

The socio-economic and secondary schooling factors are beyond the control of the College of Accounting. However offering targeted academic intervention that acknowledges the added difficulty faced by second/third language English speakers could influence the throughput rate of Black African students.

This paper documents a video-based mother tongue intervention with respect to Financial and Management Accounting at the College of Accounting (University of Cape Town). The stated problem that the research intends to explore is whether conceptual understanding of accounting material is enhanced if key or threshold concepts are presented to students in their mother tongue via online videos. The research intends to explore the benefits of mother tongue presentation in enabling students to engage with

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[65] The term Black, African as used in the paper, is according the definition used by Stats SA where Black African is included as a category, along with coloured, Indian or Asian, white and other as *a group with common characteristics (in terms of descent and history), particularly in relation to how they were (or would have been) classified before the 1994 elections.*

material without having to deal with the nuances inherent in learning in a second or third language as well as the benefit inherent in video-based learning. The video-based learning benefits allow students the flexibility with respect to how often and at what pace the videos are viewed, allows students to review what they considered to be the more difficult concepts (Meibom et al, 2011), and allows for a more targeted approach to what students need to learn (Brecht & Ogilby 2008). Research into the learning benefits of online video lectures in an introductory financial accounting course also found that they were particularly useful at introducing students to new concepts (Brecht 2012).

Gerber et al (2010) highlight that mastering undergraduate mathematics students is a two-step process in which students first have to understand the mathematical concepts and secondly be able to communicate within in the discipline. During the process of understanding concepts are explained through *the use of two verbal languages, a commonly spoken, everyday language and a subject-specific, scientific language. Students are required to be proficient in both these languages.* This understanding of mathematical concepts would also apply to the understanding of accounting concepts which has a subject-specific business language. As the commonly spoken language used at UCT is English, non-English first language speakers would be at a disadvantage as they would often be less proficient in English and this could negatively impact on their ability to understand the second language, namely the subject-specific business language. The ability to communicate in a discipline in important as students need to be able to efficiently access resources such as textbooks and will be required to complete written assessments (Gerber et al, 2010). These assessments would need to be completed in English. The two-step approach[66] to mastery of a discipline underpins the development of the mother tongue intervention discussed below. The use of a video-based platform allows the

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[66] Gerber, A. Engelbrecht, J. Harding, A and Rogan, J. (2005)

intervention to benefit from the advantages documented with respect to the use of technology in education (Brecht, 2012, Meibom et al, 2011 and Jaffer et al, 2007)

The mother tongue intervention under review will take the form of concept videos[67] focussing on key concepts in financial and management accounting that students have particular difficulty in understanding. These concepts could be referred to as threshold concepts as a lack of understanding of these concepts often prevent students from developing sufficient understanding to proceed to the next level in that subject. As understanding these threshold concepts are vital in allowing access to the discipline of accounting, the primary aim of the intervention is to present videos in African languages to allow students to engage with concepts without having to deal with the nuances inherent in learning in a second or third language.

A secondary aim is to assist students to develop their ability to become more confident in their ability to communicate in English in a professional environment. Providing videos in both the students' home language as well as in English, offers an opportunity to develop students' "professional English" capacity without prejudicing their understanding of the accounting concepts. In order to become more familiar with the use of English in a more technical environment, students will be encouraged to watch the videos in both their home language as well as in English. The videos therefore deliberately use relatively sophisticated English. This differs to the language used in first and second year both in the classroom and in the choice of textbooks. In a lecture environment, it is appropriate to simplify the English to a level that is accessible to the student group in order to get the accounting concepts across as clearly as possible and textbooks, at this level, should be accessible to second or third language English speakers.

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[67] An 8 – 10 minute principle driven video focused on key concept within the selected discipline

The project identified the key areas to be covered in the video-based assistance via consultation with student tutors, academic trainees and academics involved in the targeted courses. The languages in which to translate the videos was identified via a survey of all Black African students currently registered for a financial accounting[68] course at the University of Cape Town. The survey was conducted via the various course online sites (each course has an online collaboration and learning environment, a university wide system referred to as "VULA"). Students were sent an email explaining the purpose of the intervention and asked to indicate a single language preference from the following list: Ndebele, Sepedi, Sotho, Swati, Tsonga, Tswana, Venda, Xhosa or Zulu. Students were also afforded the option of selecting none i.e. no translation requested, or 'other' with the option to indicate a language preference not indicated on the list.

In order to measure the impact of the intervention the platform on which the videos will be accessed will allow monitoring with respect to the individual usage of videos, the order in which videos are watched as well as the results obtained from multiple choice questions imbedded in many of the videos. To enable detailed research of the effectiveness of the videos students will be asked to provide a minimum amount of personal information (gender, race, year of study and province in which schooling was completed, and university) when initially signing on to the platform.

At the time of writing this paper the intervention is still in its primary phase and it is too early to report on whether these intended benefits have materialised. However, there have been a number of valuable unintended learnings that have occurred during this phase of the intervention. The unintended learnings can be grouped into three areas, namely

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[68] Students registered for a degree with the option of continuing towards the Chartered Accountancy profession do not take a course in Management Accounting is their first year.

complexities inherent in principle or framework-based education[69], identifying threshold concepts and students' impression of mother tongue interventions. These learnings will form the remainder of the paper which will conclude with further areas of research.

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[69] Framework or principle based teaching is an approach that emphasises the key principles that underpin the topic being lectured. This enables students to identify what calculations and techniques are similar, why they are similar and also to understand the need for any differences that may arise. Where students are able to discern that the principles applied in different aspects of the syllabus are the same, as well as understand the need for any variations on the general principles, this will have the impact of reducing the syllabus, constantly reinforcing the principles and giving the students the tools to deal with new scenarios where the principles should be applied and what variations may be appropriate.

Proceedings of the 2014 SAAA Regional Conference

1. Complexities inherent in principle or framework based education

Actual versus intended teaching approach

The College of Accounting has as its basis a framework or principle-based approach to education. However, in preparing the scripts for these videos, it has been a humbling and useful exercise to realise that, as a College, we have a long way to go to fully integrate a principle-based approach in all our teaching. Challenges and learnings include the difficulties faced in actually distilling the key principles from a section of work, and the tendency to resort to descriptions of process and worked examples as opposed to an explanation of the key principles. The scripting has therefore encouraged a more critical review of the actual teaching practice occurring in some lectures i.e. process or worked example approach versus the assumed principle-driven approach. The project has highlighted areas where the teaching approach leans more towards process and detail. This learning will allow us to focus our attention on these areas in the classroom to ensure that the principles are not being lost in the detail. It would be misleading to suggest that this will be an easy process as established lecturers are being challenged on their approach in the classroom. Individuals that have embraced the project have been encouraged to work more closely with colleagues and many have been open to the recognition that areas of their teaching approach has been process and detail driven and not principle-based. Further research into the actual changes that will occur in future lectures will be required to see whether this learning leads to long-term changes in the teaching approach within the classroom.

Scaffolding[70] across academic years

An identified benefit with respect to the videos was that senior students would be able to use the videos as revision and simultaneously ensure that they had the correct conceptual understanding of the key principles that are so critical to their future learning. An unanticipated learning was that the process has forced us, as academics, to review how well the principles at each level allow for a scaffolded approach to the subject matter. We have had to examine the way in which we teach and our understanding of the principles underpinning the material covered at each level in the syllabus. This has required us to take a helicopter view i.e. to look at topics from the top down to get a big picture of how the different components fit together; this understanding will assist us in helping students make these connections. This video project has highlighted that developing scaffolded teaching plans is merely the first step in integrating a scaffolding approach into the teaching environment and that we need to constantly evaluate the extent to which our teaching approach is consistent with that philosophy.

A quality check has been instituted; with the most senior academic in both financial reporting and management accounting approving scripts prior to filming. This process became necessary as certain draft scripts suggested that the scaffolding approach to financial reporting[71] education was not being optimally supported by the certain scripts. This realisation, as well as the conceptualisation and review process is ensuring that the explanations provided are both pitched at the appropriate level, and are provided in such a

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[70] A key principle that is applied in determining the syllabi for specific courses in accounting is that all key principles should be introduced at first year, with the level of complexity increasing as the seniority of the student increases. This scaffolding approach is intended to continuously reinforce the basic concepts, while illustrating how the more complex transactions are applications of familiar principles. The success of this approach to teaching is clearly dependent on a strong understanding of the key principles covered in first year courses.

[71] The project has, to date, only completed scripts in the financial reporting discipline

way that the explanation will prepare students for the more senior financial reporting courses. Apart from supporting a more seamless transition between courses, the obvious advantage is that third and fourth year students can be referred back to videos aimed at first or second year in order to remove any gaps in their conceptual understanding.

The renewed focus on the importance of scaffolding has lead to the creation of videos that demonstrate how principles introduced in the more junior courses are applied in the more advanced courses. An example of this is a video that uses the liability definition (junior courses) to focus on whether a credit balance is debt or equity in more complex transactions such as share based payments and group equity transactions and what the classification implies (senior courses).

The concept of scaffolding knowledge has also highlighted the need for videos that cover the interaction and linkages of topics covered in many lectures and that these videos add considerably more value than preparing a video on a single topic. At a first year level, a video that demonstrates the interaction between the different components of a set of financial statements is a good example. At a post graduate level, a video that discusses the approach required to prepare a group statement of changes in equity is a useful way of reinforcing key principles and interaction between many different and potentially complex areas of financial reporting.

Concepts can get lost in a lecture

An important learning that developed during the script writing process was that the videos are not intended to replace lectures. A clear idea of the purpose of the videos has developed, namely it is to highlight key principles and how they interact and are applied in

a number of different scenarios. To achieve this, the role of the videos is twofold. In the first instance, watching appropriate videos may prepare a student for a new section of work by familiarising them with the terminology and explaining the high level principles. The introductory video on deferred tax is a good example. This video highlights the impact of recognising tax in terms of SARS requirements and financial statements in terms of IFRS, and what the financial results would be with and without deferred tax.

The second, and perhaps more important, role is to use videos to highlight the key principles in a particular section of work for subsequent revision and reinforcement. This is useful for those students who are at risk of getting lost in the detail, and often focus on the detailed calculations and processes rather than the principles. While these principles are always covered in lectures, they are often obscured by the use of applied examples or illustrations. In many cases, these principles are applied in a number of different applications where the videos can be used to highlight common skills or principles. The video aimed at first year students which highlights the difference between recording and reporting of transaction is a good example of a video that focuses on issues that are referred to in class, but are often lost in the detail of the application.

2. Identifying key principles

There was a considerable amount of learning that occurred in the process of identifying which concepts are key or threshold concepts; namely the concepts in which a lack of understanding prevents students from developing a sufficient proficiency in a subject to proceed to the next level. The initial process was to survey accounting student tutors; these students have either completed Financial Reporting 2 or 3 and have been appointed, via a rigorous process, to act as tutors. The findings from this survey

highlighted the difficulty many students have with respect to differentiating between topics within a subject and the underlying principles within the subject area. While this is of concern, particularly given the stated aim of the College with respect to framework-based education, it revalidated the decision to make short concept videos (rather than offer videos of full lectures). The second approach asked lecturers to identify the concepts within the courses that they lecture. This approach had value, however, the lecturers' focus was quite narrow as they tended to highlight areas in which students struggled in the current year, rather than questioning which concepts, if not fully understood, would hamper a student's ability to progress in that subject. The most effective approach has been to survey lecturers in more senior years e.g. a financial reporting 3 lecturer is better placed to identify the key financial reporting 2 skills that hinder students' ability to successfully complete financial reporting 3. This acknowledgement has also led to a co-operative writing process, in that different people who conceptualises the script (i.e. which concept should be covered and how the concept should be approached) may differ from the person who writes the script.

The concepts identified via this approach have been supplemented by reviewing course-based examiner comments. As part of the College assessment process, examiners' comments are prepared after each marked assessment. The examiners' comments identify common mistakes as part of the feedback given to students. By reviewing the examiners' comments from prior years it has been possible to identify areas of common misunderstanding, and therefore areas where a video would be able to add value. An important learning from this process is that reading through the examiners' comments has highlighted how repetitive the comments are, and shows that the students from year to year are making similar types of errors. This has forced us to acknowledge that while examiners' comments may be useful to the current group of students as a feedback

mechanism, the examiners' comments have not, as yet, lead to a review of how these common problem areas are being taught. Future research will look at whether the videos currently being developed will reduce the number of common areas of misconception. An added benefit is that, in the future, examiners' comments will be able to direct students to an appropriate video that deals with the issues that are identified as a weakness.

3. Preliminary student view of mother tongue intervention

To determine which two African languages in which to translate the videos, all Black African students currently registered for a financial accounting course were surveyed. The survey was conducted via the various financial accounting VULA course sites. The selected students were sent an email explaining the purpose of the intervention and asked students to indicate a single language preference from the following list: Ndebele, Sepedi, Sotho, Swati, Tsonga, Tswana, Venda, Xhosa or Zulu. Students were also afforded the option of selecting none i.e. no translation requested, or other with the option to indicate a language preference not indicated on the list.

The response rate per academic year (1st – 4th) was sufficient to be able to make an informed choice. The response pattern in 1st and 2nd year and again 3rd and 4th year were similar. In the junior years the large majority of first year students (93%) and second year students (88%) indicated a language preference. In both years Xhosa was slightly more popular than Zulu. In the senior years the majority of respondents indicated no translation. To confirm and explore this finding an email was sent to the relevant fourth year financial reporting students asking them to clarify their request for no translation of fourth year videos. Students commented that they are lectured and answer exams in English and in senior years the accounting concepts rather than the language (English) is the

challenge. The students also raised the issue regarding how useful it would be to translate technical accounting terms, given that there are unlikely to be widely used and understood African language equivalents. This seemed to indicate that, within a technical subject, the mother tongue intervention would create additional problems rather than solutions in more senior years. Our initial response was that this finding needed to be viewed with some caution, as the sample of Black African students surveyed may be self-selecting in that the students with a stronger grasp of English may have proceeded to fourth year and may therefore not perceive the benefit of third and fourth year mother tongue intervention. To counter the possible bias with respect to UCT students the same question was asked with respect to WITS and Walter Sisulu University students[72]. Similar feedback was received from both institutions. The initial decision with respect to the project was to translate first to fourth year videos. Based on the survey response, the decision has been made to only translate first and second year videos. The usage of first and second year targeted videos by third and fourth year students will be monitored. This monitoring will focus on both the number and repetition of home language videos viewed. This will guide future decisions with respect to the translation of third year videos.

At the time of writing this paper (June 2014), the intervention is still in its primary phase and it is too early to report on whether the intended benefits anticipated by the intervention have materialised. However, while students have not been exposed to any of the videos the post-graduate students have been exposed to a number of the scripts relating to the videos. The anecdotal feedback from the students has been positive, with students indicating that they have enjoyed the high level focus of the scripts and the way in which

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[72] Lecturers at Walter Sisulu University (Xhosa) and WITS (Zulu) have been assisting with the translation of and filming of the Xhosa and Zulu videos. Students from these institutions will have first accesses to the videos (during the piloting process.

the scripts demonstrate how the more complex applications apply principles with which they are familiar.

This paper is the first in a series of papers documenting the intervention. Future areas of research arising from learnings in this paper include research into whether the videos will lead to long-term changes in the actual teaching approach employed within the classroom and whether the videos currently being developed reduce the number of common areas of misconception as documented within examiner comments. Research into the actual usage of home language videos, the order in which videos are watched and the impact this has on student results (in comparison both to students' prior results as well as prior cohorts) will be undertaken to develop a better understanding of whether video-based mother tongue interventions have a positive impact on the conceptual understanding of Accounting courses.

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EDU003 by Tarryn Hyland

ACADEMIC LITERACY IN FINANCIAL ACCOUNTING: A THEORETICAL ANALYSIS OF A PROBLEM IN AN UNDERGRADUATE FINANCIAL ACCOUNTING PROGRAMME

Introduction

Becoming a chartered accountant[73] (CA) requires one to embody the expected characteristics, skills and specialised knowledge of the profession (SAICA, 2010). In South Africa the development and acquisition of this knowledge and skills takes place in an accredited accounting education programme and during traineeship with an accounting firm. Being able to "get it right" and prove this in the required academic and professional examinations will enable candidates to successfully qualify as chartered accountants (CAs(SA)). However, this is a time-consuming and complex process characterised by inequities related to race, socio-economic class, language, and educational access (Soudien, 2007; van Schalkwyk, 2007; Pym and Paxton, 2013). Many of these issues remain as an unfortunate legacy from apartheid. For some of the learners wanting to become qualified accountants in South Africa, these challenges may obstruct or hinder their opportunities to access and succeed in professional accounting education (Eiselen and Geyser, 2003; Oosthuizen and Eiselen, 2012; Du Plessis et al., 2005; Koch and Kriel, 2005; De Villiers, 2010). In this paper, a problem related to student performance, and more specifically the specialised use of language, in undergraduate financial accounting is identified and developed via a theoretical analysis using social practices theory.

Context: Professional accounting education in South Africa

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[73] The terms 'chartered accountant', 'qualified accountant', the abbreviation 'CA' and the associated designation 'CA(SA)', are used interchangeably throughout this paper. These terms refer to an accountant that has successfully completed all qualification requirements and registered with the professional accounting body, the South African Institute of Chartered Accountants (SAICA).

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The South African Institute of Chartered Accountants (SAICA) requires potential CAs to successfully pass two qualifying examinations and complete two core stages of professional development: an education programme, outsourced to accredited universities such as the University of Cape Town ('UCT'), and a training programme with a registered training office (SAICA, 2010). The Initial Test of Competence (ITC), the first qualifying examination, is written at the end of the professional education programme and the Assessment of Professional Competence (APC) it written in the candidates' final year of the training programme (SAICA, 2014). The Competency Framework (SAICA, 2010) identifies two key groups of competencies that a CA(SA) candidate must demonstrate to enter the profession: technical competencies, which relates to the understanding and application of knowledge relating to six core subjects[74], and pervasive skills (commonly referred to in the profession as 'soft skills'). Throughout the process of qualification, assessment is the primary gate-keeping tool which either allows or prohibits students from progressing through the required stages of qualification.

Analysis of the ITC results for January 2013 released by SAICA show that the number of non-white[75] candidates continues to increase. However, white candidates consistently outperform their peers by 11 percentage points or more (SAICA, 2013). Access to higher education has improved drastically over the last decade for previously disadvantaged students. However academic performance continues to be skewed. In 2003 white students made up 50% of the Commerce undergraduate cohort at UCT, while African students only made up 17% (UCT, 2007). By 2011, the number of white students decreased to 34% and

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[74] The core technical subjects outlined in SAICA's Competency Framework are: 1) Accounting and external reporting, 2) Auditing and assurance, 3) Financial management, 4) Management decision-making, 5) Strategy, risk and governance, and 6) Taxation (SAICA, 2010). The focus of the proposed study is within the subject discipline of accounting and external reporting.

[75] The identification of groups by race, based on a system of social stratification from the apartheid era and used today in equity legislation and government reporting structures in South Africa, is indicated with the use of quotation marks to indicate that these designations are social constructed. For the purposes of this paper 'non-white' is considered to include 'African', 'Coloured' and 'Indian' groups, and the terms 'African' and 'black' are used interchangeably.

black students now make up 28% of the Commerce student cohort. However, graduate rates[76] for the two groups of students show a stark contrast in academic performance: 82% of white students graduated in 2011, compared to 48% of black students (UCT, 2012). One of the undergraduate financial accounting courses at UCT, part of SAICA's accredited professional accounting education programme, comprises of a diverse group of 700 students each year – diverse in terms of language, learning style, gender, race, culture, religion amongst other factors. The progression rates of white and black students show a substantial variance: 68% of white students meet progression requirements in this particular undergraduate financial accounting course, while only 41% of black students achieve the required 60% to proceed to third year (UCT, 2013). While the statistics above point to difference in student performance across racial groups, the issue of social class is a complex matter in South Africa. Studies by Soudien and Sayed (2005, and Soudien, 2007), citing the work of van der Berg, show that schooling, and specifically the level of affluence or class associated schools, is a significant predictor of academic performance (van der Berg, 2005). Another factor contributing to skewed academic performance could relate to language. A draft language plan for UCT in 2003 reported that "in several programmes/degrees, the discrepancy in throughput rate between English first-language and second language students is currently over 20%" (UCT, 2003). Some students completed English as a second or third language at secondary school, and now they must listen, read and write in English. Consider the following summarised case studies which illuminate the statistics mentioned in the previous section, illustrating the diversity of life experience that students bring to UCT (Pym and Paxton, 2013).

> *Student A:* a male student from a small rural village in the Eastern Cape, a Xhosa-speaking region. While at school, this student would share household chores and herding duties with his brothers – the family survived by subsistence farming. His high school boarding house did not have warm water and his meals consisted of bread

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[76] The UCT Teaching and Learning report (UCT, 2007 and 2011) reviewed the longitudinal progress of first-time entering students and referred to 'completion rates' as a student having completed an undergraduate qualification by the time of the report.

alone. The school had no library and insufficient textbooks. It is most likely that this student's classes were primarily given through the medium of Xhosa, his home language.

Student B: a Xhosa-speaking female student who grew up as the eldest of five children near Johannesburg. She faced much adversity before and during her studies. Her mother did not matriculate, although her father obtained a diploma in mechanical and electrical engineering. This student has a very stressful home environment –her father left home and her mother suffers from depression. She, as the eldest child, feels responsible for her younger siblings. Over and above these personal issues, Student B found the transition from school to university difficult. She faced emotional anxiety due to the cognitive challenges required by the academic rigour of UCT, this was compounded by self-esteem issues and a pressure to success and provide for her siblings, as a first generation university student. The medium of instruction at UCT is English and she felt hesitant to speak in class as her home language was Xhosa. This student also faced financial difficulties during her studies, when her father defaulted on her accommodation payments and she was evicted from her flat. She had to sleep on the floor of friends' rooms while she applied for university accommodation and financial aid.

For many students the change from home and secondary school to UCT created multiple academic, linguistic and social challenges and requires enormous efforts to adapt successfully (Pym and Kapp, 2013: 272).

A problem in an undergraduate financial accounting programme

Available progression rates for an undergraduate financial accounting programme at UCT point to differences by race, highlighted by the statistics provided in the introduction to this problem. However, the description of the context suggests that other constructs such as language, socio-economic class and schooling may play a role. In trying to understand the problem it makes sense to focus on a site of interaction between students and the university involving writing: assessment in a financial accounting course.

Accounting is a codified language of business, or a way of representing the tangible and intangible financial world: accounting translates economic events into financial information (Llewellyn and Milne, 2007). The accounting principles applied in South Africa are

formalised by the International Accounting Standards Board (IASB)[77] and published in the *International Financial Reporting Standards* (IFRS)[78]. As outlined by SAICA's Competency Framework (2010) it is both the technical concepts, such as knowledge of IFRS, as well as the pervasive skills which must be mastered. These competencies and skills are re-contextualised for educational purposes at university and are assessed by requiring students to apply their knowledge and understanding of accounting principles to some unknown business scenario. Signals are included in the business scenario, which the student would need to identify to recognise the specific accounting concepts which apply. However, in my experience while teaching financial accounting I have noticed many students struggling to demonstrate their understanding of the accounting principles.

Consider the following two anecdotal examples of some students interacting unsuccessfully with accounting assessments. While facilitating a small group tutorial[79] which involved debriefing a formative assessment on revenue recognition, I was asked by one of my students, a female Zulu speaking student from KwaZulu-Natal, to explain the answer I had just given in more detail. English was not her home language. It seemed that she had not understood the underlying business transaction of the technology company: she needed to distinguish between software and hardware sales (as products), and website design consultancy (as a service). As a result, she could not even begin to apply the accounting 'rules' to analyse and perform the required task. Recently I was reviewing student tutorial submissions when I came across a note one student had written at the

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[77] The International Accounting Standards Board (IASB) is non-profit organisation based in London which sets the professional accounting standards, related to accounting and external reporting, adopted in South Africa as well as many foreign countries around the world.

[78] In the undergraduate financial accounting programmes at UCT, the scope of the concepts (accounting principles) including in the curriculum is limited specific sections of the *International Financial Reporting Standard for Small and Medium-Sized Entities* (the *IFRS for SMEs*) at a second year level, which serves as the primary course handbook. The *IFRS for SMEs* is a stand-alone simplified version of the full *IFRS* issued for the purposes of small and medium-sized entities (IASB, 2009). Full *IFRS* is taught at a final year level.

[79] Small group tutorials involve regular formative assessment exercises as part of the teaching and learning activities of the second year accounting course at UCT. Most of the tutorial exercises are past assessment questions.

bottom of the page in red pen: *"Think like an accountant"*. This comment could have been written in response to the many corrections she had to make on her tutorial script. This particular student is an older student in comparison to her peers. She has recently returned to university to study accounting, after qualifying and practising as an occupational therapist in a large insurance firm. These are just two examples of students grappling with the forms of knowledge in an undergraduate financial accounting programme that I frequently see in my teaching. These examples hint that maybe something else is going on which might be causing the 'break-down' between what students are supposed to do in response to assessment, and what they are actually doing. Are other forces, some 'tacit curriculum', preventing students from decoding accounting assessments and so preventing students from accessing and applying their knowledge and skills as required? And why is it often English second-language students, rather than first language speakers, who seem to struggle in negotiating accounting assessments?

Theoretical analysis

A literature review of international and South African research on assessment and student performance in accounting higher education was conducted, and then applied to the problem of student performance identified in financial accounting. The results of this literature review are detailed in Part I of this theoretical analysis and applied to the problem identified in Part II.

Part I: Literature review

International accounting education research is dominated by studies from the US, Canada, Europe, Australia and New Zealand, according to summaries of literature reviewed by Apostolou et al. (2010 and 2013). Research in this field, presented in six key international

journals[80] and summarised in the comprehensive literature review of accounting education by Apostolou et al., can be grouped into four core lines of enquiry: 1) curriculum, assessment and instruction, 2) educational technology, 3) faculty (departmental or institutional level) issues and 4) students (e.g. characteristics, learning styles and career opportunities) (2013: 1). Further, there are different subjects which sub-divide accounting research, namely the basket of technical subjects included in the knowledge domain of professional accountants: financial accounting (or reporting), management accounting, taxation, auditing, and information systems (also called accounting information systems). Research on assessment in international accounting education is limited. Apostolou et al. (2010 and 2013) identified only 11 articles relating to assessment published between 2006 and 2012. The key themes included the use of continuous learning and formative assessment to improve student learning, flexible and automated (individualised) assessment systems, and the use of multiple-choice questions (MCQ) (use of which is not common in accounting education.) In Australia there has been more interest in the design of assessments in accounting higher education, evidenced by a teaching and learning report issued in 2006 as an initiative by the Australian Government Department of Education (Jackson, et al., 2006). The key findings from this report relate to the impact of English competency and teacher quality on student learning (Jackson, et al., 2006).

Studies on student performance

In South African higher education literature the body of research focussing specifically on assessment in financial accounting is not well developed. Accounting education research in South Africa relates primarily to the following key themes:

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[80] There are six key international accounting education journals: (1)Journal of Accounting Education, (2) Accounting Education: An International Journal, (3) Advances in Accounting Education, (4) Global Perspectives on Accounting Education, (4) Issues in Accounting Education, and (6) The Accounting Educators' Journal. (Apostolou, B., et al., 2010 and 2013)

1) indicators of performance of first year accounting students (for example Eiselen and Geyser, 2003; Oosthuizen and Eiselen, 2012; Barnes et al., 2009; Du Plessis et al., 2005; Bargate, 1999, Odendaal and Joubert, 2011),

2) language and soft skills in the accounting curriculum (Koch and Kriel, 2005; De Villiers, 2010),

3) open book assessment (Rowlands and Forsyth, 2006),

4) approaches to learning (an international influence) (Barac, 2012; Visser et al., 2006),

5) the use of edtech (education technology) in and out of classroom to improve student learning (Van Rooyen, 2010; Halabi et al., 2010; Rhodes, 2012), and

6) other instruction methods (blending learning and learner-centred facilitation) (Hiralaal, 2012; Koma, 2009).

Relevant studies identified from the first two categories are explored in this section. There are a number of South African accounting education studies which attempt to identify trends, and possibly reasons for, the slow performance of certain groups of students, often English-second language or black students (for example Eiselen and Geyser, 2003; Oosthuizen and Eiselen, 2012; Barnes et al., 2009; Du Plessis et al., 2005; Bargate, 1999, Odendaal and Joubert, 2011). Many of these studies use quantitative methods and attempt to establish correlations between one or two variables, such as age, gender, race and school academic records, and first year accounting performance. Research in accounting education (including the studies identified above) provides some insight into the complex issue of student performance, but do not consider all the complex issues affecting student learning. For this reason I must consider a wider body of research in higher education to find out what may be impacting on student performance in my context.

Higher education studies in Europe, Australia and South Africa include a number of studies that have problematized student learning in diverse classrooms (Lillis, 2003;

Arnold, 2013; Sadler, 2003; Scott et al, 2007; Soudien, 2011). In the UK Lillis (2003) describes a higher education system in transition: changing from an elite system open only to the minority, to a mass higher education system encouraging wider access. This has resulted in a diverse student body in terms of the material, cultural and social resources that students bring with them (Lillis, 2003: 192). Studies from Netherlands have recently focused on the comparatively poor performance and higher dropout rates of ethnic minority students (Arnold, 2013). In South African higher education literature, the relatively poor academic performance of black English second-language (possibly even third-language) speakers is well documented (Sadler, 2003; Scott et al, 2007; Soudien, 2011). Research to understand possible reasons for the discrepancies in performance across socio-economic groups have been broadly linked to issues of academic underpreparedness (Scott et al, 2007; van Schalkwyk, 2007; van Schalkwyk et al. 2009; Soudien and Sayed, 2005; Soudien, 2007), home language versus the language of instruction (Sadler, 2003; Koch and Kriel, 2005), and issues of student identity and agency (McKenna, 2004; Pym and Kapp, 2013; Soudien, 2011).

Language in the accounting curriculum

Studies in South African accounting education that problematize 'language' suggest that student performance is linked to English proficiency (or proficiency in the medium of instruction) (Du Plessis, et al., 2005; Eiselen and Geyser, 2003). The authors of a study at Rand Afrikaans University, which reviews the profiles of 45 first-year accounting students identified as 'At risk' students or 'Achievers' for the purposes of the study, noted the 'At risk' students showed an 'inability' to communicate effectively in English.

A study by Koch and Kriel (2005) provides some understanding of the impact of language on learning in accounting. This study, carried out at the University of Port Elizabeth (now

the Nelson Mandela Metropolitan University) investigated language as a contributory factor to academic failure among first year students. The study concludes that while proficiency in the medium of instruction is important, this might be in place, at least in terms of the students' ability to negotiate the grammatical underpinnings of the English language. The issue that students were struggling with rather is problem-solving, related to identifying the hidden signals in the accounting texts, and building conceptual understanding of accounting concepts (2005: 255). Poor reading strategies and abilities of students prevent them from understanding the task in accounting assessment: identifying what to do in terms of the task "is thus a very specific kind of reading" (2005: 225). Lastly, the study identifies poor test taking strategies (exam technique) where students do not plan responses to tasks, but rather start responding to questions straight away (2005: 226). Koch and Kriel refer to a 'disciplinary literacy' related to accounting which they identify as the "conventions of academic and professional [accounting] English" (2005: 222). This study introduces the issue that 'language' is a complex issue which reflects not only linguistic resources, but something else as well. This may be the case in the undergraduate financial accounting programme at UCT where the issues that students are grappling with go beyond only language. As the authors comment: "one should never lose sight of what is actually being taught, namely dominant, mainstream, western literacy practices…" (2005: 223). The findings of Koch and Kriel seem to indicate that the style of language used in accounting, and the related valued concepts and skills of professional accounting education which are dominated by the English language, may be related to or based on western (European) systems of language and power. Studies in accounting education, apart from the preliminary findings by Koch and Kriel discussed above, do not shed light on these more complex socio-cultural issues beyond language which impact on student learning. To understand these issues we must turn to a body of work called new literacy or academic literacy studies.

Academic literacies studies are engaged in the critical study of "language-in-its-social-context" (Ivanič, 1998: 36). A traditional view of language sees it as 'autonomous' (Street, 1993): language is viewed in technical terms and is independent of social context. In this abstract view of language it is something that can be learnt, acquired and traded like a commodity. Studies in accounting education, such as those by Du Plessis, et al. (2005) and Eiselen and Geyser (2003), use an autonomous or 'deficit' view language, where someone either possesses the ability to use language, or not. An academic literacies perspective acknowledges the socio-cultural influences on reading, writing and meaning-making practices – that is, an ideological view of language (Street, 1993). This perspective allows the ways of using language in a practice to be studied. Studies in South African higher education, including research by Jacobs (2005 and 2010) and the Language Development Group (LDG) at UCT, published in the edited books by Thesen van Pletzen (2006), and Angelil-Carter (1998), use the academic literacies perspective to research the complex issue of how language impacts on learning in higher education, particularly for students who do not speak English as their home language. An understanding of the use of language is crucial, as summative high-stakes assessments in professional accounting education are written in English[81] under time-pressured conditions. The approach offered by the academic literacies perspective, considering language within social practices, allows a wider lens with which to review the problem related to the text-based assessment practices in accounting.

Language is a system of signs, normally words, verbal or written, capable of conveying some meaning (Ivanič: 1998: 39). Literacy (or literacies) refers to "ways of using language" (Ivanič, 1998:58). Any individual in a particular social context undertaking a social activity uses language to convey some meaning required by the social activity, and so language

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[81] SAICA does allow candidates to write the ITC examination in English or Afrikaans. All undergraduate and postgraduate assessments offered by the Accounting Department at UCT are written in English.

cannot be viewed in isolation of its context. Ivanič cites Bhaktin saying that "each word tastes of the context and contexts in which it has lived its socially charged life" (Bhaktin, 1981: 273 – 274, cited in Ivanič, 1998: 43). Using language requires making choices about words (lexicalisation), syntax (structure of sentences or phrases) and phonetics (pronunciation and emphasis) and these choices in language are affected by socio-historical context and power relations (Ivanič, 1998: 38). Literacy from an academic literacies perspective goes beyond only written or spoken words, and includes social actions around texts such as being, acting or feeling for example (Ivanič: 62). Fairclough considers discourse to be any spoken or written language use (1992: 62), but he also uses the term more broadly to refer to a mode of action and representation (63), related to the processes production, distribution and interpretation (consumption) of texts. Discourse (in the wider sense) is shaped and constrained by social structure. Thus through this conceptualisation of discourse, language use in turn is a form of social practice (63). Fairclough (1992) considers social structure as systems of knowledge and belief (64), class and other social relations at societal level (64) and relations specific to institutions (64). The influence of this social structure on discourse is mediated through social practices which Ivanič defines as "ways of acting in and responding to life situations" (1998: 65). Social practices are practices that are particular to local, institutional and socio-historical conditions (Ivanič: 41) which affect the practices of social group. The term practice implies ways of acting as well as mental processes and strategies (being, feeling and attitudes) in response to some social activity (Ivanič: 65 and 67). Fairclough claims that social practices have varying economic, political, cultural and ideological orientations (1992: 66). At the centre of Fairclough's social practices theory is the "social event" (1992) which is the point of action of the social practices and which is influenced by the macro-social structures in which it is located. Social practices form a network of social practices which may be overlapping and interdependent. These associations with other social

practices influence interactions in a given social event. Ivanič says that social practices aren't in isolation and that they "leak into one another" (1998: 73).

Part II: Application of social practices theory to financial accounting

Thus far, a problem has been identified in undergraduate financial accounting relating to skewed performance across groups of students which may be related to language, specifically the specialised ways in which is language (included relating thinking-and-doing) is used in particular domains. According to academic literacies theories this specific social practice in turn is influenced by social structure and the network of social practices within which it is located. In summary – the use of language, and the related thinking and actions, within a particular domain of social practice has tacit rules which must be understood and which are influenced directly or indirectly by local and global socio-economic contexts. Consider how this theoretical analysis can be applied to understand the problem of student performance related to assessment in undergraduate financial accounting: by understanding the social structure and related social practices which are drawn on in the professional accounting education practice, the tacit ways of viewing the world and communicating can be made explicit and actively worked with in professional education, rather than be accessible to only the lucky few students who "get it". So what does this 'undergraduate financial accounting practice' look like? And how is it influenced and shaped by the network of social practices to which it is related? The 'undergraduate financial accounting practice', that is ways of thinking-and-doing in professional accounting education, are likely to be influenced by the network of social practices which it is related to (but not limited to): professional accounting practices (IASB and SAICA), industry practices (dynamic knowledge business transactions and practices), trade regulatory

practices (dti[82], Companies Act of 2008), higher education practices (DHET[83] policies), professional accounting education practices (the practices of accounting departments at SAICA accredited universities in South Africa), mathematics practices (high school and university mathematics), school accounting practices and related practices at the higher education institution itself (such as, first year accounting practices, economics practices, and management accounting practices). How do those networks of social practices influence undergraduate financial accounting practice?

Let us consider professional accounting education practice, of which the undergraduate financial accounting practice is a subset, which draws heavily from the practices of professional accounting and business. These practices (professional and industry knowledge and skills) are recontextualised for the purposes of education. As noted earlier when identifying the problem, there is some body of 'tacit knowledge' about business practices (for example, understanding the operations of a technology company) that is required for students to be able to participate in professional accounting education practice. That is, students must 'harness' knowledge of business from outside the classroom and 'transfer' this knowledge to the accounting assessment to be able to understand possible applications of accounting concepts and the simulated scenarios in assessments. Evans (1999) refers to 'transfer', from a social practice perspective, as the process of learning something in one context and applying it to another. For some students there may be areas of over-lap or commonality between classroom knowledge (professional accounting education practice) and everyday knowledge (understanding of dynamic business transactions and structures as business practice). Thus, in theory, students that have developed a repertoire of discourses or social practices which are more

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[82] The Department of Trade and Industry (dti) is the government unit which regulates and oversees industry in South Africa.
[83] The Department of Higher Education and Training (DHET) is the government department that regulates and oversees the higher education and training industry.

closely aligned to the professional accounting education practice may find transfer of accounting concepts to/ from real-world business knowledge easier to achieve. Further, the complex interplay of language (words) and numbers in accounting requires English proficiency, together with reading skills and critical or analytical thinking. Cummins refers to a distinction in language usage between "surface fluency and academic proficiency" (1996: 56). Undergraduate academic practice at university often requires decontextualized language that can manage associations with "higher order thinking skills, such as hypothesizing, evaluating, inferring, generalising, predicting and classifying" (1996: 57). Cummins refers to the level of language proficiency to manage these thinking skills as cognitive academic language proficiency (CALP). In contrast, a more contextualised or informal language is described as basic interpersonal communicative skills (BICS) (1996: 57). Students must apply 'advanced' language manipulations to perform cognitively demanding responses often related to context-reduced scenarios in accounting assessments (Cummins, 1996: 58). The implication of CALP is that not only must students possess competence to communicate in the language of instruction (English), but they must possess the ability to argue and reason and demonstrate higher-order thinking too.

I consider undergraduate financial accounting practice to be a social practice, which contributes to, or is a part of, professional accounting education practice. In my view there are four key practices which undergraduate financial accounting practice draws on, including: English academic practices (the course is offered in English and so Cummin's theories of CALP versus BICS may apply), accounting genre practices (an understanding of accounting codes relating to the accounting system of debits and credits and underlying accounting equation is required, as well as the more detailed accounting principles contained in the *IFRS* - the authoritative professional accounting regulations), quantitative literacy for accounting (students need to navigate the complex system of words and

numbers in the course materials and assessments) and business industry practices (dynamic knowledge of business transactions and the economy). The social structure which shapes the higher education financial accounting practices in South Africa can be traced through some of the social practices in the network of social practices. Key elements of the social structure include, but are not limited to, the inequality and poverty in the socio-economic context of South Africa as a legacy of apartheid, a system of poor schooling, the international influence of the IASB on SAICA and its education programmes which influence the post-graduate accounting programme at UCT and so trickles down to the undergraduate financial accounting curriculum, and the government policies on both industry and higher education. Koch and Kriel note on their study of language in accounting, it might be that accounting educators are teaching dominant, mainstream, western literacy practices (2005). The descriptions of 'dominant', 'mainstream', and 'western' refer to the social structure in South Africa which continues to be dominated by European social and business practices in the accounting profession. Reasons for this include the influence of the IASB based in the United Kingdom on the South African accounting profession through SAICA, the global trade relations with Europe as an export partner and at a socio-economic level the remnants in South African society of the country's history of domination by a white minority Afrikaans and 'English' government.

Conclusion

Thesen and van Pletzen sum up the influence of social structure on discourse and language as follows: "our personal histories, our social, political, racial, ethnic and national backgrounds, shape our understandings and impact our academic and intellectual pursuits" (2006: xi). As educators, we should consider not only the particular practice(s) in which we are situated, but also importantly our students and the practices that they bring with them from their previous experiences of language. In order to enable all accounting

students, especially those who are socialised in practices far removed from the European and business practices which dominate professional accounting education, accounting educators need to embark on a study of their own social practices. If we can identify and describe the specialised way that professional accountants view the world, use words and numbers and communicate, we can teach students about these practices and through formative assessments allow students to apprentice (Gee, 1996) and 'try on' the social practices of being a professional accountant. In conclusion, this theoretical analysis of a student performance problem in financial accounting, specifically related to the ways in which language is used in the curriculum and assessments, serves to encourage further studies exploring the tacit rules of professional accountants and in particular, professional accounting education.

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MAF004 by Glen Dowie and Gizelle Willows

INVESTOR'S ABILITY TO ESTIMATE THEIR RETURN:

A REVIEW OF LITERATURE

Introduction

"Over their lifetime, people base thousands of decisions on impressions of their skill, knowledge, expertise, talent, personality, and moral character" (Dunning, Heath & Suls, 2004). If these decisions are based on incorrect impressions of our skill, knowledge, expertise and talent we may end up making the wrong decisions.

"There are three things extremely hard: steel, a diamond, and to know one's self" (Franklin, 1750).

This review will set about looking at the behavioural biases that affect the decisions and estimates' made of an individual's self-performance. These biases are most notably: overconfidence (Barber & Odean, 2001), anchoring (Kahneman & Tverskey, 1982) and the 'better than average' effect (Landier & Thesmar, 2009), as identified by existing literature. Each bias will be individually investigated to gain a better understanding as to how it affects an individual's views of their own performance and an individual's prediction of their performance going forward.

This review precedes a study of the phenomenon in a South African context as part of the author's dissertation in fulfilment of the requirements of the degree of Master of Finance at the University of Cape Town.

Overconfidence

Overconfidence influences an investor's propensity to trade frequently yet unsuccessfully (Bailey, Kumar & Ng, 2011), which is largely due to the fact that they overrate their

knowledge and abilities and are overly optimistic about future prospects (Fischhoff, Slovic & Lichtenstein, 1977; Tourani-Rad & Kirkby, 2005).

Overconfident investors tend to hold undiversified portfolios indicating that a lack of diversification was an investor choice and not as a consequence of institutional factors such as trading costs (Baker & Nofsinger, 2002; Odean, 1998). However, Odean (1998) showed that this lack of diversification was owing to an investor's unjustified belief in that stock, which meant that the investor held more of the stock than a rational investor would have.

Male investors have been found to exhibit overconfidence (Bailey et al., 2011) to a greater extent than females (Barber & Odean, 2001; Willows, 2012; Willows & West, 2012) and inexperienced investors have been found to be more prone to optimism (Greenwood & Nagel, 2009). Furthermore, self-assessments of skill and character tend to be more inaccurate than people suspect leading to overconfidence (Dunning et al., 2004). Dunning et al. (2004) found that most people only have a modest level of insight into the skills that they possess and character traits that they have. All these factors contribute to the incorrect view that individuals hold of themselves.

Dunning et al. (2004) further found that people place too much confidence in the insightfulness of their judgements. They overestimate the likelihood that their judgements of the present are correct and that their predictions about the future will prove true.

Other causal factors have also been found to contribute to overly optimistic predictions. People tend to neglect important information that they have on hand when making predictions (Read & Van Leeuwen, 1998) owing to their behavioural biases. When people predict how they think they will behave or react in certain circumstances; they tend to dwell

on the positives of the scenario and fail to consider the worst-case scenarios that could easily be generated (Newby-Clark, Ross, Buehler, Koehler, & Griffin, 2000).

Thus far the focus has been on the negative aspects of overconfidence, but Landier and Thesmar (2009) found that it does have some positive effects. Landier and Thesmar (2009) showed that during the early stages of their businesses, overconfident entrepreneurs worked harder to find customers and research technology in comparison to those who were not overconfident.

Another benefit of overconfidence is that in the most severe and stressful of psychological circumstances, those people who exhibited overconfidence recover better (Taylor, Lichtman & Wood, 1984).

In conclusion, investors are overconfident, men more so than their female counterparts. This overconfidence will lead an investor to overestimate the returns that they have generated. Furthermore, they will trade more than the rational investor would, translating into a lower return earned. Furthermore, self-ratings and reviews are not very accurate, which enables the manifestation of overconfidence.

Anchoring

Anchoring is the bias that people exhibit when they form a decision, base a statement or make an estimate based on some initial, possibly arbitrary, value (Kahneman & Tversky, 1982). In other words, people anchor a decision based on an initial base.

Kaustia, Alho and Puttonen (2008) performed controlled tests on 300 Scandinavian financial advisers where the advisers were asked about their stock market expectations while the information provided to them was changed. The study looked at the effect that historical data had on forming expected returns. In the first experiment (Kaustia et al., 2008) advisors were provided with the real average return of European stocks over the last

century of 4.5%. The average expectation of the stock market return over the next 20 years was projected to be 4.6%. In comparison to this, when advisors weren't presented with the historical return they estimated that returns over the next 20 years would be 3.4% higher than those who had been given the historical return. When advisors were asked whether their knowledge of past returns had affected their estimate of future returns, those that said they hadn't had the same strong grouping around the 4.5% historical return as those advisors who said that the historical return had a strong influence on their estimate (Kaustia et al., 2008).

In an experiment by Kahneman and Tversky (1982), individuals were asked to estimate the percentage of countries belonging to the united nations that were African. To test the anchoring bias, they asked the subjects if their number was higher or lower than a randomly generated number between 0 and 100. Those subjects given the number 10 subsequently had an average estimate of 25%; while those given the number 60 subsequently had an average estimate of 45%. This showed that if subjects have an initial number to base their estimates off, that it would affect their estimate.

The above literature points towards a bias that affects the way in which people make estimates or assumptions about given scenarios. These situations can be areas where individuals are experienced or completely new to the subject (Kaustia et al., 2008). Anchoring has the potential to affect every decision that an individual makes. Kaustia et al. (2008) showed that anchors can play a significant role in individual's estimation of their past returns.

Better than Average Effect

People tend to believe that they are better than average (Landier & Thesmar, 2009); a view which violates simple mathematical probability as not more than half of a group can be above average (Landier & Thesmar, 2009). In a study over one year (1976-1977) of

more than one million high school seniors, 70% of the students believed that they had above average leadership skills and only 2% of the same sample believed that their leadership skills were below average. In the same study, students were asked to rate themselves relative to their peers with respect to how well they got along with others. Nearly all the respondents rated themselves as at least average, 60% of the students said that they were in the top 10%, and 25% of the students believed that they were in the top 1% (Dunning, 1999).

This 'better than average effect' does not only apply to students; Rutter, Quine and Albery (1998) found that most motor cyclists believed they were less likely than the average biker to be in an accident. Similarly, 94% of professors stated that they did above average work (Cross, 1977). Wagenaart and Loftus (1988) found that lawyers overestimate their chances of winning cases that are about to go to court while Odean (1998) found that stock pickers think that the stocks that they pick are more likely to end up winners than those of the average investor.

Given the fact that people prefer to find out how they are doing in comparison to others, it is noted that both Dunning, Johnson, Ehrlinger and Kruger (2003) and Weinstein (1982) found that people's comparative judgements involved very little comparisons. Dunning et al. (2004) found that when people evaluate their skills relative to their peers (with respect to the same skills) they were egocentric and thought primarily of their own skills and attributes while ignoring those of others. Kruger and Dunning (1999) found that in asking a person to evaluate their skills relative to other people in a task that they could perform well (riding a bicycle for example) people say that they are better than average, forgetting that most other people can also ride a bicycle. When asked how they thought they compared to others in the skill of juggling most people thought that they were worse than average, once

again, forgetting that most people cannot juggle and showing that we do not take into consideration the skill of our peers.

These egocentric tendencies carry important implications for the base from which we prefer to compete with others. Windschitl, Kruger and Simms (2003) as well as Moore and Kim (2003) found that people would rather compete in areas that they are good at, forgetting that the people they are competing against are most likely good in the same area. College students preferred to take general knowledge quizzes against their peers about movies involving Adam Sandler, an area they knew well, rather than in French painting, a difficult area, forgetting that what was easy or difficult for them was equally as easy or difficult for their competitors (Windschitl et al., 2003). This behaviour is irrational as performance should be relative to others rather than how good you think you are in isolation (Windschitl et al., 2003).

In a study by Cooper, Woo, and Dunkelberg (1988) it was found that 81% of new business owners thought that they had a 70% chance or better of succeeding but only 39% of those owners thought that a business similar to theirs would succeed. This shows that that while people think that they are better than average, they also overestimate the likelihood of their own success.

In summary, the literature shows that individuals not only believe that they are better than the average person, they also tend to ignore the fact that most people struggle with the same problems and have the same vices, thereby misjudging how well or badly they will do.

Estimating Returns

Investors that are prone to behavioural biases generally make poor decisions about fund style and expenses, trade frequently and have poor performance (Bailey et al., 2011; Barber & Odean, 2001; Gervais & Odean, 2001).

Education, wealth, and other general financial market knowledge are the three factors that Amromin and Sharpe (2005) showed would help increase an investor's accuracy of the estimate of their past returns. Therefore, as the respondent's education level or the dollar value of their stock holdings increased, they had a much smaller recall error. However, when they controlled for age, Amromin and Sharpe (2005) found that the accuracy of their predicted returns were not significantly influenced by the number of years of investment experience.

Fischhoff et al. (1977) believe that one aspect of risk is being unfamiliar with the stock that you are investing in, which results in a local and familiarity bias. Familiarity bias is the bias of an investor to invest in stock that they know of i.e. a stock that they are familiar with and whose operations they deal with often while a local bias is the reluctance to invest in anything that is not from the same region or country. These two biases are one of the reasons why investors are reluctant to diversify internationally despite the diversification advantages that this can hold. Coval and Moskowitz (1999) showed that this is largely due to local investors having an information advantage over their international counterparts. In a study by Guiso, Sapienza and Zingales (2008) respondents believed that the stock of their employer was safer than that of a diversified portfolio. Therefore, the evidence suggests that people view stocks that they are familiar with more favourably and believe that these stocks will deliver higher returns with a lower level of risk. Familiarity will shift portfolio weights towards local and familiar stocks, affecting the investor's perceived risk and related return (Huberman, 2001).

Kaustia et al., (2008) found that individuals tend to significantly overestimate historical returns. While estimating returns is not easy for a rational investor, it is made even more difficult by the biases that affect an individual's decisions. Furthermore, an investor's perceived opinion that they are better than others and more likely to succeed encourages them to trade more, often thinking that it will lead to better returns.

Experienced Investors

Feng and Seasholes (2005) define experience as the evolving behaviour of a single investor with regards to their investing decisions while Wilde (1900) stated that experience is the name we give to our mistakes. Feng and Seasholes (2005) point out that experience, along with sophistication (defined as the number of 'rights' i.e. ways in which an investor is permitted to trade on their account), minimise the disposition effect. Bailey et al. (2011) defines the disposition effect as "the propensity of an investor to sell winners too early and hold losers too long." Bailey et al. (2011) along with other research (Odean, 1999; Shefrin & Statman, 1985) found that investors sell a greater proportion of winners and a relatively smaller proportion of losers .

By looking at different investment groups, i.e. retail investors vs. professional money investors, researchers have been trying to determine if there is evidence to support the disposition effect (Feng & Seasholes, 2005; Locke & Onayev, 2005; Odean, 1998; Shefrin & Statman, 1985). Feng and Seasholes (2005) found that sophisticated investors are 67% less likely than the average investor in their sample to exhibit symptoms of the disposition effect. Trading experience as a single factor can reduce the disposition effect in an individual by 72%, while a combination of trading experience and sophistication eliminates the reluctance in an investor to realise losses (Feng & Seasholes, 2005). On the other hand, Feng and Seasholes (2005) found that there is a large asymmetry between experience/sophistication and the disposition effect.

Feng and Seasholes (2005) showed that experience curves of both young and old investors as well as both genders are upward sloping for different types of traders, thus not confined to a specific market or type of trader. Furthermore, these upward sloping curves were noted for both high and low frequency investors. List (2003) found strong evidence that as an individual becomes more experienced, their behaviour converges towards an unbiased prediction. Because of this, it would be expected that as an investor becomes more experienced in the field of trading that there would be less bias in their decisions. Furthermore, this would imply that they would be able to more accurately predict what past returns have been as well as being able to display more realistic expectations of future returns.

Greenwood and Nagel (2009) found that age is a reasonable proxy for experience. Vissing-Jorgensen and Attanasio (2003) show that young, inexperienced investors had the highest stock market return expectations in the late 1990's whilst Greenwood and Nagel (2009) found that inexperienced money managers (albeit having gone through training) displayed more significantly affected trading behaviour compared to experienced managers.

A study by Smith, Suchanek and Williams (1988) showed that inexperienced traders have adaptive expectations and Lahav, Noussair and Haruvy (2007) showed that investors extrapolate recent price movements when forming expectations.

Over a 30 day investment period Seru, Shumway and Stoffman (2009) found that an investor with one year of experience would earn 22 basis points more than an inexperienced counterpart. Additionally, Seru et al. (2009) found that as investors became more experienced, they increased their returns. This is achieved through experience or through realising that as an investor they are ill-equipped and would be better off investing in an index fund (Seru et al., 2009).

The majority of the literature shows that experience will aid an investor in their decision-making as well as their ability to consider all necessary information. Owing to this it would be expected that the more experienced an investor is, the more accurate they will be in estimating past returns.

Conclusion

There is a wealth of evidence strongly indicating that people make substantial errors when they evaluate their "abilities, attributes, and future behaviour" (Dunning et al., 2004).

Having looked at behavioural biases that affect individuals it is apparent that there is no such thing as a rational investor and one could be expected to find the same irrationality in how investors estimate their returns. Overconfidence has a major effect on all individuals, but more so in men than in women. Furthermore, other major biases and heuristics, such as anchoring, have been shown to affect investor behaviour and decisions. However, not only are individuals prone to these errors, but the less experienced they are, the more prone they are to these biases. With experience comes the ability to better read and understand one's own ability. Lastly, whilst important information is often available when making decisions and comparisons, individuals tend to ignore this information thinking that they are in fact better than the average individual.

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MAF005 by Jolandi Gevers, Carlos Correia

THE CROSS-SECTION OF SHARE RETURNS: DOES THE SALES-PRICE RATIO HAVE SOME EXPLANATORY POWER?

Abstract

The CAPM indicates that the expected return of any share is a linear function of the share's beta relative to the market portfolio. Despite early tests supporting CAPM, later studies indicated that factors such as firm size and price-earnings ratios were able to provide a higher degree of explanatory power than beta to explain cross sectional differences in returns. Fama and French (1992) provided evidence that share returns can be explained by three factors: the market, firm size and book to market ratio. Other studies have expanded the list of fundamental factors to include sales-price, debt to equity, dividend yield and prior performance.

The objective of this study is to review the evidence on the explanatory power of the Sales-Price ratio to predict the cross section of returns in the developed world and emerging markets. The review of the evidence has been undertaken on an absolute basis and relative to other fundamental factors. This review found that in most markets, a significant relationship exists between share returns and the Sales-Price ratio. The Sales-Price factor is less affected by company specific factors such as earnings volatility and losses. Whilst no study on the role of the sales-price ratio has been undertaken in South Africa, other fundamental factors such as book to market, firm size and price-earnings ratios have been found to be significant in explaining share returns. Future research will involve testing the ability of the sales-price ratio to explain the cross-sectional variation in returns in South Africa.

Proceedings of the 2014 SAAA Regional Conference

Introduction

Since the beginning of modern finance theory, finance academics and practitioners have been intrigued by the cross-section of expected share returns. The reason for this is that the cross-section of returns is considered to be what determines the systematic risk of a share. Why does the return of one share vary from another? Modern finance theory postulates that beta explains the cross section of returns best. Beta measures the volatility of a share against the market portfolio. Beta is used in the Capital Asset Pricing Model (CAPM) to determine the risk, and consequently, the required return of a share.

However, since the seminal paper on CAPM by Sharpe (1964) tests were undertaken to empirically test the validity of CAPM. Although the early studies were generally supportive of CAPM (see Black, Jensen and Scholes (1972), Blume and Friend (1973) and Fama and MacBeth (1973), increasingly studies of alternatives to the CAPM found that factors such price-earnings and firm size were able to provide greater explanatory power than beta.   This led to is an ever growing body of research on factors that explain the cross-section of returns better than beta such as Basu (1977) and Banz (1981) and Fama and French (1992). This is known as the anomalies literature. In some instances it has been found that beta does not explain the cross section of returns at all. The most influential of these studies is perhaps the one performed by Fama and French (1992) which found that the ratio of Book-to-Market Value and the size of a company was enough to explain cross sectional variations in share returns in the USA during the period 1963 to 1990. What is more, which is probably what made this study so influential, was Fama and French showed that beta had very little correlation with future share returns.

The following are among the variables which have been the most frequently tested:

- Market capitalisation or Market Value of Equity (MVE), a proxy for company size. (Banz, 1981; Fama & French, 1992)

- Price to Earnings ratio (PER) or the inverse, Earnings Yield (E/P) (Basu, 1977, 1983; Reinganum, 1981; Strugnell, Gilbert, & Kruger, 2011)

- Price to Book ratio (PBR) or inverse, Book to Market value (BMV) (Fama & French, 1992; Stattman, 1980; van Rensburg & Robertson, 2003)

- Price to Cash Flow ratio (PCFR) or Cash Flow Yield (CFP) (Davis, 1994)

- Price to sales ratio (PSR) or the inverse, Sales to Price ratio (S/P)[84] (Barbee, Jeong, & Mukherji, 2008; Barbee, Mukherji, & Raines, 1996)

- Dividend yield (DY) (Litzenberger & Ramaswamy, 1979)

- Debt to Equity (D/E) (Barbee et al., 1996; Bhandari, 1988)

These are considered to be fundamental variables based on the fact that these are the variables most frequently tested, rather than because of the existence of an *a priori* theoretical model. In fact, in an extensive review of research performed on the cross-section of share returns, at least fifty variables were documented which were used to predict share returns in the cross-section, where the cross-section is performed in the same environment of NYSE-Amex-Nasdaq shares (Subrahmanyam, 2010).

The Price-Sales Ratio

A key fundamental variable is the Price-Sales ratio (or the inverted Sales-Price ratio (S/P)). This ratio came to the forefront after the academic and investor Kenneth Fisher published a book called Super Stock in 1984. Kenneth Fisher is an

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[84] Where a study documents a positive relationship between returns and S/P, it is the same as having a negative relationship between returns and the PSR.

investment manager and the founder and CEO of Fisher Investments. He is on Forbe's list of 400 richest Americans with an estimated net worth of $2.3 billion. As of 2010, Fisher's firm managed $41.3 billion in 38,521 customer accounts. He has written numerous best-selling investment books, is a contributor to Forbes magazine, and has written academic articles published in journals such as the Financial Analyst Journal, Journal of Portfolio Management and the Journal of Investing.

In his book, Super Stock, Fisher champions the use of the PSR as a superior share screening tool. He considers the PSR to be a perfect indicator of a share's popularity which is an important variable for a value investor. The sales amount used in the ratio is also inherently more stable than earnings which can move from one extreme to another from one reporting period to another.

A major advantage of the PSR is that companies with negative earnings, (which result in a meaningless PE ratio), can be included in the screening process (Leledakis, Davidson, & Karathanassis, 2003; Leledakis & Davidson, 2001). For example Gharghori, Stryjkowski, and Veeraraghavan (2013) reported that 50% of the companies included in their study had negative earnings or negative cash flows. Many studies exclude companies reporting negative earnings due to the difficulty this introduces. For instance it is not possible to calculate a meaningful growth rate from period to period where the earnings move from a negative number to a positive number (Lakonishok, Shleifer, & Vishny, 1994; Lev, 1989). On the other hand, companies who report zero Sales will be problematic. This is especially prevalent among resource and biotech companies who do not have Sales in the first years of the company's existence. Gharghori et al., (2013) reported that 28% of the companies included in their study had zero Sales.

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The research literature on the explanatory power of the PSR revealed that there are two major ways in which research have tried to establish the explanatory power of the PSR. One is through an informal portfolio selection method. The other is through regression analysis. In most studies these tests are performed alongside each other.

Tests of the Sales-Price ratio in the USA

After the publishing of Super stock (Fisher, 1984), three major USA studies were undertaken by Senchack and Martin (1987), Levy and Jacobs (1988) and Barbee, Mukherji, and Raines (1996).

Senchack and Martin (1987) tested the claim that the PSR investing strategy is superior to the PER investing strategy during the period 1976 to 1984 by considering risk-adjusted excess returns. The risk and return relationship was calculated on a quarterly and annual basis. This allowed for both a long-term and short-term strategy. The study documented that low PSR shares exhibit both higher absolute risk-adjusted returns and produced superior returns compared to higher PSR shares. However, the study reported that low Price-Earnings Ratio (PER) shares performed better than low PSR shares on both an absolute and risk-adjusted basis. It was found that for the annual holding periods low PSR shares generated excess returns of 3.45% whilst low PER shares generated an excess return of 7.1%.

This is contrary to other studies performed on the two ratios such as Jacobs and Levy (1988) and Barbee et al., (1996) and contrary to Fisher's viewpoint that the PSR is superior to the PER as a share selection tool. There might be several reasons for the difference. Firstly, the holding period might be too short. Fisher advocated in his book that shares should be held for a longer term. Furthermore, Fisher makes it clear that the PSR should not be used on its own in determining

which shares to buy. The PSR optimally leans on an understanding of profit margin analysis (Fisher, 1984, p. 74). Another finding in this study is that low PSR companies tended to be smaller companies whereas Fisher documented that larger companies tended to have lower PSRs (Fisher, 1984). Nathan, Sivakumar, & Vijayakumar (2001) used similar methods to Senchack and Martin (1984) but for the period 1990 to 1996 and reported very different results. This study demonstrated that using the PSR as a trading strategy resulted in consistently higher excess returns and that this result was robust across different exchanges (Nathan et al., 2001).

Jacobs and Levy (1988) studied the PER, size, DY, BMV, S/P, beta and CFP along with factors such as earnings surprise, the "earnings torpedo" effect and the January effect. The study was performed over the period January 1978 to December 1986. Amongst the study's findings was that the S/P investment strategy produced a significant pay-off in relation to investing in the market index.

Barbee et al., (1996) empirically tested Fisher's theory. The study analysed returns in the USA over the time period of 1979 to 1991 and it focused on the explanatory power of the S/P compared to D/E, BMV and MVE. Returns were calculated for both individual shares as well as for portfolios based on the different multiples as screening methods. The results of the study indicated that the S/P and D/E have a strong correlation with share returns, stronger than that of BMV. Furthermore the *"S/P consistently had the greatest explanatory power for share returns among the four variables that were examined"* (Barbee et al., 1996, p.58) thus contradicting Fama and French (1992) who stated in their research that the BMV is the variable with the strongest relation to share returns.

The results of this study were confirmed in a follow-up study published in 2008 by Barbee, Jeong, and Mukherji (2008), which examined the behaviour of PER, EPS, CFP and S/P. A cross-sectional univariate regression analysis indicated that P/S had the most consistently negative relationship with returns. A multivariate model, where S/P was decomposed into other market multiples, reported greater explanatory power. Furthermore, an annual t-test of portfolio returns indicated that S/P was the only "multiple for which value shares significantly outperform growth shares on a fairly consistent basis" (Barbee et al., 2008, p. 9).

Dhatt, Kim, and Mukherji (1999) performed a study on the Russell 2000 Index, which is a commonly used U.S. small-cap benchmark. This study was performed during the 1979 to 1997 period on a sample of 1,981 companies (99% of the companies on the Russell 2000 Index). The following fundamental variables were tested; MVE, PER, PSR and MBV. It was indicated that value shares outperformed growth shares regardless of which measure is used. Most importantly PSR was a better indicator of value than the other variables.

Other developed markets

Similar studies were conducted in other developed markets. Bird and Whitaker (2003) conducted a study across several European markets (Germany, France, Italy, Netherlands, Spain, Switzerland and the United Kingdom) over the period of 1990 to 2002. The study was on value and momentum investing, but a sub part of the study was to test for the best value indicators. BMV, DY, EY and S/P were tested and it was noted that DY and EY disappointed whilst BMV and S/P worked well. The authors argue that BMV and S/P are *'purer measures of value as they are more difficult to manipulate'* (Bird and Whitaker, 2003, p.229). In this case, however, the

S/P provided lower returns than the BMV, making the BMV the superior measure. Interestingly the portfolios based on BMV comprised of relatively small, low-priced shares with a relatively low trading volume, whereas the S/P portfolios included shares which are on average neither small nor low-priced. This means that investors might not be able to extract all the value to be offered by BMV portfolios due to size and liquidity considerations. The optimal holding period for value portfolios was around 24 to 36 months.

Suzuki (1998) conducted a study in Japan in order to determine whether the Price-Sales Ratio (PSR) is an efficient share selection tool thus providing superior share returns. The study was conducted for the period 1982 to 1994. The 100 shares on the Tokyo Stock Exchange with the lowest PSRs, PERs and PBRs were selected in each fiscal year. The assumption was made that these shares would be held for an average period of 4 years which is the average length of the business cycle in Japan. All groups outperformed the TOPIX and low-PSR shares outperformed low PER shares in 6 of the 13 years. The study identified one of the advantages of the PSR to be that the PSR allows for investors to choose from a wider range of industries. The study established that the PSR is especially meaningful during periods of economic recovery.

Leledakis and Davidson (2001) conducted a study in the United Kingdom over the period 1980 to 1996. Two methodologies were employed in the study; the portfolio analysis approach as used by Fama and French (1992) and a cross section regression analysis approach as used by Fama and Macbeth (1973). The variables tested were BMV, MVE, S/P and D/E on a sample of 1,420 non-financial companies. The portfolio analysis revealed a positive relationship between average share returns and the S/P with a return differential of 18.6% per annum between the smallest S/P

portfolio and the largest S/P portfolio. The results also indicated that the variables tend to be correlated to each other with the largest correlation being between S/P and D/E and between BVM, S/P and D/E. The study did not attempt a multivariate analysis in order to separate the impact of the various variables on share returns. The cross-section regression analysis implied 1) that D/E had a significant positive relationship with average share returns and 2), contrary to Barbee et al (1996) D/E did not absorb the roles of BVM and MVE in explaining future share returns. Lastly, the results indicated that, similar to Barbee et al. (2001) out of the all the variables tested "*S/P was significant in explaining the cross-sectional average share return beyond the contribution of BVM and MVE and that S/P absorbed the explanatory power of D/E*" (Leledakis & Davidson, 2001, p. 103).

An Australian study performed by Gharghori et al. (2013) analysed six of the fundamental variables and their ability to explain future share returns. The study was performed over the period 1993 to 2009 and followed the same approach as Leledakis and Davidson (2001). The regression analysis was performed on both individual variables as well as multiple variables. For the regression analysis on individual variables, BMV and S/P (the inverse of PSR) were "*significantly positively related to returns which were consistent with the results from the portfolio analysis approach*" (Gharghori et al., 2013, p. 407). BMV had the highest t-statistic, which was an indication of it being a superior indicator of future returns. The regression analysis performed using a multiple variable also documented that BMV is the superior variable. A possible reason for this result is that the study analysed companies with positive and negative earnings separately and incorporated companies with negative EP and CFP into the analysis.

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Emerging markets

Research on the Sales-Price ratio extended to emerging economies, but this area has received much less attention to date. Research has been performed in countries such as Taiwan (Chou and Liao, 1996), Brazil (Halfeld, 2000), Greece (Leledakis et al, 2003), South Korea (Mukherji, Dhatt and Kim, 1997), and Ghana (Abekah, 2005).

Chou and Liao (1996) conducted a study on the performance of the PSR and PER screening tools on the Taiwan Stock Exchange. What is interesting about this study is that instead of using the CAPM to calculate the relative performance, a stochastic dominance approach was used. The strength of the stochastic dominance approach is that it does not require a specific probability distribution of returns and specific form of utility function on investors. Levy and Lerman (1985) tested the performance of the PER, and Liao and Chou (1995) test the relative performance of the PER and PSR in the US stock market using this same approach.

From this study the following conclusions were made:

- The low PSR portfolios achieved superior returns compared to the high PSR portfolios (high S/P ratios achieved superior returns).
- Including shares with both negative and positive earnings (PSR* portfolio) made no difference in performance, proving that this is not an advantage of the PSR.
- A low PER strategy can provide the equivalent performance of a low PSR strategy, indicating that PSR is not superior to PER.
- Low PSR companies were mostly larger companies (Chou and Liao, 1996).

Leledakis et al., (2003), performed a study on the Athens Stock Exchange, Greece. The study ran across a period of ten years, 1990 to 2000, on a sample of 203 non-

financial companies. A similar approach was taken to Leledakis and Davidson (2001) where both the portfolio analysis method and the cross-sectional regression approach as taken. Some of the variables tested were MVE, BMV, S/P, D/E, E/P and DY. The portfolio analysis approach reported a significant relationship between average share returns and MVE, BMV, and D/E with no clear relationship between average share returns and S/P. The cross-sectional regression analysis also reported that MVE was *"consistently the most powerful variable in explaining the cross-sectional variation in share returns"* (Leledakis et al., 2003, p. 420). These results indicate that one cannot assume that the same results will be achieved in small emerging markets as in developed markets. In developed markets, BMV had far more explanatory power.

Mukherji, Dhatt, and Kim (1997) performed a fundamental analysis of South Korean share returns. The study used the Spearman rank correlation coefficients of share returns in order to identify which variables have strong relations with share returns. BMV had the most significant relationship, followed by D/E and S/P. The correlation of EY was close to zero whereas the correlation of beta was negative. The study also noted that D/E was strongly positively correlated with S/P. These findings were reinforced by studying the return of portfolios based on the different variables indicating that BMV and S/P are more efficient indicators of value for Korean shares.

In a study performed in Ghana, Abekah (2005), also using a Spearman rank test, found that the PSR had a significant positive relationship on a long term basis with share returns. The PSR however did not have a significant short term relationship with expected share returns. This is contrary to other studies performed in emerging markets, but could be due to the immaturity and lack of liquidity of the Ghanaian Stock Exchange which was only established in 1991 and the study was performed

over the period of 1991 to 1999. The study thus highlighted the fact that differences in underlying economies and markets will lead to differences in the variables most relevant to investor profitability. This study, even though performed in Africa, cannot be used as a proxy for South Africa for two reasons. Firstly, Ghana is less developed than South Africa and the Ghana Stock Exchange is much younger than the Johannesburg Stock Exchange. Also, the Spearman Rank Correlation Coefficient is a statistical measure that measures the relationship between two variables. The difference between the Spearman Rank Correlation Coefficient and regression analysis is that the Spearman Rank Correlation Coefficient only indicates whether there is a correlation between the two variables whereas regression analysis aims to show whether the change in one variable (the dependent variable) is dependent on the change in another variable (the independent variable). This test is therefore not as robust as regression analysis in determining whether certain variables have explanatory power for future share returns.

South Africa

Research on the JSE Securities Exchange indicates that the fundamental variables that have explanatory power in terms of share returns are similar to those documented in other markets. No published study to date has analysed the performance of S/P as an explanatory variable of share returns in South Africa. However, numerous studies did analyse the relationship between share returns and other fundamental factors.

Bradfield, Barr, and Affleck-Graves (1988) were able to find no evidence that DY and MVE had a positive correlation with future share returns. Page and Palmer (1993) also found no evidence for the MVE effect, but did report a positive relationship with

PER over the period 1978 to 1987. Plaistowe and Knight (1986) demonstrated evidence of a PBR effect during the period 1973 to 1980.

In a later study van Rensburg and Robertson (2003) documented only two significant variables: MVE and PER. Strugnell, Gilbert, and Kruger (2011) also found support for a MVE and PER effect as well as an inverse relationship between return and beta. Auret and Sinclaire (2006) using multiple regression analysis display that BMV has a significant positive association with returns and note that *"when B/M is added to the van Rensburg and Robertson (2003) model of P/E and size, B/M almost completely subsumes the effect of size and P/E"* (Auret & Sinclaire, 2006, p.36). Basiewicz and Auret (2010) report the existence of a MVE and PER effect after adjustments for illiquidity. However it was noted *"that the best measure of the value premium is the BMV, which, in univariate sorts has produced the widest spread of returns and has been found to subsume all other value indicators in multivariate regressions"* (Basiewicz and Auret, 2009, p.35). In another study, Hoffman (2012) documented support for MVE and BMV effect.

In terms of research done on the explanatory power of the PSR only an unpublished doctoral thesis was found which analysed the cross-section of equity returns on the JSE based on linear and non-linear modelling techniques. Some of the variables studied were BMV, CFP, DY, EP and S/P over the period January 1997 to December 2007. The results of the study documented significant mean payoffs over the period studied for all these variables. It reported that BMV had the highest pay-off rate with CFP following. Interestingly it was documented that S/P had the lowest pay-off and was not significant at the 5% level.

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This study used a sample of 159 shares comprising the FTSE/JSE All Share Index. No indication as given as to the sample selection. It does seem that only the highly liquid shares were chosen. Furthermore, it appears as if the sample was chosen retrospectively, thus only including the data of companies which have managed to survive over the years and therefore delisted companies are absent from the analysis. This will result in survivorship bias and has the potential to severely affect results (Levy & Jacobs, 1988).

Therefore there is a possibility to improve on the results by including all shares on the JSE Securities Exchange's Main board, subject to a trade filter, and ensuring that those companies that delisted over the period is included in the sample.

Conclusion

This paper reviews the evidence and documents how the cross-section of returns and the Sales-Price ratio (or its inverse, PSR) has been tested in developed and emerging markets. A review of the literature found that in most markets there is a significant relationship between excess share returns and the PSR. However, it was found that there are no published studies on PSR for South Africa specifically. Thus the explanatory power of the PSR has not been established in the South African market and future research should analyse the ability of PSR or S/P to explain cross-sectional variations in share returns in South Africa.

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MAF007 by Ayanda Mfusi, Tsepang Shongwe, Deepika Chotee,Kanshukan Rajaratnam

THE 52-WEEK HIGH AND MOMENTUM INVESTING ON THE JOHANNESBURG STOCK EXCHANGE

Abstract

This study seeks to adapt the Jegadeesh & Titman (1993) momentum investing strategy to the Johannesburg Stock Exchange. This paper intends to provide insight into a preliminary analysis of the performance of this strategy using the global financial crisis as reference point to contrast the strategy's performance before and after the crisis. The study uses 100 stocks listed on the JSE from the period 2002 to 2012. There is limited literature on similar studies involving emerging markets, which provides scope for a study of this nature. The trend observed for the JT strategy on the JSE was comparable to its performance in developed markets such as the New York Stock Exchange, American Exchange and the NASDAQ. This shows that the momentum investing effect is viable in the South African market with the Jegadeesh & Titman momentum investing strategy.

Keywords: Investment Management, Momentum Strategy, Johannesburg Stock Exchange

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INTRODUCTION

Over time, financial instruments perform at different levels depending on their characteristics and the relevant market. Momentum investing is defined as an observed persistence in the performance of financial instruments over time. In this paper, the Jegadeesh & Titman (1993) momentum investing strategy is applied to the Johannesburg Stock Exchange with the objective of identifying evidence of momentum investing in the South African financial market.

This paper is organised as follows: the relevant literature is discussed, followed by an explanation of the data and proposed methodology. The last two sections analyse and interpret the preliminary findings and end with the conclusion and possibility for further research.

LITERATURE REVIEW

Cowles and Jones (1937) analysed momentum investing, which constituted the first publication on the topic, and showed that from 1920 to 1935, stocks that exceeded the median return of all stocks in one year appeared to follow the same pattern in the following year. Levy (1967) took the research of momentum investing a step further by using the weekly closing data on 200 New York Stock Exchange (NYSE) stocks that had been sorted into deciles for the period 1960 to 1965. In his findings, Levy (1967) observed that the stocks that had performed well in the prior 26 weeks also performed well in the following period of the same size. Jensen and Bennington (1970) refuted the findings produced by Levy and claimed that they were in fact a selection bias. This was due to Levy's trading strategy not performing better than a buy and hold strategy which was outside of Levy's timeframe (Jenson & Bennington,

1970). However, investment practitioners seem to concur with Levy based on the view that mutual funds used momentum strategies. In fact, Grinblatt and Titman (1989) found that the most mutual funds actually purchased stocks whose price tended to perform well in the previous 3 months.

The research into momentum investing started gaining popularity in the early 1990s when Jegadeesh and Titman (1993) and Chan et al. (1996) found evidence to support momentum in the short run. They demonstrated that substantial returns can be realised by going long/short on stocks that have performed well/poorly in the prior period (Mayank, 2011). Jegadeesh and Titman used data from 1963 to 1990 to show that price momentum based on 6 to 12 month periods produced significant positive abnormal returns (Antonacci, 2011).

Contrarian investing strategies, on the other hand, use a directly opposite technique in comparison to what momentum investing strategies use. Contrarian investors adopt long positions on stocks with an inferior performance over the previous 3 to 5 year period and go short on stocks with a good performance over the same horizon. De Bondt and Thaler (1985) imply that this approach is said to earn 8% return per year. Various critics argue that the contrarian returns reported by De Bondt and Thaler (1985) are not evidence against market efficiency. The principle behind market efficiency is that stock prices reflect public information. Chan (1988), Ball and Kothari (1989) argue that such profits are mere compensation for higher systematic risk of the loser's portfolio and dominance of smaller and illiquid stocks in the loser's portfolio (Mayank, 2011).

Further research in contrarian investing showed that contrarian investing strategies were profitable in the short term. Jegadeesh (1990) and Lehman (1990) found that

choosing stocks using performance in the previous week or previous month as the selection criterion tends to result in significant abnormal returns (Barauskas & Noreika, 2010). Contrarian investing critics argued that these findings are the result of a delayed stock price reaction to common factors (Lo & Mackinlay, 1990), as opposed to the overreaction effect. Jegadeesh and Titman (1991) argued that this may be caused by lack of market liquidity or the presence of short term price pressure. Based on the existing literature, contrarian investing strategies work in two investing time frames; namely short periods of one week or one month, or in relatively long time periods of three to five years. The intermediate period between the periods on contrarian investing functionality leaves a space for momentum investing.

The results of Rouwenhorst (1999) indicate that the factors responsible for cross-sectional differences in expected stock returns in emerging equity markets possess similar qualitative characteristics to those that have been analysed for developed markets. Rouwenhorst inferred that emerging market equities exhibit momentum. The focus of this study is to determine the viability of momentum investing in emerging markets. Rouwenhorst paved the way in this sector; however his study was restricted to Zimbabwe and Nigeria.

George and Hwang used momentum investing strategies of Jegadeesh and Titman (1993) (JT); Moskowitz and Grinblatt (1999) (MG) and the 52-week high. The period from 1963 to 2001 was used using stocks listed on the New York Stock Exchange (NYSE), American Exchange (AMEX) and (NASDAQ) (George & Hwang, 2004). The findings of George and Hwang (2004) indicate that after the size effect and the effect of the bid-ask bounce are isolated, returns associated with winners and losers identified by the 52-week high strategy are roughly twice as high as those resulting

from other strategies used by Jegadeesh and Titman (1993); and Moskowitz and Grinblatt (1999) (George & Hwang, 2004).

Venter (2009) analysed short term return predictability based on the momentum and contrarian effects on the JSE using stocks listed on the JSE during 2007. The 144 stocks used in the study were the ones with available intraday data. The study calculated intraday returns, implying that portfolios were held for very short periods of time. The study found evidence of return predictability using mid-quote prices. However, under the more realistic assumption of bid-ask spreads, momentum and contrarian investing effects are no longer present.

Another study carried out on the JSE by Fraser and Page (2000) analysed value and momentum investing strategies using stocks listed on the JSE from January 1973 to October 1997. The study calculated monthly holding period returns in line with Asness (1997). Although not very similar to the current study in terms of methodology, the study concluded that momentum investment strategies did earn higher returns.

In the current study The Johannesburg Stock Exchange (JSE) and Alternative Exchange (Altx) in South Africa will be used (Johannesburg Stock Exchange, 2013).

DATA AND METHODOLOGY

This study intends to adapt part of the methodology from: "The 52-week High and Momentum Investing" by George and Hwang (2004). George and Hwang used three momentum investing strategies, namely: Jegadeesh and Titman (1993) (JT); Moskowitz and Grinblatt (1999) (MG) and the 52-week high. The data set spanned

the period 1963 to 2001 for stocks listed on the New York Stock Exchange (NYSE), American Exchange (AMEX) and (NASDAQ) (George & Hwang, 2004). JT believed that an under or overreaction to information in stock returns would make trading strategies based on assessing a stock's past return profitable. JT's selection of stocks is based on historical return. The historical return and holding period used varied from 3, 6, 9 and 12 months. The stocks are ranked in ascending order of historical performance to form ten decile portfolios. The highest ranking decile portfolio is the loser portfolio and the lowest ranking is the winner portfolio (Jegadeesh & Titman, 1993).

Although the above study applies three different momentum investing strategies, the current study will evaluate the performance of only the Jegadeesh and Titman (JT) momentum investing strategy on the Johannesburg Stock Exchange.

This study uses 100 randomly selected listed companies from the JSE pool of 427 listed company stocks. As a result of this random selection, some industries are not included in the data set. For example, SASOL does not form part of the randomly selected stocks yet it is the only stock to form part of the Oil and Gas indices.

This study uses a 10 year period spanning 2002 to 2012 to ensure the relevance of the findings of the study by including recent data. The data set is split into two parts corresponding to the period preceding and following the financial crisis to isolate the effects of the global financial crisis. The JSE may have been affected as foreign investors seek emerging equity markets which may have had more liquidity than the equity markets most directly affected by the global financial crisis. It is for this reason that the 10 year period used in this study is divided into two periods in order to observe any discrepancies that may have been caused by the financial crisis. The

period prior and post the financial crisis is 2002-2006 and 2007-2012 respectively (Wallison, 2009).

The (x, y) method is used, where x is the past number of months over which the average return is calculated (George & Hwang, 2004). This average return in time period x is used to rank the stocks or industries in order to form portfolios at time t-1. Each portfolio is held for y months from time t to time t+y-1. The portfolio is rebalanced after every t+y-1 months. The preliminary analysis tests the strategy using the (6, 6) strategy. Robustness will tested at a later stage using the (6, 12), (12, 6) and (12, 12) methods (George & Hwang, 2004).

This paper compares the JT strategy's return in terms of winner and loser portfolios as well as the overall strategy return (George & Hwang, 2004). In order to overcome selection bias which may be caused by known anomalies such as the January Effect, the study creates new portfolios every month. This measure prevents monthly anomalies from distorting the results.

In calculating the overall returns for the winner and loser portfolios for the JT strategy, the average of the p monthly returns for each month of the year pre and post the financial crisis is taken i.e.

$$R_p = (\sum_{k=i,t+y-1}^{n} r_{k,t+y-1})/n$$

Where $r_{i, t+y-1}$ is the return of each stock i and t+y-1 is the holding period, such that a (6, 6) strategy will have a holding period of t+y-1 = 6 months. Dividends are excluded due to some stocks having inconsistent dividend policies. The overall return for the momentum strategy will be the difference between the winner and the loser portfolio, pre and post financial crisis.

FINDINGS

Preliminary Results

This section analyses the preliminary results of the study. Figure 1 shows that the JT (6, 6) consistently earns positive returns for each month of the year. The average return for the JT (6, 6) strategy is 1.19%. These results can

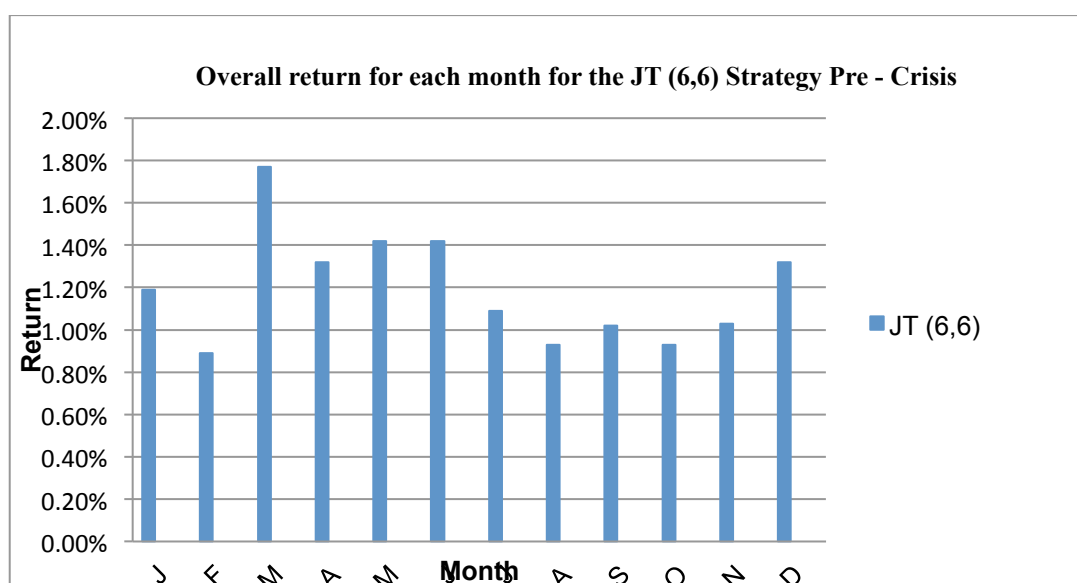**Overall return for each month for the JT (6,6) Strategy Pre - Crisis**

Figure 1

be attributed to Appendix A which shows the winner and loser portfolio returns in each month. Table 1 in Appendix A shows that on average the JT (6, 6) winner portfolio earns above 3% and the loser portfolio earns above 2%, regardless of the month that the momentum investment strategy was implemented. The month that dominates pre-crisis is March with a total return of 1.77%. The overall returns pre-crisis average 1% for each month. The JT strategy showed minimal variation in its returns.

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Figure 2 shows that the JT (6, 6) consistently earns positive returns month on month. The post-crisis results in Appendix A show a variation between the returns for the winner and loser portfolios for the JT (6, 6) strategy. The winner portfolio returns range between 0.43% and 1.16% while the loser portfolio has a slightly larger range between -0.54% and 0.29%. These results show a dispersed range of returns one can get depending on the month in which the strategy is implemented. The month of investment plays a significant role, as the total return earned post-crisis ranges from

Overall returns for each month for the JT (6,6) Post - Crisis
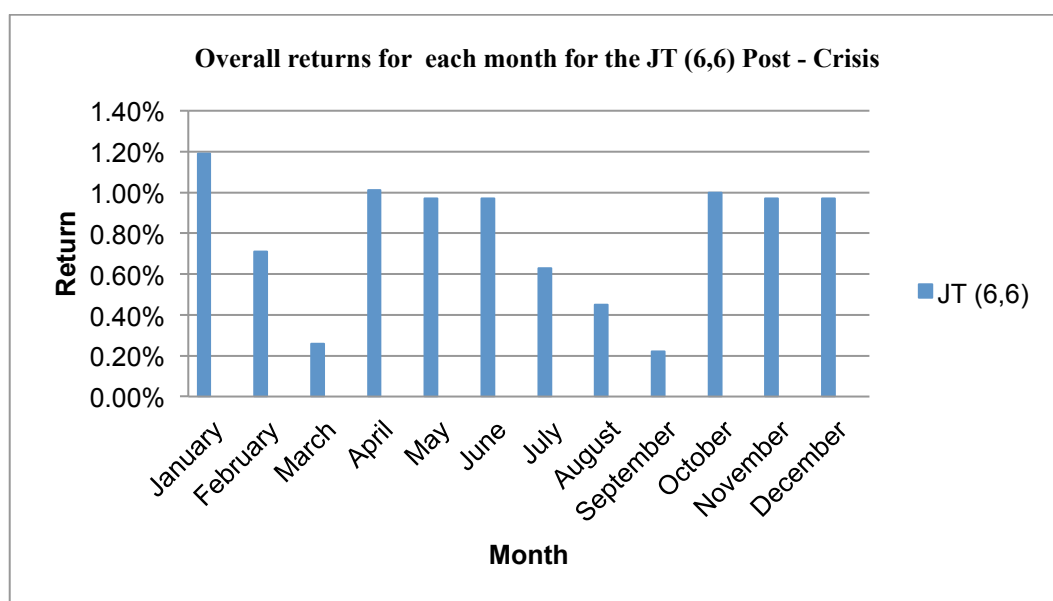
Figure 2

0.22% to 1.19%. The month that dominates post-crisis is January with a total return of 1.19%.

The pre and post-crisis results show that the JT (6, 6) perform better pre-crisis and the difference between winner and loser strategies is higher better post-crisis. This could mean that the JT (6, 6) is good at selecting winner and loser stocks post-crisis.

Figure 3 displays the overall return throughout the period 2002-2012. The JT strategy recorded a return of 0.99% throughout the period.
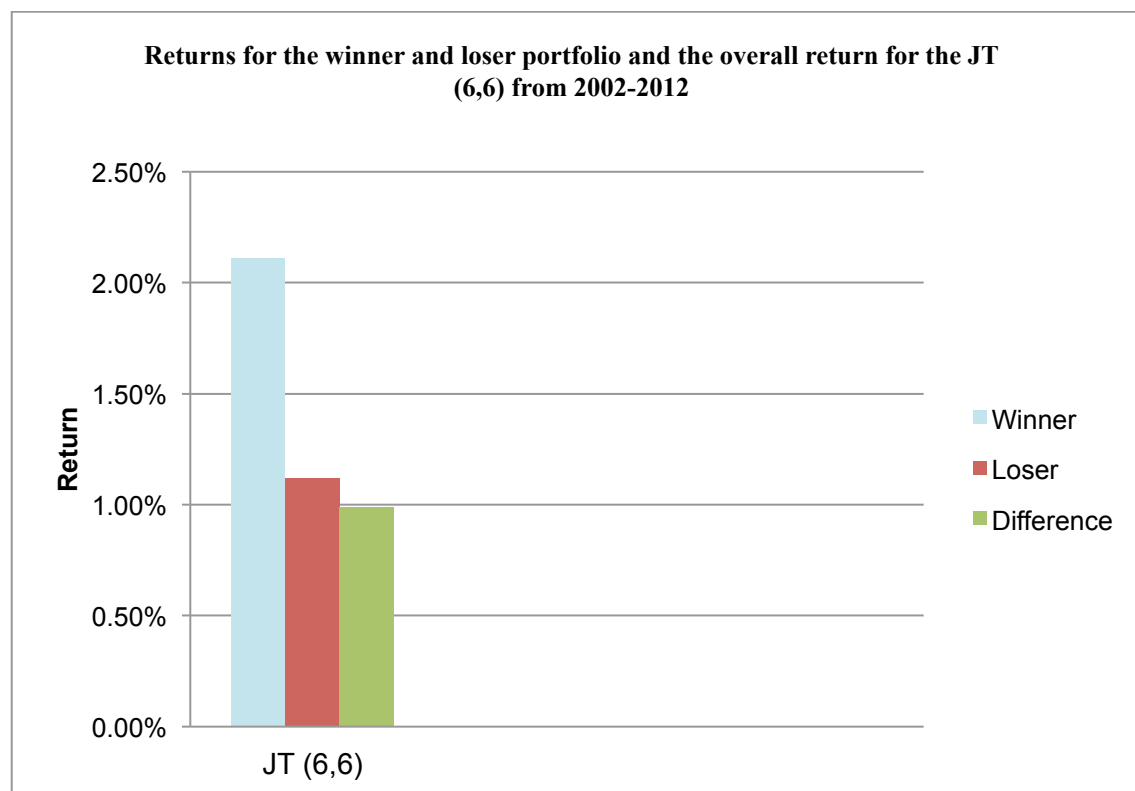
Returns for the winner and loser portfolio and the overall return for the JT (6,6) from 2002-2012

Figure 3

Robustness

To test for the robustness of the JT strategy based on the preliminary findings, two further alternatives will be used in the next step of the study. The JT (12, 6); JT (12, 12) will be used as further alternative strategies.

CONCLUSION

This study seeks to analyse the Jegadeesh & Titman (JT) momentum investment strategy in order to determine whether it could be a viable strategy in emerging markets. The JT strategy is based on investing in stocks based on their performance over the past 6 months. The JT strategy creates two portfolios: winner and loser portfolios by ranking stocks in ascending order according to their stock selection

criteria. The winner portfolio comprises the bottom 30% of stocks and the loser portfolio the top 30%. The preliminary results of this study showed that the JT momentum investing strategy tends to perform better at selecting winner and loser portfolios post crisis.

It is important to note, however, that these preliminary results ignore transaction costs and rebalancing costs which could affect the results obtained in this study in terms of the economic feasibility of momentum investing strategies.

The preliminary results indicate that the Jegadeesh & Titman momentum investing strategy could be a viable investing strategy in the South African market. This could imply that momentum investing patterns tend to be similar in emerging markets and developed markets. The next step of the study will consider the element of survivorship bias in the data, as well as testing the JT strategy for robustness. There is scope for further research into other momentum investing strategies, such as the Moskowitz and Grinblatt (1999) (MG) and the 52-week high strategies. It would also be worth investigating the impact of factoring in transaction costs and rebalancing costs to determine whether it is a sustainably profitable investment strategy.

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APPENDIX A

Table 1 - Returns for the JT (6, 6) Strategy winner and loser portfolios pre and post crisis

JT Strategy (6,6) Start Month	Winner Pre - Crisis	Loser Pre - Crisis	Difference	Winner Post - Crisis	Loser Post - Crisis	Difference
January	3.14%	1.94%	1.19%	0.67%	-0.52%	1.19%
February	3.03%	2.13%	0.89%	0.58%	-0.12%	0.71%
March	3.81%	2.04%	1.77%	0.55%	0.29%	0.26%
April	3.47%	2.15%	1.32%	1.16%	0.15%	1.01%
May	3.69%	2.27%	1.42%	0.68%	-0.29%	0.97%
June	3.65%	2.24%	1.42%	0.43%	-0.54%	0.97%
July	3.26%	2.17%	1.09%	0.67%	0.04%	0.63%
August	3.23%	2.30%	0.93%	0.56%	0.11%	0.45%
September	3.67%	2.66%	1.02%	0.46%	0.24%	0.22%
October	3.64%	2.71%	0.93%	1.04%	0.04%	1.00%
November	4.01%	2.98%	1.03%	0.68%	-0.29%	0.97%
December	4.07%	2.75%	1.32%	0.43%	-0.54%	0.97%

APPENDIX B

Table 2 - The average returns for the JT (6,6) strategy pre- and post- crisis

JT (6,6)	
Winner Pre-Crisis	3.56%
Loser Pre-Crisis	2.36%
Difference	1.19%
Winner Post-Crisis	0.66%
Loser Post-Crisis	-0.12%
Difference	0.78%

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Table 3 - The average returns for the JT (6,6) strategy from 2002-2012

JT (6,6)	
Winner	2.11%
Loser	1.12%
Difference	0.99%

MAF009 by Neha Junglee, Kanshukan Rajaratnam

IS VOLATILITY COMPENSATED IN SOUTH AFRICAN EQUITY FUNDS?

Abstract

Studies across different markets have shown that volatility is not necessarily compensated with a risk premium. This paper specifically studies the effect of volatility on the returns of the South African equity funds. Using the volatility as a risk measure, this article investigates whether a significantly higher yield is obtained for riskier equity funds.

Keywords: Equity Funds, Risk Measures, Johannesburg Stock Exchange

INTRODUCTION

This paper studies the effect of volatility on the returns of the South African equity funds. Volatility can be defined as the standard deviation of the returns and is one of the most popular measures of risk in the market. Based on the fundamental principle of higher risk-higher return, a fund with higher volatility is expected yield a higher return. This is primordial as investors often, base their decisions on the risk-return trade off of a fund or security. However as several studies have shown, not all risk measures are compensated in the market. This study, therefore, investigates whether volatility, as a risk measure, is compensated in the South African equity fund market.

LITERATURE REVIEW

Extensive studies have been conducted on whether volatility has been compensated across different markets. Xiong, Idzorek and Ibbotson (2014) analysed the volatility premium on the US (United States) and non-US mutual equity funds from January 1980 to September 2011. The funds were grouped based on their level of risk. The risk premium was calculated by finding the difference between the arithmetic means of the most risky and the less risky groups. The authors found out that the Sharpe ratio for the US funds with the highest volatility had a significantly lower Sharpe ratio than the other groups even if the volatility premium was positive. Moreover, the volatility premium on non-US funds was negative, which supports the low-volatility anomaly. By plotting the arithmetic means of the different groups against their respective volatility, the authors were able to provide a graphical representation (Figure 1) of the volatility-returns relationship. The graph showed that that the risk-return slope was positive for low volatility and almost flat afterwards. From those two results, Xiong et al. (2014) concluded that volatility was not compensated in the market.

The Risk-Return Relationship for the Five VOL Quintiles and Five ECVaR Quintiles (Both 5% and 10% Level)

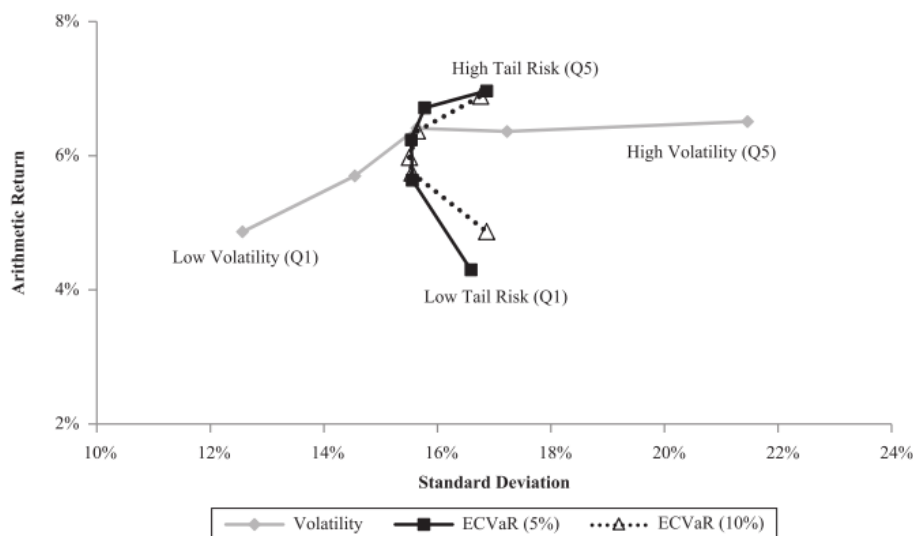U.S. Equity Funds (January 1985—September 2011)

Figure 1: From Xiong, J. X., Idzorek, T. M. and Ibbotson, R. G. (2014). Volatility versus tail risk: Which one is compensated in equity funds?, Journal of Portfolio Management 40(2): 112 – 121.

The US market is a well-developed market hence, it is not as risky and volatile as an emerging market. Consequently, we expect a higher return for investing in an emerging market rather than a developed one. A study by Kohers, Kohers and Kohers (2006) analysed the difference in risk and return trade-off between developed and emerging stock markets. The authors stated that the emerging stock markets are riskier than the developed markets due to the presence of significant liquidity, market, economical, legal and political risks. In order to test this hypothesis, the authors compared the Morgan Stanley International Capital (MSCI) Emerging Markets Index which comprises of 26 developing countries to the MSCI world which comprises of 23 developed countries. They also gathered daily returns of the markets and used the standard deviation as a risk measure for further analysis. Thereafter, they grouped the different means based on time periods and compared the mean returns of 22 developed countries to 25 developing countries in order to find any significant difference. Based on their findings, the author concluded

that the mean returns in the emerging markets were significantly higher during most periods and that the standard deviations in the emerging market always exceeded those of the developed market. Therefore, the investors were compensated for taking on higher risks. This result is particularly important to us as we expect to find a high reward on equity funds as the South African market, being an emerging one, is riskier.

Furthermore, another study conducted by Basher, Hassan and Islam (2007) also analysed the return-volatility behaviour of equity funds in an emerging market. The authors used both daily and weekly returns of equity funds in Bangladesh stock market and performed the same operations on the two sets. They then sorted the data into 2 main groups- before and after financial liberation (that is, September 1986-January 2002 and January 1991-January 2002). They used a Chow Test to find that there was a significant structural break on December 1990. They found that all the means were negative and higher in the second period but the standard deviation did not decrease. They also excluded the data from 1 July 1996 to 31 December 1996 due to a once-off event which happened in that period which might affect their final results. High skewness and kurtosis levels have been observed in the distribution of the returns. Moreover the Jarque-Beta test shows that the returns were not normally distributed. A combination of an Autoregressive model of order 1 and a Generalized AutoRegressive Conditional Heteroskedasticity (GARCH)(AR(1)-GARCH(1,1)-M)model was fitted for daily and monthly returns.

The AR(1) analysis on the dataset showed negative and insignificant coefficients for the pre-liberalization period and positive and significant coefficients for the post-liberalization . The risk-return parameter of daily returns was found to be significant for the pre-liberalization period. The parameter capturing the effect of volatility on

returns was mostly insignificant. Basher, Hassan and Islam (2007) also found that the sum of the coefficients of the ARCH and GARCH models were significant and greater than one for the pre-liberalization period, and significant and less that than one for the post liberalization periods. Therefore, the authors concluded that volatility was persistent in the market.

As our research focuses on the South African market, we now analyse a study done by Mandimika and Chinzara (2012) who worked on the volatility effect in the South African stock market. The author used daily index series of different indices and benchmarks for their work, which were then converted to a continuously compounded return. From the data sample, they found that most of the means were positive, and that the standard deviation is highest in the consumption sector. However there appeared to be no relationship between the risk and return of different sectors when comparing the means and the standard deviations. The Jarque-Bera test confirms that the data did not follow a Gaussian distribution and that skewness and kurtosis should be accounted for. Moreover, the augmented Dicky-Fuller and the Ljung-Box tests showed that the process was stationary and also the errors terms were autocorrelated. Consequently, the authors opted for GARCH-in mean models. In order to account for asymmetry in volatility, the authors also used the threshold GARCH and the exponential GARCH models.

The AR(1) process was suitable to remove most of the correlations in the error terms. Due to the presence of an ARCH effect, the authors modelled volatility using a GARCH in mean model. They found that most of the processes were stationary. They thereafter modelled volatility using a Threshold AutoRegressive Conditional Heteroskedasticity (TARCH) model and an almost similar result was obtained. Moreover, they stated that as the sum of the coefficients of the model was close to

one, volatility is persistent on the market. However the (exponential GARCH) EGARCH model gave the opposite result that is, returns were non stationary and will grow indefinitely. Their study showed that there was asymmetry and a leverage effect in the market; hence a "bad news" had more impact on the market than a "good news". The explanations given in the paper was that firstly, as the share price decreased, the leverage effect increased and this could reflect the existence of a time varying volatility. Secondly, the authors believed that an expected increase in volatility in a share would result in a decrease in demand in the market this leading to a decrease in share price. "If volatility is priced, then an increase in volatility raises the required return on equity, leading to an immediate share price decline, often referred to as the volatility feedback effect (Karmakar, 2007:108-109, in Mandimika and Chinzara (2012))." The GARCH in mean and TARCH models would infer lower risk-premiums compared to the EGARCH model as the

Overall, the three models showed no significant risk-return trade off. However, a few sectors showed a significant positive risk return trade off while a few others showed a significant negative risk return trade off which might be due to any errors made in specifying the model. Furthermore, the study also revealed that any fluctuation in exchange rates had a significant impact on the volatility of some sectors such as the mining sector. Also oil price shock and the financial crisis also affected the market volatility. Their study showed that there have been structural breaks in volatility in line with the occurrence of those events. To conclude, the study showed that there was a lack of evidence of a positive risk premium in the South African Stock market.

DATA

The available daily "day to day total returns gross dividends from 01 Jan 1980 to 29 April 2014" returns were downloaded from Bloomberg. The data consists of only alive funds and any missing data were ignored. We chose to use the daily returns as opposed to monthly returns based on Morse's (1984) work in which he showed that "the only condition considered here that could possibly favour the use of monthly data is when there is uncertainty about the announcement date of the information" (Morse, 1984:619). Moreover, as the sample consists of only alive funds, there are only few data available for the new ones had the monthly returns been used.

METHODOLOGY

We follow Xiong et al.'s (2014) methodology described above in order to compare the returns and volatility of the equity funds. We first calculate the sample variance of each fund and rank them in ascending order. Thereafter, the funds were sorted into groups based on the riskiness of the fund, group 1 (G1) is the least risky group (lower variance) and group 5 (G5) is the most risky group (higher variance).

The sample variance of the ith equity fund is given by

$$\sigma_i^2 = \frac{1}{(n-1)^2} \sum_{x=1}^{n} (r_{xi} - \mu_i)$$

Where,

- r_{ix} represents the return of the xth return of the ith equity fund.
- n represents the total number of returns of the equity fund

- μ_i represents the mean returns of the ith equity fund

- n represents the total number of returns of the equity fund

Each group is assumed to be an equally weighted portfolio made up of the independent equity funds. Hence,

$$\text{the mean of the } j^{th} \text{ Group} = \frac{1}{N}\sum_{i=1}^{N}\mu_i$$

where,

- r_{ij} represents the return of the ith fund in the jth group

- N represents the total number of equity funds in the group

and the variance of jth Group

$$\sigma_j^2 = \frac{1}{N^2}\sum_{j=1}^{N}\sum_{i=1}^{n}\sigma_{ij}^2$$

where,

- σ_{ij}^2 represents the variance of the ith fund in the jth group

- n represents the total number of funds in the group

- N represents the total number of equity funds in the group

INTERPRETATION OF RESULTS

The means, variance and standard deviations of the groups are shown in Table 1. From the table we can note a general increase in mean with an increase in volatility, except from the mean of group 4 which is lower. The volatility premium, mean (G5) – mean (G1), is positive. However on a risk adjusted basis, (the ratio of the return per risk), the premium is negative.

Figure 2 shows a graphical representation of the return-volatility relationship of the equity funds.   We can observe a steep positive gradient from G1 to G2, thereafter an almost flat gradient followed by a sudden decrease and thereafter an increase from G4 to G5.

From the graph we can see that overall, as volatility increases, the mean return does not increase accordingly.

Group	Mean	Variance	Standard Deviation
1	0.048812	0.006397	0.079981973
2	0.067486	0.014072	0.118624281
3	0.067953	0.020002	0.141429558
4	0.058973	0.028074	0.167553066
5	0.068801	0.143805	0.379216429

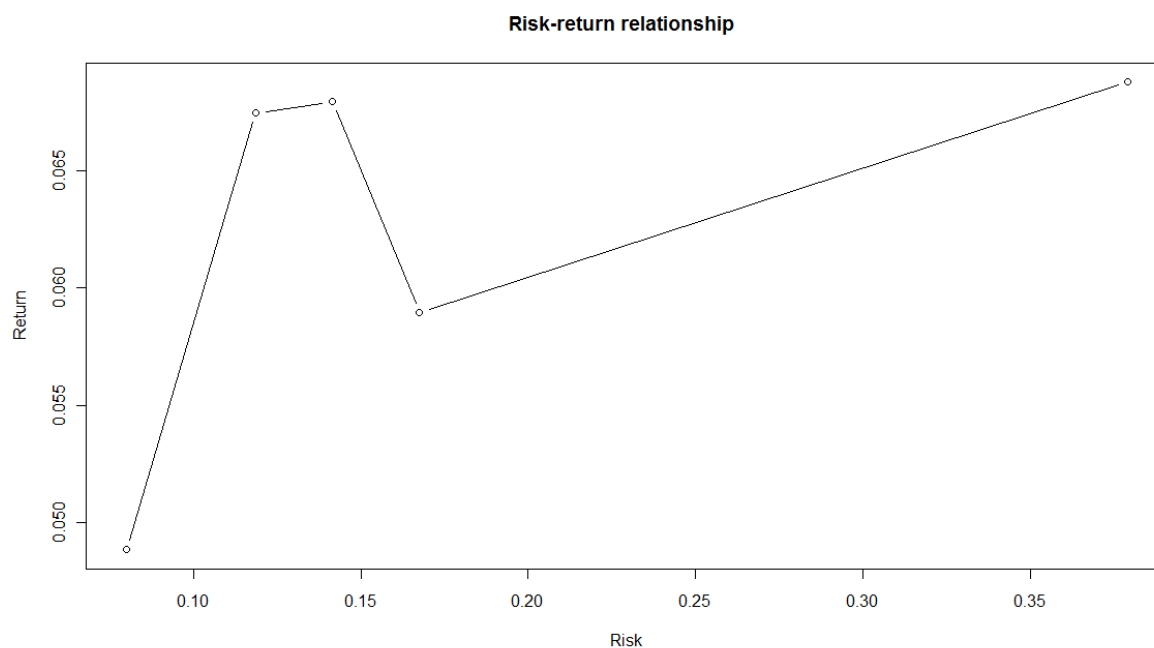Table 1: Mean, Variance and standard deviation of the different groups

Figure 2: Risk-return relationship of the different groups.

We then more specifically compare G1 to G5 in order to test for the significance of the difference in values observed. An F-test is used to test the null hypothesis of the variance of G1 being equal to or greater than that of G2. The p-value of $< 2.2e\text{-}16$ observed suggests that the variance of G1 is significantly lower from the variance of G5. Furthermore, as we expect a higher return for higher volatility, we perform a t-test on the mean returns of the two groups. From the p-value of 0.0245 observed, we infer that even though the volatility is different from each other, the means are not significantly different. Thus we conclude that a higher volatility did not lead to a higher return. Consequently, initial results seem to indicate volatility, as a risk measure, is not compensated in the South African equity funds.

Further research is currently being done on whether tail risk measures are compensated in the South African equity funds. Moreover, this research can easily be extended into other markets and other types of stocks and securities.

CONCLUSION

We investigated whether volatility is compensated in the South African equity funds by finding the standard deviation of the funds and comparing them to the mean returns. We have shown that on a risk-adjusted basis, the volatility premium is negative and hence higher volatility did not yield to a higher return. Moreover, we also provided evidence that the variance for the most risky group was statistically higher than the least risky one. Nonetheless, there seemed to be no significant difference between the two means. As a result, our initial results show that volatility is not compensated in the South African Equity funds.

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WHAT IS THE ROLE OF POST-CRISIS MARKET CONCENTRATION ON PORTFOLIO DIVERSIFICATION IN A SOUTH AFRICAN CONTEXT? A LITERATURE REVIEW

Abstract

The risk of a portfolio is directly affected by the concentrated weighting structure of the portfolio. The South African market is characterised with having highly concentrated shares, particularly resources, which lead to the All Share Index of the Johannesburg Stock Exchange (JSE) being a highly concentrated index. Concentration refers to the deviation of share weightings in a portfolio from an equally-weighted portfolio. This paper will review prior research with a focus on the effects of concentration on portfolio diversification on the Johannesburg Stock Exchange, the measures of concentration employed previously and the empirical implications and findings. It concludes with how our future research will be differentiated from prior research with a focus more on concentration on the Johannesburg Stock Exchange specifically analysing pre and post the 2008 financial crisis.

Keywords: Concentration, equally-weighted portfolio, diversification, portfolio risk

1. Introduction

Assets are exposed to two kinds of risk; systematic and unsystematic risk. Systematic risk is common to all assets whereas unsystematic risk is unique to each asset and can be eliminated through portfolio diversification. It has previously been stated that as the portfolio size increases, the risk of the portfolio is reduced by the elimination of the unsystematic risk (Neu-Ner & Firer, 1997); however the presence of concentration impacts the level of diversification that can be achieved (Kruger, 2008) and further how many randomly selected shares are required to form a well-diversified portfolio. As such, it is important to study these effects so that we may better understand concentration and its consequences.

There is a limited amount of literature on concentration and its impact on portfolio diversification, in particular across pre and post the recent financial crisis. Previous research indicated that at least 30 randomly selected shares were required to achieve a well-diversified portfolio on the Johannesburg Stock Exchange (Neu-Ner & Firer, 1997); however this did not take into the account the impact of concentration and used equally-weighted portfolios in the study. When the portfolios were weighted using the market capitalisation of the shares in the portfolio, it was found that at least 45 randomly selected shares were required (Bradfied & Kgomari, 2004). This research project will analyse the

effects of concentration on portfolio diversification specifically on the JSE and will be differentiated by analysing the effect of concentration on the number of randomly selected shares required to achieve a well-diversified portfolio pre and post the financial crisis. The paper will analyse relevant literature to better understand the measures of concentration and the implications of empirical findings to draw conclusions on the effect of concentration on portfolio diversification in the South African market. Once this has been done, a suitable base will be set for our further research into the implications of concentration on the JSE.

In this literature review, section 2 will discuss the topic of concentration, its definition and measures and the presence of concentration in the South African market. Section 3 of this paper will go on to discuss the impact of concentration on portfolio risk and the effect of concentration on diversification. The empirical findings of concentration and risk from past literature will then be presented in section 4, including their methodologies, data as well as results. Finally we will look at a comparison of international results on the topic of concentration and its effect on portfolio diversification and then conclude with a discussion of our findings and a draw a conclusion.

2. Concentration

This section includes a discussion of the definitions and measures of concentration, as well as the presence of concentration in South Africa.

2.1 Concentration definition and measures

Single-share concentration is defined as the occurrence of one share, on an exchange, being responsible for a disproportionate portion of the total value of the shares on that particular exchange (Kruger, 2007). The market capitalisation of that particular share therefore represents a substantial portion of the total capital weight on the exchange and this can lead to a large number of shares on a particular stock exchange having a significantly small combined weight (Raubenheimer, 2010). A concentrated portfolio represents increased risk to an investor because the large weight of the shares within a portfolio limits the amount of attainable diversification. According to Bradfield and Kgomari (2004) concentration refers to how much the weights of a portfolio of shares have deviated from that of an equally weighted distribution of weights in a portfolio.

Figini and Uberti (2013) defined concentration risk into two elements; name concentration and sector concentration, based on the source of risk. Name concentration arises from an uneven distribution of exposures to its borrowers causing a low level of diversification of idiosyncratic risk to be achieved, whereas sector concentration arises from an uneven distribution of exposures to particular sectors causing a low level of diversification among systematic components of risk to be achieved (Figini & Uberti, 2013). In the banking sector concentration refers to the number of loans in a portfolio and minimum concentration or maximum diversification is achieved by having a larger number of loans in a portfolio, therefore minimum sectorial concentration is achieved when loans from many economic sectors make up a portfolio (Figini & Uberti, 2013).

The Effective Number of Shares measure has previously been used as the measure of benchmark concentration. The measure indicates the number of equally-weighted shares that are required to achieve a value of systematic/share-specific risk that is equal to the original portfolio (Kruger & van Rensburg, 2008). The benchmark becomes more concentrated as the effective number of shares gets smaller, therefore indicating that less equally-weighted shares are required to achieve the same level of risk in the portfolio.

The Richard Roll Concentration (RRC) is another measure of concentration that has been mentioned in previous relevant literature. It measures by how much the portfolio under consideration has deviated from an equally-weighted portfolio (Kruger & van Rensburg, 2008). An equally-weighted portfolio will have a RRC measure of zero, the RRC measure increases as the level of concentration within the portfolio under consideration increases.

The most widely used summary measure of market concentration is the Herfindahl-Hirschman Index (Bikker & Haaf, 2000). It is calculated by squaring the market share (expressed as fractions) of each firm competing in a market and then adding the resulting numbers together. The higher the market concentration, the higher the HHI index will be. The index refers mainly to the market share that each firm within an industry holds and therefore if there was one firm in the industry, the firm would have the whole market share and the HHI would equal the maximum HHI level. The index is an indication of how competitive the market is. Bikker and Haaf (2000) used this measure in order to determine the concentration found in the banking industry. Rhoades (1995) identified a limitation in the use of the HHI index as a concentration measure since a given HHI is associated with a wide range of inequality in firm market shares.

Figini and Uberti (2013) identified that credit concentration and credit risk had become a leading topic in modern finance and additionally, that there was no complete measure of credit concentration. In their paper, they developed an Index, which, for the purposes of this paper shall be referred to as the Figini and Uberti index. The Figini and Uberti Index is a measure of risk that integrates both single-name and sectorial credit risk concentration. This index overcame the weaknesses evident in the HHI measure mentioned above. The novel index (I) measures credit concentration on a scale between zero and one, (i.e., $0 \leq \text{I} \leq 1$), with one being perfectly concentrated. Within the index there are two sub-indices which measure the two elements of concentration risk respectively, which are the risk of taking a position with single names and the sectorial diversification risk (Fignin & Uberti, 2013).

2.2 Concentration in South Africa:

The South African stock market is one of the largest stock markets in Africa and one of the largest among emerging markets (Raubenheimer, 2010). The JSE is characterised with significantly high levels of concentration, which is responsible for many of the inefficiencies that are evident in the existing equity benchmarks (Kruger & van Rensburg, 2008). The JSE All Share Index represents 99% of all the unconstrained equity available to investors in South Africa (Kruger, 2014); where in previous

literature it has been found that the five largest shares represented 40% of the index (Raubenheimer, 2010). Bradfield and Kgomari (2004) found that of the 165 shares in the ASLI, 50 of those shares account for 90% of the index weight. As a result of the significantly high levels of concentration on the JSE, approximately one hundred and fifty two shares of the total one hundred and sixty five shares on the ALSI have a total weight of about 2% (Raubenheimer, 2010). The significance of concentration on the JSE limits the investment decisions and portfolio construction on the JSE (Neu-Ner &Firer, 1997).

Resources shares tend to be the most concentrated and their excessive weights make the ALSI highly undiversified (Kruger & van Rensburg, 2008). Resources shares are highly volatile due to the cyclical nature of their earnings. Raubenheimer (2010) found that two mining companies represent more than 20% of the ALSI; however since 2002 the dominance of mining companies on the JSE has reduced resulting in the concentration problem reducing simultaneously (Kruger, 2014). The level of concentration inherent in the JSE is still significant enough to propose a substantial problem and additional risk for fund managers (Kruger & van Rensburg, 2008).

Assets have an inherent risk known as market or systematic risk which investors are unable to eliminate, however assets also have a unique risk known as firm-specific or unsystematic risk that can be eliminated by the process of diversification. Neu-Ner and Firer (1997) found that the impact of diversification on the ALSI is limited not only because of the high levels of concentration inherent in the exchange but also because of the high correlations between shares on the JSE (Bradfied & Kgomari, 2004). These two characteristics of the JSE impair risk reduction through diversification in South Africa, Bradfield and Kgomari (2004) found that 25% (from 60% to 45%) less of risk, by diversification, can be reduced when there is concentration present in the JSE.

The problem of liquidity on the JSE imposes a cap on the weights that fund managers are able to allocate to shares at the bottom of the ALSI. This forces them to hold more weight in the more concentrated and liquid shares at the top of the index to ensure a reasonable level of liquidity is achieved (Bradfield & Kgomari, 2004). As previously mentioned most of these large-cap shares at the top of the index are resources and are therefore the most concentrated on the JSE. Fund managers face a trade-off between liquidity and concentration, therefore if fund managers want to reduce the level of concentration in their portfolio and achieve an effective level of diversification they are faced with the issue of having to hold fairly illiquid shares. Fund managers may attempt to spread their holdings in shares more impartially in order to reduce the level of concentration in their portfolios; however they will be constrained by the need to keep the shares within their portfolio fairly liquid (Bradfield & Kgomari, 2004).

3. Portfolio risk and diversification

In order to evaluate the results of previous studies, it is necessary to have some theoretical understanding of the relationship between concentration, portfolio risk and diversification.

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3.1 Impact of concentration on portfolio risk

Markowitz (1952), who is well known for laying the foundations of modern portfolio theory, was one of the first people to investigate portfolio diversification. Markowitz's hypothesis doesn't only imply diversification but rather the "right kind" of diversification. One particularly interesting observation in his work was the fact that adding more securities to your portfolio didn't always reduce risk. This was due to shares from the same industries being correlated with each other and these correlations thus have a direct effect on how much risk can be diversified away.

Whilst conducting a three year study on the JSE, Bradfield and Kgomari (2004) observed that portfolio risk or portfolio variance is an inverse function of concentration. The relationship between portfolio variance (risk) and concentration according to Bradfield and Kgomari (2004) can be expressed as follows:

$$\sigma_p^2 \sim \bar{\sigma}^2 \frac{1}{\tilde{n}}$$

Where:

σ_p^2 = Portfolio Variance

$\bar{\sigma}^2$ = Average variance assigned to each asset

$\tilde{n}$ = Number of effective shares

When investigating equity benchmarks in a South African context, Kruger and van Rensburg (2008) contrasted the risk inherent in an equally weighted portfolio to the risk inherent in a concentrated portfolio. They observed the same inverse relationship between portfolio variance and concentration as was documented by Bradfield and Kgomari (2004).

3.2 The effect of Concentration on diversification

One of the first studies into the matter was an unpublished pilot study conducted by Bradfield (1993) which sought to uncover the effect of diversification on the JSE specifically. Key findings included the observation that in South Africa roughly five more shares are required to diversify a portfolio "completely" and that South African shares were associated with higher portions of undiversifiable risk. The fact that JSE shares were observed to have higher portions of undiversifiable risk is in line with a less diversified, emerging South African market, at the time.

Neu-Ner and Firer (1997) followed on from Bradfield's work and attempted to quantify the benefits of diversification on the JSE. Their results included the observation that expected risk of holding one share can be reduced by 25% by holding two shares and by up to 50% if you hold a six share portfolio. They noted that the maximum risk that could be diversified away was 80.5% and in order to achieve this over two hundred shares need to be held.

In the same study Neu-Ner and Firer (1997) compared a portfolio comprising of all shares on the JSE to a portfolio consisting of shares from the Financials and industrials sector only. The results indicated that fewer shares were required to effectively diversify the Financials and Industrials sector when compared to the all share portfolio and pointed to higher concentration levels in the Financial and industrials sector.

A study conducted by Strongin, Petsch and Sharenow (2000) found that diversification and its success rely heavily on the weights in which shares are carried in the portfolio. The authors also developed a measure for concentration known as the "effective number of shares". This is defined as the number of equally weighted shares required in achieving the same level of unsystematic risk as the original portfolio. The equation takes the form of:

$$\tilde{n} = \frac{1}{\sum_{i=1}^{n} w_i^2}$$

Where:

$\tilde{n}$ = Number of effective shares

w_i^2 = Squared weighting of share i

Bradfield and Kgomari (2004) investigated concentration on the JSE over a three-year period. Their findings indicated that the benefits stemming from diversification are limited on the JSE due to higher correlations between shares in the market. Another finding by Bradfield and Kgomari (2004) suggested that if assets with larger weights also have larger covariance with each other, the result is that overall risk within the portfolio will be higher. This is the case in a South African context as our largest stocks also tend to be correlated with each other.

4. Concentration and risk-empirical findings

In order for us to perform our desired analysis, it is necessary to examine the methodology and data sets used in prior research. Both local and international results are then presented and evaluated.

4.1 Methodology and data

Neu-Ner and Firer (1997) investigated the exact number of randomly selected shares required in a portfolio on the Johannesburg Stock Exchange (JSE), beyond which the addition of further assets will not result in further reduction of risk. In their study, they used the weekly closing prices of all the shares listed on the JSE over a period ranging from June 1993 to June 1996. After excluding shares that were listed and delisted during said period, as well as all debentures and convertible debentures, they were left with a research population of 532 shares.

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In order to perform their analysis, they constructed portfolios assuming an equal investment in each share in the portfolio. In order to form the portfolios, N shares (1<N<532) were randomly selected and then the risk associated with that portfolio was calculated (selection without replacement was used). For each value of N, one thousand portfolios were created. The expected risk of the portfolio created was taken to be the average risk of the 1000 portfolios of N shares. Once the simulations were completed, the results were graphed and an analysis was performed.

Bradfied and Kgomari's (2004) study, although very similar in their stated objectives, differed from Neu-Ner and Firer's (1997) in that the focus of the research was concentration based. In analysing the effects of market concentration on diversification, they chose to test four scenarios in which the method of portfolio construction varied. The different scenarios are explained, in terms of share weightings and the assumptions regarding the correlation between shares, in the table 1. The expected risk of the portfolio, represented by the variance and covariance between shares, was based on the prior 3-year historical covariance matrix.

Table 1: Four scenarios under evaluation from Bradfield and Kgomari (2004).

Scenario	Stock weighting	Correlation between stocks
1	Equally weighted	Zero correlation assumed
2	Equally weighted	Correlated
3	Market capitalisation weighted	Correlated
4	General equity stocks	Correlated

Bradfield and Kgomari (2004) managed to establish a fairly straightforward procedure, which was used in testing the relationship between concentration and risk (i.e. how much of it can be diversified away). The paper was written in a South African context, thus the All Share Index (ALSI) was used as a proxy for the market index (The ALSI consisted of 165 shares at the time the study was conducted in 2004). The procedure followed in the study, which was completed for each scenario listed above, is summarized in the break down set out below. Once the process was completed, the data was then analysed in graph format and the appropriate conclusions were drawn.

Kruger and van Rensburg (2008) investigated whether it was possible to establish an equity benchmark in the South African portfolio management context. Using the effective number of shares and RRC as measures of concentration, they tested four indexes with the ultimate aim of ranking them in terms of concentration and liquidity levels. The four indexes used were the Capped Index (CAPI), the Shareholder Weighted Index (SWIX), the Down-Weighted Resources Index (80% and 50% RESI) and the All Share index (ALSI). It should be noted that these indices were created with the intention of better reflecting the options available to asset managers and, thus attempt to deal with the issue of concentration.

All relevant data regarding these indices were obtained from the JSE as of 30th June 2002. At the time, there were 161 shares in the All Share Index. Kruger and van Rensburg (2008), in an attempt to isolate the risk associated with concentration, chose to mimic the procedure followed by Bradfield and Kgomari (2004). Using a data sample stretching from 30 June 1999 to 30 June 2002, they compared the concentration portion of benchmark risk to the risk of an equally weighted portfolio based on the average variances and covariances of the constituent shares.

A common factor in the literature is the use of variance, standard deviation and covariance as measures of risk. Total risk can be split into upside and downside risk. Downside risk is the portion of risk most investment managers are concerned with since it is the potential of an asset to decline in value if the market conditions change.

4.2 Results

Neu-Ner and Firer's (1997) study found that at least 30 randomly chosen shares should be held in a portfolio on the JSE for the full benefits of diversification to be realised. The study also found that as the number of shares in a portfolio increases, the dispersion of risk reduce; thus making risk more predictable. Elton and Gruber (1997) illustrate that as the number of shares held in a portfolio approaches the total number of shares, the risk of a portfolio (standard deviation) approaches the risk of the equally weighed portfolio of that population. Taking this finding into consideration, Neu-Ner and Firer (1997) concluded that for randomly selected shares, the equally weighted portfolio of all shares in the population should be used as a benchmark to compare other, less diversified portfolios.

Bradfield and Kgomari (2004) found that, for equally weighted portfolios, average covariance is the major determinant in portfolio risk. From the data period used in their analysis, they found that the portfolio variance for 165 equally weighted stocks is 16%, which is close to the average covariance of 15.5%. This highlights the fact that the average risk for equally weighted portfolios tends to converge to the average covariance.

The study also found that the All Share index and the General Equity Trusts, each contain portions of additional risk that can be attributed to market concentration. Total risk associated with the All Share Index and General Equity Trusts were 22% and 19.5% respectively. When comparing this to the risk associated with an equally weighted portfolio (16%), we can see that nearly one third of the ALSI risk can be attributed to concentration.

Another interesting outcome of the study was the formation of a measure for the price of concentration in terms of number of stocks rather than risk. Bradfield and Kgomari (2004) concluded that five randomly selected equally weighted shares would achieve the same level of risk as the ALSI, and 10 equally weighted shares would achieve the same level of risk as the General Equity Trusts.

Bradfield and Kgomari (2004) additionally considered the number of stocks needed in portfolios in South Africa to achieve effective risk reduction. Their findings were interestingly, somewhat different to that of Neu-Ner and Firer (1997). They concluded that as many as 45 stocks are required before

the marginal reduction in risk becomes of little advantage (point where risk seems to flatten off). The difference in results is attributed to past literature basing the simulations on equally weighted portfolios.

Table 2 highlights the results found in Kruger and van Rensburg's (2008) paper on evaluating concentration across different indices. As shown below, the effective number of shares required to achieve the same levels of diversification as the ALSI is 16.52 shares. This can be interpreted to mean that 149 shares in the ALSI (as of June 2002) serve no purpose in terms of diversification. They found that there was an extra 2.33% additional risk factor attributable to concentration in the market. The table also highlights that although none of the indices effectively deal with the issue of concentration, the SWIX index is the most effective in doing so.

Table 2: Results from Kruger and van Rensburg (2008).

	ALSI	80% RESI	CAPI	50% RESI	SWIX
n	16.32	19.75	22.10	23.03	30.51
RRC	5.54%	4.47%	3.93%	3.74%	2.67%

4.3 Comparison to International Studies:

Neu-Ner and Firer (1997) state in their research that in countries where share prices tend to move together, diversification is less effective. Their results were surprising in that they found that diversification was most beneficial in South Africa, which is known for its highly correlated shares. They found that 80.5% of the expected risk associated with holding one share could be eliminated by diversification in South Africa, compared to 73% in the United States and 65,5% in the United Kingdom. It should be noted that these international results were taken from data as of 1974 and, thus are not a true reflection of current market conditions since the results fail to incorporate the effects of market globalisation.

Table 3 illustrates the concentration of five of the world's largest indices as of 2008. Concentration is measured in this table by the effective number of shares. As previously mentioned, the ALSI, consisting of 165 shares, had an effective number of shares of 16,52 as of 2002. From looking at the table, it is clear that concentration isn't just a local phenomenon and is a worldwide market issue.

Table 3: Concentration of five of the world's largest indices as of 2008 results from Martelleni (2014)

Index	Nominal number	Effective number
S&P	500	94
NASDAQ	100	37
FTSE 100 (UK)	100	28
EuroStoxx	300	104
Topix	500	103

5. Discussion and conclusion

Concentration risk has been a major role player in the recent instability of many financial systems (Raubenheimer, 2010). This paper looked to review the research into the matter of concentration as well as its consequences. Literature on the prevalence of concentration and the effects of diversification on the Johannesburg Stock Exchange in the period prior to the 2008 financial crisis is relatively exhaustive. The evaluation of concentration and diversification during, and post the financial crisis is however non-existent in a South African context, providing an opportunity for more in-depth research.

The risk associated with any investment can be separated into both upside and downside risk. One of the main roles assigned to asset managers is that of risk management (limiting downside risk). All of the past literatures researching the benefits of diversification and the associated negative effects of concentration have used the portfolio-share's variances and covariances as the measure of risk. This raises an interesting question about the effect portfolio concentration has on downside risk specifically.

Although numerous measures of concentration have been developed in the literature, they are all relatively trivial and a comprehensive measure of market concentration in the portfolio management context is lacking. Having witnessed the implementation of a measure of credit concentration in the banking industry, can such a measure be applied in a portfolio management context? If so, does this measure change over the period of the financial crisis? Additionally, how does this measure vary across indices on the JSE and across countries?

This project will look to explore these research questions and draw inferences on the influence that the financial crisis has had on levels of concentration and the amount of risk that can be eliminated through diversification on the JSE. The project will also postulate a new measure of portfolio concentration and will evaluate whether its findings are consistent with previous literature. The project will be conducted in a South African context, with scope for a future investigation into concentration across global markets (emerging markets versus developed markets).

While the specific amount of concentration may not be known, previous work on the matter emphasizes the importance of concentration and its consequences in a risk management context. Pair this with the prevalence of concentration in the South African market and there is an interesting topic for further academic research.

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