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The state of firm-level competitive advantage within the South African economy

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ABSTRACT

Over the past few years, there has been a proliferation of academic discourse regarding the subject of transient competitive advantage. Several academics have performed empirical studies which have noted a decreasing tendency in the number of businesses with a sustainable competitive advantage. Notably in this space, Columbia Business School professor, Rita McGrath, has performed a study determining the number of mid-to-large cap firms, listed worldwide, able to achieve consecutive years of uninterrupted growth: a sign of a sustained competitive advantage.

The following study considers the current theory in this domain, and interrogates the methods McGrath used to identify her so called, growth outliers. Two methods: the McGrath and the alternate, are used in identifying all growth outlier firms, regardless of size, listed on the JSE. The study concludes that two predominant issues exist with McGrath's methods, namely her use of a single start year and her static growth threshold. The effects of which are postulated to impact the number and nature of firms identified, depending on the context of the specific market. Considering trends in the resulting percentage of growth outlier firms identified over the period of study, it is concluded that South Africa is tending towards a more sustainable competitive advantage environment. The qualitative study concludes that instances of firms with transient and sustained competitive advantage, are still both commonly occurring, and principally finds that the age of sustainable competitive advantage is not yet over.

KEYWORDS: Transient competitive advantage, McGrath, JSE.

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DECLARATION

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

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Brad Osner   Date

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1. INTRODUCTION

1.1.   *Problem definition*

In the field of microeconomics, in the determination of firm-level competitive advantage, there exists a growing subset of work dedicated to the study of a phenomenon known as transient competitive advantage. Indeed a number of prominent academics have devoted a substantial amount of work into proving the existence of this somewhat contemporary phenomena and explaining the mechanisms and principles by which transient-advantage is governed.

For the past 50 somewhat years, and possibly longer, firms have been noting a steady decline in the duration of their competitive advantage (D'Aveni, 1994). There is a growing amount of anecdotal and empirical evidence showing a shift away from the existence of sustainable competitive advantage towards an economy which is increasingly being defined by industries in which firms experience temporary or transient-advantage (Thomas & D'Aveni, 2009). Observations that returns for firms in a wide range of industries have become increasingly more volatile over time and that superior performing firms are falling into mediocre performance more frequently, all indicate a breakdown in sustainable competitive advantage (Ruefli & Wiggins, 2005; Comin & Mulani, 2006; Comin & Philippon, 2006).

The purpose of this research was to challenge and interrogate the current theory in this domain and create a framework that enabled the identification of firms which possess a competitive advantage. Through analysing the consistency of firms' top line and bottom line earnings growth, companies which have been able to achieve consistent growth for prolonged periods of time, despite factors and occurrences in the environment which have prevented their competitors from doing so, are deemed to possess a competitive advantage. Once these outlier firms had been identified, the study attempted to understand how they had been able to achieve this and if this corresponded to the theory which exists in the literature.

This study was a continuation of the research of Rita McGrath and served to fill the deficiency left in her work whereby McGrath only considered companies with a market cap greater than $1 billion, using a single start year. This study expanded on her work by considering all listed firms regardless of market worth, using multiple start years. In

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so doing, this work forms a starting point to provide a more unified view to this aspect of economic theory (McGrath, 2012). Ideally the study would have considered all publicly traded firms listed throughout the world, however due to the availability of data, the research was limited to firms listed on the Johannesburg Stock Exchange alone. Such a decision regarding the definition of the universe, had implications on the limitations of the study; these shall be addressed in Section 3.8.

Such a shift from sustainable to transient competitive advantage has far reaching implications on business performance and in order for firms to survive and thrive in such an environment, they will have to adjust their strategies accordingly. There is therefore, a definite need for a study which identifies strategies which are effective in transient-advantage environments. Such research which involved identifying companies which have been able to excel in these environments and determining the strategies and organizational designs which have enabled them to achieve this. Such knowledge would have application for both the investor and the business strategist alike.

Furthermore, with a shift toward a more transient competitive advantage economy, many of the models which underpin the frameworks for analysing and devising strategies for such an environment are called into question, including such widely adopted models as Porter's five forces and the resource based view of the firm (Porter, 1980; Wernerfelt, 1984). This raised the need for new theoretical models to serve this purpose in this new transient-advantage economy.

1.2. Background

It has been said that we are entering the age of a new normal, an age in which the rules which used to govern firm-level competitive advantage are changing (McGrath, 2013a). Indeed, there is growing evidence which suggests that the supposed holy grail of strategy formulation – the acquiring of a sustainable competitive advantage – is becoming increasingly more rare. In such a world the executive who continues to promise shareholders consistent double-digit growth for future years, is seeming less and less believable.

The fact is, regardless of what corporate leaders promise in terms of their growth expectations for their companies, achieving consistent growth is an excessively difficult

task. This has never been more true than in this age of 'temporary advantage' where companies can no longer rely on long held competitive advantage to ensure consistent growth (McGrath, 2013b). It would seem however, that there are outlier firms who have been able to consistently grow their revenue and their share of the market, where others oscillate between bouts of growth and decline. This is not to say that they always outperform the competition on an instantaneous or on an averaged basis, but rather that for an extended period they consistently achieve positive growth, an impressive feat considering the volatility and downturns that happen in an economy.

There is a growing body of literature, with some supporting empirical evidence, that the periods over which firms hold competitive advantage and gain market share over competitors is becoming increasingly shorter. The question however still remains if this hypothesis is extendable to all sectors and parts of the economy on a worldwide basis. Furthermore, although the study of competitive advantage between firms is becoming an increasingly studied topic, the trends in companies remaining competitive is still not fully understood. Therefore, it is important to understand the dynamics of how companies in a competitive market behave and how this is changing over time.

Movements towards better understanding of how some companies achieve this and how others do not will have great consequence for the investor; providing a powerful framework to analyse a prospective firm, and for the strategist; providing a new arsenal with which to engage the market.

1.3.   *Document outline*

The following document consists of seven sections addressing each aspect of the completed research: the definition of the problem and the purpose of the research; a literature review addressing the research that is currently in existence; a summation of objectives of the research in terms of the specific questions to be answered; a description of the methodology carried out; an account of the results that were obtained; a discussion of the results; and a conclusion to the paper, answering the research questions that were originally conceived.

Chapter 1 is an introduction to, and definition of the problem, and an articulation of the purpose of the study from both a business and theoretical perspective. Chapter 2 consists of a literature review covering the work which relates to transient-advantage

theory, and research relating to the evidence of its existence, the possible antecedents of the phenomena, its implications for business, and its implications on academic theory. The review continues on to outline the work of McGrath and Sull, whose work in this arena formed the salient research from which this proposed thesis emanated. The review concludes by contextualising the need for the proposed research work relative to that which already exists.

The fourth chapter details the research methodology and design, including details regarding the development of the software module to process the data and the means by which this information was quantitatively analysed. This section continues further to describe the qualitative portion of the research in analysing the characteristics of identified firms and describes the expected limitations of the methodology.

The fifth chapter is a thorough account of the results obtained, with a minimal degree of analysis relating to data itself. The sixth chapter, on the other hand, goes into a detailed discussion of these results in answering the specific research questions initially laid out, as well as their implications in a broader sense.

The seventh and final chapter, concludes the paper and considers the implications of the study from a business perspective as well as possible future developments moving forward.

2. LITERATURE REVIEW

2.1.   Introduction: a shift from sustainable to transient competitive advantage

Since the birth of the study of strategic management, the concept of sustainable competitive advantage has pervaded business as the holy grail of strategic objectives. The term 'competitive advantage' was first embraced by the business world, with the release of Michael Porter's ground-breaking book, *Competitive Strategy* (1980). There has since been a considerable amount of research dedicated to demonstrating the existence of sustainable competitive advantage and affirming its status as the fundamental principle behind which strategy is designed (Rumelt, Schendel & Teece, 1994). However, more recently several studies have empirically shown that there is evidence in certain industries, that the concept of sustainable competitive advantage, may no longer hold, with a notable decline in the duration of advantage (Ruefli & Wiggins, 2002; D'Aveni & Thomas, 2009).
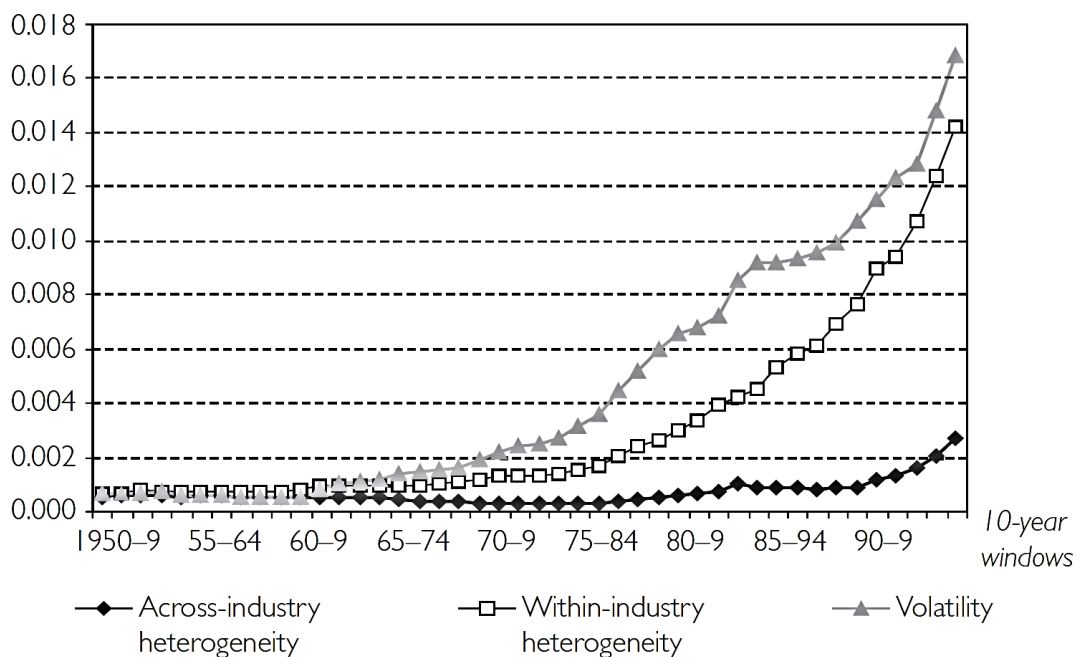
Figure 1: Firm-level performance measures: variance for firm ROA into volatility of temporary profit relative to long run profit, showing large increase in variance over time for US manufacturing firms 1950 to 2002. Taken from "The changing nature of competition in the US manufacturing sector, 1950–2002" by L.G. Thomas and R. D'Aveni, 2009, *Strategic Organization*, (7)4, p. 399. Copywrite 2009 The Author(s).

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The first instances of such observations emanated from anecdotal evidence of companies noting that the duration of their competitive advantage was diminishing drastically (D'Aveni, 1994). In a later paper studying the returns of US manufacturing firms from 1950 to 2002, Thomas and D'Aveni (2009) found through analysing short term returns relative to the long term average of returns (volatility around the mean) that firm performance had become increasingly volatile over time: indicating that competitive advantage was becoming increasingly more transient.

One aspect, holding back strategy research in examination of the shift from sustainable to transient-advantage, has been the cognitive frame which has limited the outlook towards advantage by assuming sustainability. This has occurred mainly due to the duration and intensity of this long held view (Dagnino, D'Aveni & Smith, 2010). However, within the realm of economics and finance literature, scholars have not been held back by such assumptions and several papers have reported rising volatility in revenue, earnings and capital expenditures as well as increased volatility in abnormal returns in US equity (Campbell, Lettau, Malkiel, & Xu, 2001; Irvine & Pontiff, 2009). Such observations further affirm the reduction in the duration of competitive advantage.

Yet others are still cautious to throw away the rulebook regarding long-standing theory behind competitive advantage. In his book, *Good Strategy Bad Strategy*, Richard Rumelt (2011) takes a fairly pragmatic stance towards the concept of competitive advantage and the idea of advantage being sustainable, "The basic definition of competitive advantage is straightforward. If your business can produce at a lower cost than can competitors, or if it can deliver more perceived value than can competitors, or a mix of the two, then you have a competitive advantage … Defining 'sustainability' is trickier. For an advantage to be sustained, your competitors must not be able to duplicate it. Or, more precisely, they must not be able to duplicate the resources underlying it" (p. 173).

In this quote, Rumelt addresses the first principles behind the idea of sustainable competitive advantage, principles which certainly supersede theories and models. The logic in the statements is clear – sustainable advantage is the ability to produce more perceived value for customers than competitors using resources that competitors cannot duplicate. It is evident in the statement, that there are several circumstances which would result in a state, where advantage is not sustainable. For instance: the underlying resources are transferable, fungible or substitutable, or there is a change in

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the customers' perception of value.

In the proceeding literature review, the antecedents and mechanisms which cause such a breakdown shall be discussed and further the implications for business strategy addressed. In addition, some opposing viewpoints which are critical of the notion of the end of competitive advantage shall also be included

2.2. Antecedents of transient-advantage

In the world of system thinking, it is postulated that any changes to the inputs into a system or changes in the make-up of a system, will affect the behaviour and output of the system. Macro and micro economic environments, and markets and firms are no different from other so-called natural systems, and will behave in a similar way (Checkland, 1999). In the context of the firm, any change to the environment in which the firm operates will affect its performance.

In a market in which the factors which define the environment are constantly changing and shifting, it is postulated that it will be increasingly difficult for firms to maintain a consistent performance. The degree of the systems response to changes in the input depends on the makeup of that system and the severity of the changes to those environmental factors (Checkland, 1999).

Several precursory factors could be considered to have caused such a shift in the competitive environment, including technological advances, globalisation, industry convergence, aggressive competitive behaviour, deregulation, an increase in the availability of patient venture capital, the rise of emerging economies such as China and India, global political instability and the privatisation movement amongst a host of other possible factors (D'Aveni, Dagnino & Smith, 2010). There has however, been no evidence showing direct causation between these factors and the reduction in the duration of competitive advantage.

2.3. Cyclical nature of dynamic markets

Throughout history changes in the operating environment, have for various reasons, caused disruptions within markets and have caused firms which have previously held a competitive advantage to fall out of favour with customers and have in contrast, propelled contenders into the forefront of the market. This disruptive mechanism has

throughout history, rearranged the status quo and displaced market leaders (Danneels, 2004). Therefore the notion that the world is entering a new age in which sustainable competitive advantages no longer exists as some sort of new normal, must be carefully considered and interrogated thoroughly.

Rumelt et al. (2011) postulates that the modern world goes through cyclical periods of great technological advance and periods of depressed technological lulls. During 'boom' periods, a certain technological breakthrough may open a metaphorical floodgate for a multitude of other technological developments to occur. It is postulated that during such periods the factors which define the dynamics of the market environment shift considerably and the lie of the land changes dramatically, rendering leading firms' competitive advantages obsolete and catapulting some firms out of obscurity into a position of power.

In contrast during depressed periods of technological lulls, firms are able to sustain their competitive advantages easily, and it seems that their 'high ground' positions are well and truly sustainable. Rumelt's postulations beg the question whether we are truly entering an age of a new normal in which sustainable competitive advantage no longer exist or rather whether we are merely going through the most severe part of a positive technological innovation cycle in which the lie of the land is shifting dramatically.

In a recent development, academics from Duke University's Fuqua School of business have extended the work of Thomas and D'Aveni and others. Using four separate methods, derived from measurements of sustainability of competitive advantage, they find robust and consistent evidence of increasing sustainability in firm performance over the past decade.

Where previously measures suggested a decrease in the sustainable competitive advantage, after the turn of the millennium, the data suggests an increase in sustainable competitive advantage. This observation can be seen in Figures 1 and 2.

These recent findings strongly oppose the viewpoint expressed by those that make up the end of competitive advantage camp. It is evident however, that both opposing viewpoints have empirical data which support their arguments although with each study being performed in a different context, one cannot merely be assumed to supersede the other. This recent development does however strongly call into question the sentiment which suggests that we are entering into an age of a new normal.
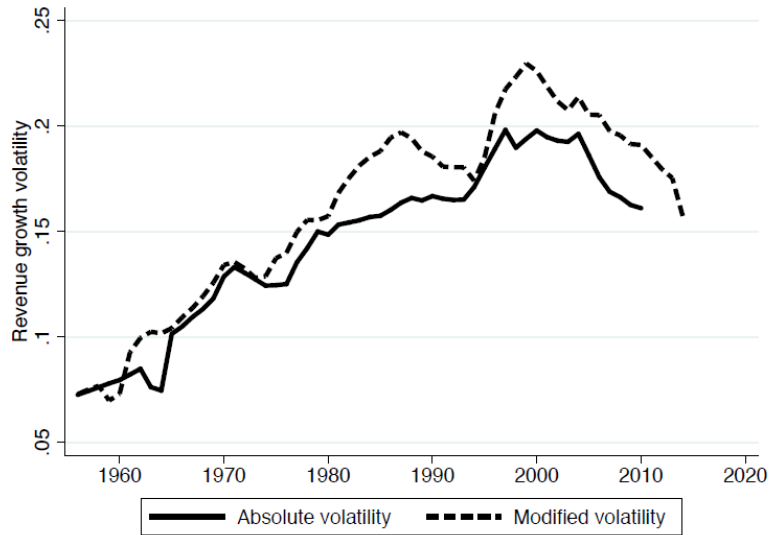
Figure 2: Firm-level performance variance measure: standard deviation in revenue growth over a ten-year. Taken from "Changes in Persistence of Performance Over Time," by V.M. Bennett and C.M. Gartenberg, 2016, SSRN, p. 26. Copyright 2016 SSRN.

Figure 3: Firm-level performance measures: variance of ROA and ROE, 1950-2015. Taken from "Changes in Persistence of Performance Over Time," by V.M. Bennett and C.M. Gartenberg, 2016, SSRN, p. 25. Copyright 2016 SSRN.

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2.4.   Breakdown of current strategic models

There have essentially been two key theoretical models which dictate the principles which govern the concept of sustainable competitive advantage, namely Porter's five forces model and the resource-based view (RBV) of the firm.

2.4.1.   Industry structure: Porter's five forces

Michael Porter's (2008) five forces model, enables the various forces which govern the structure of a certain industry and the implications which these forces have on a firm's competitive advantage within that industry, to be systematically analysed. Porter's model suggests that depending on the structure of an industry and the positioning of the firm within it, a firm may be able to sustain its competitive advantage. There is a substantial amount of research supporting this topic and it is widely considered one of the fundamental models governing competitive advantage theory (D'Aveni et al., 2012).

The implication of the model is that firms select industries which allow them to take the competitive high ground: that is industries with high barriers to entry, low concentration of buyers and suppliers, and fewer competitors and alternative products (Porter, 2008). However, to have the good fortune of being in an industry with such a well-defined structure or to have the resources and competencies to be able to enter such a market, is not a luxury that most firms have. Many of the conditions which dictate an attractive industry structure in today's world are becoming increasingly rare, with the boundaries of industries becoming more ill-defined and the receding margins between what constitutes direct competition, an alternate product or a non-competing product. With the increase in the convergence of industries, the contest for customer's interest and spend is becoming increasingly more competitive. Importantly, competition seems to be arising from obscure industries which previously were unrelated and non-threatening, and observations of this nature suggest that Porter's model may not be readily applicable to such circumstances (Kim, Lee, Kim, Lee & Suh, 2015).

This is not to say that Porter's model is no longer relevant; as a mechanism to analyse the forces in an industry. The first principle concepts are still sound. There are certainly still industries in which a static analysis of the structure of an industry using Porter's model will allow a long term strategy to be devised to help attain a sustained competitive advantage. However, in other industries where the structure of the industry

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is constantly changing and equilibrium is never reached, it appears this may not be the case. Such industries in which the value proposition is constantly evolving and shifting, demands the product must also evolve accordingly (Young, Smith & Grimm, 1996). Such an industry would have its competitors, alternative products and barriers to entry shifting in direct relation to this change and firms would not be able to devise a strategy for sustainable competitive advantage using such a model.

2.4.2. *Resource based view of the firm*

In the resource based view (RBV) of the firm model, the organisation is considered as a collection of resources which gives the firm its advantage over its competitors (Wernerfelt, 1984). Formalised by Barney (1991), the theory postulates that the source of a firm's advantage is derived from the combination of resources at its disposal and is based on two fundamental assumptions: the resources of the firms within an industry are different, and these resources are not easily transferable between firms.

Based on these assumptions, it is postulated that the resource market is imperfect and therefore firms can differentiate themselves with their resources and achieve sustainable competitive advantage through obtaining or refining resources which are rare, non-tradable or non-substitutable. This theory is reliant on these key assumptions and as the market moves further towards perfection and the rarity of resources decreases and its tradability increases; the validity of this theory will further erode. Furthermore, with a constant shifting of what the customer considers to be a valuable product or service and with the convergence of products and services, it is postulated that the resources required to deliver a valuable product or service will also be constantly shifting and growing. This will require the consistent altering, refining and aggregation of resources resulting in a breakdown in the static sustainability of such a competitive advantage (D'Aveni, Dagnino & Smith, 2010).

Furthermore, with the introduction of the concept of the so called *paradox of success*, Audia, Locke and Smith (2000) discussed how once a firm achieves some level of success the natural tendency is to exploit those resources which worked in the past and in so doing becoming complacent to changes in the environment and being unable to overcome their current inertia. The paradox is that the resource which was once its source of competitive advantage now causes the firm's future decline.

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With the arrival of the RBV theory in the realm of understanding competitive advantage, there began a great academic discourse in studies which decomposed performance into firm and industry specific effects (Schmalensee, 1985, 1987; McGahan and Porter, 1997, 1999, 2003; Rumelt, 1991; Hawanini, et al., 2003). However, Ruefli and Wiggins (2005) criticised the use of performance measures as empirical indicators of sustainable advantage because of short time spans of the studies and since the majority of them did not take into account the important aspect of the ability of individual performers to achieve superior performance through their actions.

The prediction was that the assumption of sustainable advantage was incorrect; the results of their 2005 study showed that the superior performers were falling more frequently to mediocre performance levels and the duration of superior performance was declining. This shift pointed towards a temporary advantage based on competitive action – and indicated a need for a new model to account for such a shift.

2.5. Transient-advantage theoretical models

2.5.1. Competitive dynamics

With an unsustainable shifting industry structure and when markets, resources and firms are constantly evolving, a theory is required which accounts for such a lack of equilibrium. Within the realm of economics, the school of thinking of Austrian economics which emphasises disequilibrium and the actions of the individual firm, a useful stream of research is derived in this context known as competitive dynamics (Jacobson, 1992; Young, Smith & Grimm, 1996).

In this theory a firm's strategy is derived from understanding the action/reaction relationship that exists between a firm and its competitors whereby temporary advantage is acquired from an action or a string of actions relative to the actions or reactions of a competitor over time.

Put succinctly this stream focuses the relationship of competitive action relative to competitive advantage in industries characterised by having the following characteristics:

1. Competitive advantage is short lived due to firm-level action disrupting the causal linkages between competitive conduct and performance as defined in

the market status quo.

2. In order to maintain competitive advantage, firms must engage in a series of action/reactions relative to the actions of competitors.

3. In such a high competition environment firms with greater competitive activity will theoretically have superior performance than industry competitors.

Such principles are in line with the principles of Austrian economics which states that the critical market process is organisational action. Such actions can disrupt the linkages between conduct and performance which exists in the status quo in the marketplace and such actions can create opportunities for the firm and by diffusion to the rest of the industry. As is evident in the similarity of these principles, Austrian economics has greatly influenced the stream of research of competitive dynamics (Young, Smith & Grimm 1996).

In a study undertaken in 1996, Grimm et al. showed through a longitudinal analysis of 1,903 competitive actions undertaken by firms in the then highly competitive software industry, that the results of hypothesis testing support the relationships in the Austrian model that firm-level competitive activity is positively related to the firms return on assets and return on sales. The quantitative study showed evidence of the validity of the competitive dynamic model for highly competitive industries.

Of great importance, some research work has connected actions and reactions to organisational performance (Grimm, Lee, & Smith. 2000; Ferrier, Smith & Grimm. 1999). An example of such, Derfus, Maggitti, Grimm, and Smith (2008) addresses the authenticity of the so called Red Queen effect. The etymology of the term 'red queen', refers to Lewis Carroll's allegorical tale Through the Looking glass in which the red queen instructs Alice that she *has run in order to stay in the same place*. In the business context, the Red Queen effect can be seen as a contest in which each firm's performance within an industry depends on the firm's matching or exceeding the actions of rivals and stands in defiance to Porters theory and the resource based view of competitive advantage – supporting the theory of dynamic competitiveness.

Other research has also connected this theory with RBV by finding relationships between a firm's stock of resources and its speed of competitive response (Smith, Grimm, Gannon & Chen, 1991). According to D'Aveni et al. (2010), this has limited the

insights of this stream due to its connection to RBV and industrial organisational (IO) economics in the context of today's converging and globalised world where the traditional boundaries of industry are being redefined.

In response to such criticism, Chen and Miller (2015) reconceptualised the competitive dynamics research by moving away from the RBV and IO perspective and formally expanded the framework along five dimensions. Namely: the aim of engaging in competitive interaction, mode of the interaction, roster of actors (number and type), action toolkit (repertoire of competitive moves), and the temporal length of the interaction. This forces an explicit consideration of the various dimensions to the framework where previously analysis had been haphazard and fragmented. The work also devised three prototypal views of analysing an action within the framework.

The work outlines a robust framework for analysing the action/reaction relationship between a firm and its defined competitors, in obtaining competitive advantage in a so-called transient-advantage environment.

2.5.2.   Model of entrepreneurial action

Smith and Cao's (2007) model of entrepreneurial action addresses the competitive action of a firm entering into diverse industries where previously uninvolved; an aspect which competitive dynamics fails to handle. The framework helps in modelling entrepreneurial action in dynamic, rapidly changing markets and involves a process based model consisting of four steps, namely:

1. Searching the environment for opportunities for new action.

2. Undertake new action – action causes market disruption.

3. Disruption leads to market discourse and market evaluation of new offering.

4. The market reaction leads to a performance result (positive, negative or neutral).

The model depends on the anticipated opinions of the firm's competitors and other stakeholders to perform a sense making process which will in turn allows for feedback and learning from the postulations. The model is independent from the structure of the industry in which the entrepreneurial action takes place and therefore is helpful from a

transient-advantage viewpoint where industry structure is very much dynamic and may be difficult to model.

2.6. *Implications for transient-advantage environments*

It is evident from the preceding literature that taking a static view of competitive advantage in the majority of industries, has some drawbacks. Whether this view is based on understanding the industry structure, looking internally at the firm's sources of competitive advantage or at the actions of the firm, there is growing evidence suggesting the need for a more dynamic viewpoint towards strategic guiding policies. Indeed, some academics would suggest the static viewpoint has lost relevance; McGrath (2013a) states with finality "the era of sustainable competitive advantage is over, and companies are going to have to learn how to survive and thrive in a new environment where competitive advantage will increasingly come and go in temporary waves" (p. 17).

Such a shift in the key principle around competitive advantage, has critical implications for businesses operating in such an environment. In order to survive and thrive in such radically different circumstances in which the intrinsic rules which govern business sustainability are so different, it is clear that there is a need for an authoritative shift in the way that business is done in terms of the conceptual understanding of 'industry' and 'competition', the diagnosis of the environment, organisational architecture and structure, hierarchies or goals, high level guiding principles and strategy and the way team members are lead.

2.6.1. *Rita McGrath: the transient-advantage economy*

In her 2012 study, Columbia Business School strategy professor Rita McGrath, set out to identify listed companies around the world that were able to achieve consistent growth year on year for several consecutive years. McGrath's study involved analysing the top line and bottom line earnings of all publically traded companies, the world over, with a market capitalisation of more than $1 billion; retaining only those companies which were able grow by at least 5% per year for an extended period of several years (the global annual GDP growth rate over this period averaged 6% and hence a threshold figure of 5% was selected as being in line with GDP – a reasonable rate for a company to grow relative to world growth.)

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After the first iteration of this exercise looking at the 5-year period from 2004 to 2009, only 8% of the 4,793 companies were able to achieve the steady revenue growth of 5% per year, and only 4% of companies were able to achieve a 5% income growth per year. Considering that this period coincided with the Global Financial Crises of 2008, and postulating that this may negatively impact the results, the exercise was repeated for the previous 5 years from 1999 to 2004 – the results were more favourable at 15% and 7% respectively, however showing a similar trend to proceeding years. It was evident the macroeconomic environment played a significant role in the ability of companies to achieve consistent year on year growth, a logical consideration, however there seemed to be a definite drop off trend over the years regardless of when the study takes place.

Upon the third iteration through the exercise, the time span was extended to 10 years over the period from 1999 to 2009, the number of companies able to achieve consistent growth of at least 5% per year in revenue and income fell to 10 companies and 5 companies respectively. It was now evident that companies which were able to achieve consistent growth were indeed the outliers; a small selection of companies able to oppose the trend. The findings were further evidence of a breakdown in sustainable competitive advantage and begged the question, which opened the door to another study – how were these growth outliers able to achieve this consistent growth when the majority could not and furthermore did these companies have anything in common?

Upon examination of these 10 companies, observations were made regarding exogenous factors:

i.   Industry: Companies were from a diverse range of industries including pharmaceuticals, beer, construction, and banking.

ii.   Size: Varying in size in terms of market cap (all were above $1 billion as per defined limit of study) and number of employees range from 4000 to 140 000 people.

iii.   Location: No single dominant geographic region. Global footprint of companies varied, from local to global companies.

iv.   Age: Varying in age, oldest founded in 1903, more than half founded after

1980.

It was evident that exogenous factors were not the common cause of the outliers' exemplary performance and this must be attributed to certain internal qualities and characteristics.

In her follow up work which formed the basis for her 2013 book; The End of Competitive Advantage, McGrath set out to find out what internal factors allowed these companies to buck the trend and achieve long term consistent growth. McGrath (2013a) briefly summarises her findings, "these ten 'outliers'– ranging from a Chinese beer company, to an internet service provider, to a massive Spanish construction oriented firm – are dissimilar in many respects. Yet they all have out-performed competitors while adapting to rapidly changing market forces, and have done so by identifying and implementing ways of combining internal stability while motivating external agility, particularly in terms of business models" (p. 19).

The following sections notes the following internal characteristics and guiding policies that McGrath found common to these outliers, factors which will form the theoretical basis on which the study of this thesis is informed in order to build on this existing knowledge and the tentative theory.

2.6.1.1   Continuous morphing over monolithic restructuring or downsizing

McGrath first describes how these growth outliers go through a continuous process of transferring resources from old advantages to fund and develop new opportunities. Companies identify opportunities in a diverse range of possible products or services that are not necessarily directly in line with what they are doing but usually somehow related and relative to their competencies and are promising arenas where growth is possible. The identification of opportunities in one area, sees a gradual disengagement with other old arenas where prospects are poor (McGrath, 2013b).

This is a constant process of engaging and disengaging and is generally gradual as opposed to being step change in nature, which may cause shocks and instability in the system – McGrath observes that there were no instances of sudden, wrenching exits from an area. Change is embedded in the normal routines of the business, resources are reallocated flexibly and on an ongoing basis as opposed to sudden divestures or restructuring. Upon observation of evolutions in the market, firms embrace change and

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evolve with the market – especially in terms of supporting technologies.

2.6.1.2 Balance of stability and agility

McGrath continues to describe how in order to achieve this process of continuous reconfiguration, companies require a balance between two seemingly conflicting attributes: stability and agility.

Firms must have stable social architectures to limit the degree of organisational uncertainty and mitigate the effects of change their employees have to face. This stability also takes the form of a strong culture and identity in the organisation, with consistent leadership supporting and leading people through the process of constant configuration. There is an emphasis on values, culture and alignment, and large investments are made in personal development in various forms of training initiatives to educate and upskill their people (McGrath, 2013b).

When shifting into new arenas, this policy allows current personnel to be developed to align with new required skillsets as opposed to leaving them obsolete, forcing the firing and hiring of new people. This removes a considerable barrier for entering new areas and makes the act of transitioning far less intrusive on the company (McGrath, 2013b).

On the other side of the scale, McGrath prescribes that firms must also have sources of agility - that is the capability to quickly react to changes in the environment and to opportunities that present themselves. Funds and personnel must be able to quickly be reallocated and old technologies must responsively be integrated to the new area's needs. McGrath further observed that in order to make capabilities relevant, outliers rapidly upgrade rather than divest or dispose (McGrath, 2013b).

A key aspect of agility is the ability to be flexible to a changing environment and shifts in strategies as needs dictate. The firms in McGrath's study focused on increasing their flexible capability, albeit that in doing so conceding a small degree of system and process optimisation. To this point, resource allocation was not done on an annual basis but far more frequently along with a feedback process to evaluate the effectiveness of the allocation. Furthermore, firms are able to rapidly adjust and readjust the deployment of resources and can comfortably move staff and executives from one role to another as required (McGrath, 2013b).

2.6.1.3 Continuous innovation

Innovation is a key aspect to successful firms in the transient-advantage economy. McGrath notes that in her identified firms, innovation is a continuous process integrated into the mainstream operations of the company, and is a requirement for every employee. This message of innovation is reinforced through investments in various parts of the business from recruitment, internal marketing, to involvement in R&D. The process of innovation is managed through a cross-divisional innovation pipeline, which permeates the entire company (McGrath, 2013b).

Outlier companies devote a tremendous amount of effort into experimentation and innovation: developing and deploying new tech, moving into new markets, exploring new business models and in some cases, opening up new industries (McGrath, 2013).

2.6.1.4 Options orientation to market expansion

Outlier firms take an options-oriented view to exploring new opportunities whereby they make small initial investments at first, followed up later with more substantial investments if the situation warrants, whilst they are also willing to abandon the initiative if it is not promising. In contrast to their competitors, outliers appeared to make fewer high risk, all-or-nothing bets, in line with an options orientated strategy. Finally, outlier firms had diverse but related portfolios, this diversity lends itself to the ability for firms to explore new alternatives and is an essential aspect of their consistent performance as when one segment goes into decline, another segment can be leverage to mitigate this decline (McGrath, 2013).

2.6.2. *Limitations to McGrath's work*

Upon consideration of McGrath's study which she undertook in 2010, two concerns have been identified in the methodology which may impose limitations on her findings. One being the single start year which she used for the period between 2000 and 2009 and the second being the static growth rate which she used as a threshold limit on yearly growth.

Regarding the first issue, the problem with using a single start year, is that the study is limited to a single period which might possibly be quite unique and be defined by very

specific circumstances and therefore difficult from which to draw assumptions in a general manner. McGrath is in essence taking a single sample from a population of several possible time periods and in so doing cannot legitimately consider this to be a trend but merely an interesting observation for a specific period in time. McGrath does attempt to rationalise the specific period selected by saying that most periods throughout contemporary history have been stained by at least one traumatic event which negatively impacts on markets, and therefore the occurrence of the Global Financial Crises of 2008/2009 should not gravely have affected the outcome of the study relative to other periods. Although this sentiment is perhaps logically plausible, the severity of such an event relative to another cannot be so easily brushed aside.

It is in fact quite possible, that this period in which she selected to perform her study, is indeed an outlier in the population of possible periods which she could have selected, where the number of companies able to surpass her threshold growth levels for 10 years was in actual fact much higher. Alternatively this number of outliers may indeed have been the norm or even to the extreme – may have been far greater than the amount of companies normally able to achieve this. In not considering other periods, these questions are left unanswered. It is postulated that this fact may perhaps limit her findings to the period which was considered, and cannot be used as conclusive proof of a breakdown in the period of competitive advantage into the future.

McGrath's use of a single blanket growth rate threshold, regardless of the year in question or the country in which the company operates, also raises questions regarding her findings. Countries throughout the world, often have highly diverse nominal growth rates due to a multitude of internal and external factors. The achievement of a company growing at 5% per annum in the developed world is very different to that of a company in the developing world achieving the same growth figure. A given country may be plagued by a high inflation rate, and when a local company grows its revenue at this figure it cannot be considered to be an outstanding achievement or an indication of taking market share but rather a sign that the company is merely treading water.

It is understandable considering the vastness of McGrath's study and the immense number of companies she considered in exchanges throughout the world, that from a pragmatic point of view it may perhaps have been easier to use a single threshold figure. However, when considering that depending on the country concerned, this decision has a materially varying impact on the results. Therefore it seems that in

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terms of method; exactness should supersede pragmatism. In essence, the use of a single threshold is like using yardsticks of a different length to measure the achievements of different companies. If a country has a high inflation rate and a high real growth rate the yardstick gets short, whilst perhaps in a developed country which may have rock bottom inflation rates and a low growth rate, the yardstick may indeed become quite long and difficult to surpass.

This factor calls into question the identification of her outlier companies, because surpassing the threshold in one region could mean something very different to achieving it in another, to the point where some of these companies may not be taking market share or have a sustainable competitive advantage, but rather may just be growing at inflation. This issue raises some rather serious concerns and brings some of the assumptions of her study into question, and raises the need for further investigation.

As a final concern, the dogmatic view that a company must achieve 10 years completely uninterrupted year on year growth in order to be classified as an outlier, may impose an unreasonable requirement on the firm. It is perhaps the case that such a requirement goes beyond what it realistically means to be a growth outlier. Hypothetically speaking, if a company was able to achieve 9 years of uninterrupted growth and then happens to miss one year, perhaps due to the accounting practice of depreciating an asset which happens to decimate earnings for that year – McGraths criteria would knock such a firm out of contention. Then, perhaps if that same firm had to go on to achieve another seven years of uninterrupted growth, regardless of the achievement of 16 out of 17 years of growth, the company would not be considered an outlier, when perhaps in every regard the company is an outstanding performer.

The decision regarding the arbitrary nature of a 10 year consecutive growth period, does perhaps detract from results, when a company which achieved a nine year period is, 'just as good.' Obviously the need for an arbitrary length of time as the cut off period in such a frame work is needed but it is postulated that maintaining such an unyielding margin when selecting outliers whilst being pragmatic, may perhaps exclude some high quality, high performing companies from the mix. In essence such companies may have given additional insights into McGrath's observations. It is therefore postulated, that these companies which negligibly miss the 10 year cut-off should rather be considered on a discretionary basis.

2.6.3.   Donald Sull: thriving in turbulent markets

The work of McGrath echoed the sentiments of another academic, Donald Sull, (2009) whose paper "How to thrive in turbulent markets", shares many similarities in prescription to McGrath's observations of firms dealing in 'transient-advantage economies'. Sull describes how firms operating in turbulent conditions require the characteristics of 'agility' and 'absorption' to excel. Sull describes agility as the ability for a firm to consistently find and seize opportunities more quickly than rivals. He breaks this concept up into three distinct forms of agility: operational, portfolio and strategic.

Operational agility is the firm's capacity within a business model to find and seize opportunities to improve operations and processes; these include cost reduction, quality improvements and refinements in distribution amongst others. Operational agility requires having high quality real-time market data and processes to ensure clear performance goals and accountability (Sull, 2009).

Portfolio agility, in close similarity to McGrath's guidance, refers to the ability of firms to quickly shift resources out of less promising businesses and into more attractive opportunities. The attribute suggests having a diversified portfolio, having personnel who can easily be transferred across business units, processes which allow for easy disinvestments and central control of talent and funds to allocate as the business sees fit.

Strategic Agility refers to the firm's ability to identify and seize 'game changing' opportunities when they arise. In order to achieve this Sull, suggests having the following characteristics: a strong balance sheet and the financial capability to fund strategic actions, governance structures which are conducive to speedy actions and a long term perspective regarding performance expectations from owners and executives – which speaks to the probabilistic nature of such decisive movements to market opportunities (Sull, 2009).

Sull further prescribes that firms require 'absorption', a trait which shares certain similarities to McGrath's observed characteristic of 'stability'; there are however a few key differences. Absorption speaks to a firm's ability to absorb the downturns in the environment or initiatives which fail to develop into successful ventures. 'Absorption'

can be thought of as more of a defensive mechanism - a buffer to mitigate against the hard times, whilst McGrath's 'stability' is more of a supporting mechanism which at the right level assists in agile capabilities. Sull also speaks about finding a balance between agility and absorption in order to find a performance sweet spot, with either one dominating, causing a suboptimal state in the system. Examples of sources of absorption include low fixed costs, a 'war chest of cash', diversified cash flows, vast size, tangible and intangible resources, mechanisms to lock customers in, protecting the firm's core market, and powerful allies (Sull, 2009).

2.7. *Context of current research*

The purpose of this research is to extend both the quantitative and qualitative body of work relating to the field of the transient-advantage economy. The existing research in this field does not thoroughly address all aspects regarding transient-advantage and there remains a large number of questions that need to be answered. McGrath's work forms an excellent quantitative and qualitative starting point which, although effective at identifying consistent growth outliers amongst large firms (market cap greater than $1 billion), failed to account for smaller firms.

An extension of McGrath's work, through identifying firms below a $1 billion market cap able to achieve consistent growth for consecutive years, for multiple start years, analysing the exogenous and endogenous characteristics of firms would fill the deficit which McGrath and others left. Thereby realising a more unified view of transient-advantage economy theory. The theories covered in this literature review will form the theoretical base which will inform the analysis of the structures, actions, and policies of the identified firms. The relevance of the models covered, including competitive dynamics, the model of entrepreneurial action, as well as Porter's five forces, and the resource based view of the firm, shall be considered against the findings of the qualitative study.

3. RESEARCH QUESTIONS AND HYPOTHESIS

3.1.   Examination of McGrath's methods

This method seeks to examine the techniques employed by McGrath in her 2010 study in identifying growth outlier companies in a worldwide context for large market cap companies. McGrath's work left several questions unanswered and opened up several issues which were left somewhat unresolved. This section of the study examines some of these issues, and seeks to understand the implications of some of these methodology choices.

1. Using McGrath's methods, identify growth outlier firms on the JSE throughout the period of study in order to examine the following issues:

    a. What are the implications of the start year?

        i. Does the start year quantitatively affect the number of companies identified and the trend in the dropout rate?

        ii. Does the start year have a qualitative effect on the resulting companies identified?

    b. What are the implications of the static 5% growth threshold on the results?

3.2.   Identification of growth outliers on the JSE

Upon due consideration of the issues with McGrath's methodology, the latter part of the study, uses an adjusted set of criteria, in order to identify a refined list of growth outliers in the South African context. A qualitative exploratory study further seeks to understand the exogenous and endogenous similarities between these firms, and to test whether there is any congruency to the theory in the literature of companies able to sustain a competitive advantage and the identified companies.

2. Considering the issues with McGrath's work, using an altered methodology, identify JSE listed firms which are able to achieve consecutive year on year growth for 10 years.

a. Does this refined list of growth outlier companies share any exogenous characteristics?

b. Is there a qualitative difference in the findings of this study to that of the work of McGrath in terms of endogenous characteristics?

3.3.   Implications for the status of firm-level competitive advantage

In consideration of the literature on the subject, it is evident there are two conflicting viewpoints regarding the status of firm-level competitive advantage. Some studies suggest that the global economy has an entered an age of the new normal in which firms can generally only achieve transient advantages. Other studies suggest that the existing theories and models regarding sustainable competitive advantage are still applicable, and the periods defining a firms competitive advantage have not decreased. This section serves to respond the question if, in the context of this study, firm-level competitive advantage can be defined as being transient or sustainable.

3. Do the findings of this study support the notion of South Africa tending towards a transient or a sustainable competitive advantage economy?

4. RESEARCH METHODOLOGY

4.1.   *Research process*

The initial part of the research process took the form of a quantitative study which involved several distinct phases including conditioning the data, processing the data, representing the resulting data in interpretable form and analysing this information in order to answer the proposed questions.

Dealing with over 1100 companies and nearly 11 000 years of data involving multiple parameters, it was concluded that in order to effectively perform calculations, analyse data and synthesise information, an automated filtering algorithm should be created. This module was created in Excel VBA and enabled the computation of the data to occur in a matter of seconds and allowed the easy variation of input parameters and enabled multiple iterations to be performed through the data as required. A separate module was coded to run error checking through the data set to ensure that missing data points were accounted for.

The next step required the defining of the threshold parameters in order to filter through the company data so as to produce a list of identified outlier companies. The selection of these parameters are discussed section 4.3.

Once these parameters had been defined, the research involved performing iterative passes through the data, varying several input parameters in order to the analyse the resulting lists of companies. The algorithm allowed the variation of several parameters including the period of study, the threshold growth levels, the selection of the type of companies and the number of consecutive growth years required. The program then outputted a full list of analysed companies along with relevant information. The design and implementation of the Excel module shall be fully addressed in section 4.3.4.

These multiple iterations through the data set, produced a rich set of results over various time periods between 1980 and 2015. This allowed the analysis of data trends and observations to be made with regards to the two predominant methods used, defined as the McGrath method and the alternate method.

The latter phase of the research involved producing a list of South African growth outliers amongst the currently existing JSE listed companies using a refined set of

constraints derived from the work of McGrath, addressing the shortfalls of her work and creating effective criteria for positively identifying a growth outlier. The next stage was in analysing the exogenous characteristics of the identified firms, to determine whether there are any similarities between them. These included industry variance, company size, geographic footprint, number of employees, concentration of operations and various market and internal performance metrics. This was achieved through using company information obtained from official company documents such as annual integrated reports and other information obtained using McFas and other databases.

The qualitative phase of the project entailed a process of analysing the endogenous characteristics of these outlier firms to understand how they were able to attain a consistent performance to such an extent. This was achieved through performing an explanatory study of the identified firms, using archival research and secondary data from various sources including integrated reports and press interviews with company executives. As specified previously, this study was informed by and builds on the existing knowledge and ideas of the models, concepts and tentative theories covered in the literature review. This was done without creating cognitive barriers which would hinder the exploration of emerging concepts that may emanate from the research in this context (Ritchie, Lewis, Nicholls & Ormston, 2013).

The final phase of the research, involved trying to understand the emerging trend in the status of firm-level competitive advantage in South Africa. This was achieved through using the alternate method, to examine the percentage of growth outlier firms identified, for each end year until 2015. Determining if the percentage of firms was increasing or decreasing in order to understand the underlying trend in the status of firm-level competitive advantage in South Africa over the period of the study.

Details of the research process included the following:

1. Created a Growth Outlier Algorithm written in Excel VBA.

2. Checked, formatted, corrected and validated all data.

3. Examined the McGrath technique relative to the alternate method:

    i. Used the McGrath's methodology to iteratively process all data with a rolling start year from 1976 to 2015.

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ii. Defined the constraints of the alternate method: 10 years of consecutive growth above nominal GDP in terms of revenue, earnings and HEPS.

iii. Used the alternate method to iteratively process all data, using a rolling start year.

iv. Represented all resulting McGrath and alternate method output in table and graph form.

v. Performed an analysis and a comparison of results looking for trends and patterns in the data as well as other notable observations.

4. Identified a refined list of South African growth outlier firms:

i. Processed all data from 1976 to 2015, identifying all firms which were able to achieve the defined criteria.

5. Analysed the exogenous characteristics of the identified firms:

i. Defined industry, location, age, market cap, product and region concentration, debt level and book value, using integrated reports and other company publications as well as external market analysis and media reports.

ii. Checked for commonalities in findings between the various outlier firms.

iii. Correlated findings to existing theory.

6. Performed an explanatory study analysing endogenous factors enabling the consistent performance of the identified outlier firms.

i. Collected and analysed secondary data relating to the outlier companies using integrated reports, company publications ,external market analysis, media reports and various market commentary articles.

ii. Correlated the findings to the existing theory and tested relevance of the various models.

7. Analysed firm-level competitive advantage trends in South African:

i. Iterated through all data, for all metrics, using a rolling start from 1980 to

2015.

ii. Counted the number of outlier firms for each start year, relative to the number of firms initially listed, in order to calculate the percentage of growth outlier firms.

iii. Performed a time-series trend analysis on the resulting data.

4.2. Research study population

The population was made up of all listed companies of the JSE over the past 39 years, including those that have delisted over that period. Specifically the study considered all companies regardless of size, makeup, industry or any other characteristic, the only requirement being that the company was at some time listed on the JSE during the period of study from 1976 to 2015.

The range of data from 1976 – 2015 was selected due to its availability – data outside this range was not readily available and therefore has been omitted. In addition, this period over which the analysis was performed was ruled to be relevant for the purposes of this study looking at companies able to achieve consistent growth in the context of a modern economy.

4.2.1. Origins of dataset

The data itself was made available through the Gordon Institute of Business Science program and derived from the INET company time series database. Although an automated data validation module was created to process through the data and check if any data points were missing, the module was unable to fill in this missing data nor check if the existing data was correct due to the sheer age of much of the data points extending back as far as 1976. For later years the validation module used the McFas company database to supplement the missing data points, most notably for years 2014 and 2015.

4.2.2. Market capitalisation considerations

Many various studies considering aspects relating to companies of the JSE, often only consider companies making up the J203 all share index, or the JSE top 160 shares by

market capitalisation, due to the fact that these shares account for more than 99% of the weight of companies on the JSE whilst the remaining some 240 shares which are currently listed account for less than 1% (Muller & Ward, 2013). However, due to the fact that the purpose of the study was in essence, a consideration of the growth of each company relative to itself, such a constraint on market cap would reduce the scope and relevance of the study. In fact the purpose of the study was partly to understand whether such differences as the size of market capitalisation, had an effect on the ability of the company to achieve consecutive years of uninterrupted growth. Therefore all JSE listed companies regardless of any criteria were included in the study.

4.2.3.   Unit of analysis

The listed company was the unit of analysis, such examples include Clicks Group Ltd, Capitec Bank Holdings Ltd and Tiger Brands Ltd amongst others. The parent company or company with controlling interest, was selected as the unit of analysis since the data at this level was available. The data for subsidiaries (where applicable) was not available – albeit that if that deeper level of detail had been available, it would have provided a deeper level of understanding into companies able to achieve consistent growth, where now it may be lost in the diversity of the parent company portfolio.

4.2.4.   Sampling method and sampling size

The sampling size consists of the entire population of listed companies on the JSE including those that have delisted sometime over the defined period of analysis (1976-2015). This was done since the purpose of the study was to find the outlier companies with the greatest consistent performance and to understand the trends in firm-level competitive advantage for the South African environment as a whole.

Due to the nature of the study and the expected rarity of such consistent performance, it was essential to find every outlier in order to obtain meaningful results which account for all companies able to achieve the defined consistent performance threshold. Since the entire population was selected as the sample size, every element in the universe was selected as the sample.

4.2.5. Measurement instrument

The measurement instrument was a database made up of company data from all listed companies on the JSE from 1976-2015. It includes such information as revenue, headline earnings, attributed earnings and headline earnings per share.

4.3. Implemented methodology

4.3.1. McGrath method

The method referred to as the *McGrath method* closely followed the prescribed methods McGrath used in her 2010 study in identifying growth outliers amongst companies worldwide with a market cap greater than $1 Billion. Specifically her method used a constant threshold growth rate of 5% for five years 2000 to 2004 and ten years 2000 to 2009. A company was identified if it was able achieve a growth rate of greater than or equal to 5% per annum for 10 years in terms of revenue and earnings. McGrath defined these companies as growth outliers.

This study replicated McGrath's method but in analysing JSE listed companies for 5 and 10 year intervals and considered revenue and earnings, using the 5% threshold growth rate with a rolling start year for the study period between 1980 to 2015. For each start year the performance of each company was recorded in terms of number of consecutive growth years along with other related performance information.

4.3.2. Alternate method

A similar technique was used for the so-called alternate method, with a key difference being the variable threshold growth rate used. In this method a varying annual threshold amount was used depending on the South African nominal growth rate for that particular year. For instance, in 2014 the SA nominal growth rate was 7.43% and therefore for that specific year, companies in the study had to achieve a growth rate greater than or equal to that amount in order to remain in contention as a growth outlier.

The firms identified in the list of alternate outliers were selected on the basis of the three metrics, revenue, earnings and HEPS. With outlier firms having to achieve a minimum of 10 years of consecutive growth for each metric. Again, the number of

companies able to achieve the growth requirement for the period interval length was recorded.

4.3.3.   Threshold growth rate

The use of the nominal growth rate as the threshold for the alternate method was a matter of extensive deliberation, whereby the alternative proposition was to use the real growth rate plus the CPI inflation rate. It was postulated that a threshold growth rate must be selected which is indicative of a company which is growing at a rate greater than the overall economy and higher than any increases which may have occurred due to price inflation. In other words, growing at a rate whereby it is taking market share from competitors, and therefore is a true indication of a company with a competitive advantage during the specified period.

The use of the real growth rate plus CPI was an attractive option in the sense that CPI is generally the de facto measure of the inflation a country is experiencing (Mankiw, 2012). However, a number of issues were identified with using CPI as the measure of inflation for the purposes of this study. The consumer price inflation rate is largely intended as being an indicator of inflation from the perspective of the consumer more so than that of the entire economy. CPI is calculated considering the increase in prices of a basket of goods representative of what the typical SA consumer is likely going to buy. This static list of items and the weighting thereof, does not account for the economy as a whole nor the shifts in spending patterns from year to year (Consumer price index, 2016). Indeed much of the makeup of the SA economy consists of minerals, goods exported, and government spending, which is not addressed in the CPI numbers to any prominent degree.

In this respect, the nominal GDP growth rate and specifically the GDP deflator rate was deemed to be a more objective measure of a countries inflation. The GDP deflator is derived from the actual consumption and investment patterns in the economy and varies from year to year accordingly. Whereas CPI is based on a selected basket of goods whose makeup and weighting is open to deliberation, the implicit price deflator is an objective figure which originates from the specific actions in an economy for a specific year, and therefore has an intrinsic objective quality (Mankiw, 2012). Since the study considers all companies broadly across an entire economy involved in a wide array of industries; it is therefore concluded that the nominal growth rate makes the

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most appropriate growth threshold level to indicate whether a company is taking market share.

4.3.4. Growth Outlier filtering algorithm

The Growth Outlier filtering algorithm was coded in Excel VBA and consisted of several subroutines to iterate through company data and output the list of companies and the associated information to enable a thorough analysis of company income statement performance. The modules were coded in such a way that any company income statement data could be analysed regardless of the exchange from which it originated, provided the data is in the correct format.

The front end or user interface of the program was achieved through the use of user forms and enabled the user to specify the period of the study, the growth rate threshold, the industry, or a specific selection of companies and the number of consecutive years growth threshold.

In terms of the functionality of the modules, the program runs through the entire database of all companies, only including the years as specified by the user, stepping over years outside the study period. The same subroutine is in essence repeated multiple times for each parameter, namely; revenue, earnings, headline earnings and headline earnings per share (HEPS). This is done for all companies in each industry grouping – industrial, mining, banking and insurance. The module then outputs a list of all companies in existence during the desired study period. The calculation of the actual growth rate for the various metrics, was achieved using the following equation:

Equation 1: Growth rate equation

$$Growth\ rate = \frac{\Delta y}{\Delta x . y_{(x)}} = \frac{y_{(x+1)} - y_{(x)}}{\big((x+1) - x\big) . y_{(x)}} = \frac{y_{(x+1)} - y_{(x)}}{y_{(x)}}$$

$$= \frac{y_{(x+1)}}{y_{(x)}} - 1$$

where:

y = metric *{revenue, earnings, headline earnings, HEPS, share price}*

x = year

In order to deal with the effects of companies growing at disproportionately high rates due to low base effects, a function was included to limit the recorded growth rate to ±150%. Growth rates over a one year period which exceeded these thresholds were limited accordingly.

The module stores much of the calculated variables in the spreadsheets which hold the company income statement data, which enables easy error checking of the calculated amounts. The algorithm outputs a list of all companies analysed in a separate table and includes the following information: the highest number of consecutive growth years over the period, the start year and end year for the high consecutive growth period, the aggregated annual percentage growth over the period, the mean annual growth rate over the period the growth rate variance over the period, the Sharpe ratio for the period and the year when the company initially drops out; that is the first year of growth below threshold level. An example of this output can be seen in Table 1. This information is repeated for each income statement parameter, including revenue, attributable earnings, headline earnings and (HEPS). The use of an Excel table allows for the easy manipulation, searching, sorting and selection of companies as needs be.

The so called *GraphData* worksheet aggregates various parameters to enable the effective graphing of information. For instance, one section counts the number of companies able to achieve multiple years of consecutive growth, e.g. counts all companies able to achieve 2 or more years of consecutive growth, 3 or more years, 4 or more years, 5 or more years, etc. It also averages other information such as the mean annual growth and growth variance for all companies able to achieve a specific number of consecutive growth years. Refer to Appendix 3, for a more detailed explanation and instruction regarding the use of the Growth outlier excel VBA algorithm.

4.4.   Analysis of results

4.4.1.   Quantitative analysis

With the algorithm producing a comprehensive list of all publically listed companies during the specified period of study, there was a need to extract the pertinent information and to represent the data in a simple form to allow for easy interpretation. This was achieved through the use of excel tables which allowed for full manipulation

of data through imposing defined conditions on the data, as well as through the use of line charts which graphically represented the trends and patterns existing in the data, thereby allowing for effective analysis and comparison.

4.4.1.1 Summary table

A portion of the analysis was achieved using the summary table that was output from running the Growth Outlier algorithm which summarised the resulting data for all companies listed during the period of study. Examples of such are Tables 1 and 2 included in Section 5.

Looking at the details of these tables, the three analysed parameters are included headed at the top of the table: revenue, headline earnings and HEPS. For each parameter, aspects analysing the growth of that parameter are shown. *Best Consec Years* self-evidently gives length in years of the period of the highest number of consecutive growth years which occurred sometime during the period of analysis. This parameter is closely coupled with; *Period of Consecutive Growth* which shows the start and end year of this period.

The *Total growth years* gives the total number of growth years that a company may achieve, not necessarily consecutive growth, over the study period. For instance, if a company achieved five consecutive years of growth and the following year achieved a year of negative growth proceeded by three more years of positive growth, it would in total have been eight years of total growth years. This effectively allows the analysis software to account for the instance in which a company happens to have one or two bad years, in which case the output will still pick up that the company has a high number of total growth years even if technically speaking the number of consecutive growth years is low. This effectively circumvents this limitation which existed in McGrath's work as discussed in Section 2.6.2.

Finally, other possible parameters of interest are included, such as the accumulated total year on year growth, the annual mean growth, and the annual growth variance. These parameters further allow the user to quickly and easily analyse the growth and performance of the company. Furthermore the program also outputs other metrics including the attributable earnings and average annualised share price, with the full suite of ratio's and period information as well the Sharpe ratio for each parameter.

These aspects were however not included in this report due to space and relevance considerations.

4.4.1.2 Trend analysis

The analysis of the trends in the percentage of firms identified for each end year after the specified five year and ten year period from 1980 to 2015, was achieved using Trend line regression analysis. The slope of the line was found in order to determine the straight line trend for the period of study. This was not done to predict the growth/recession of the proportion of companies over time but to show the trend for the specific period over which the study took place.

4.4.2. *Qualitative analysis*

In order to analyse the data obtained from secondary and archived sources, the credibility of the data was initially assessed through consideration of the source of the articles, their interests and goals for the piece, the depth in quality of argument and style, and finally the number of citations, credibility of references and how recently it was published. Once the credibility of the source was gauged and deemed sufficiently credible, the source was analysed using an etic focus with the theory and frameworks covered in the literature review forming the basis for the analysis of the various texts.

Furthermore, a progressive focusing outlook was adopted whereby an iterative and reflective process continuously took place throughout the research/analysis process. Adjustments were made to the type of information gathered and the type of data used as needs be when it appeared additional concepts needed to be investigated or new relationships explored. A case in point being the later development of analysing the trend in the percentage of growth outliers identified.

4.5. *Methodology Limitations*

The study was limited to only consider companies which have been listed on the JSE from 1976-2015. As stated previously, ideally the study would have considered all listed firms throughout the world on the various exchanges, however due to time constraints and limitations in the availability of data, this would not have been plausible. The implications of such a decision effects the studies relevance to an absolute global

context. The study specifically only considered South African firms over the past 40 somewhat years – and any conclusions reached or theories induced from the results must be questioned when used in a global context.

The South African environment is in many respects fairly distinct, and these various unique and non-unique parameters impact on the way firms do business in this context. The strategies, structures and actions that drive South African firms to excel would possibly not have the same results in other countries. Therefore, the findings of this study cannot merely be considered extendable to other countries, without thorough consideration of the environment of the country in question regarding those factors which drive a certain characteristic or practice.

As discussed previously, having only data at the holding company level limits the resolution of understanding into the performance of companies, whereby outlier firms within a parent company may not be identified due to averaging within the mediocre performance of the company's portfolio.

The data gathering process for the qualitative portion of the study was done through performing an explanatory study of the identified firms, using archival research and secondary data from various sources including archived newspaper articles, research papers and official company documents such as integrated reports, amongst other sources. The use of which, may only accounted for certain opinions regarding various matters and may be subject to various biases and a lack of objectivity.

5. RESULTS

The results are presented predominantly in the order of the research questions, however some prevailing results may correlate to other questions, and therefore the results should be viewed holistically in terms of the study as a whole.

5.1.   McGrath methodology results

The first section is an examination of McGrath's technique in a South African context for JSE listed companies using a flat threshold growth rate of 5% and a rolling start year from 1980 through to 2015 for both 5 year and 10 year intervals. Results are shown in terms of McGraths selected parameters of revenue and earnings as well as headline earnings per share, as a reference metric to the alternate method results.

5.1.1.   Growth outlier trends

Considering the time series revenue figures for the all listed JSE companies with the start years 1980, 1985, 1990, 1995, 2000 and 2005, for 10 years from that date, we note several observations as per Figure 4. This figure shows the percentage of companies that remain in contention for the specific period from the respective year 0, (when 100% of companies in that period are obviously still in contention), to later years in the period when companies start to fall out of contention, not having met the growth threshold requirement for that year. Looking for instance at the turquoise trend line for the study period from the 2000 until 2010 it is seen that as the years progress, fewer and fewer companies remain in contention; those that are filtered out being unable to surpass the growth threshold requirement. After five years we see 13.6% of companies remain in contention for the 2000 start year. After 10 years, in 2010 for that same 2000 start year we see that only 5.1% of companies are remaining.

The similarities between these trends for the various start years are evident, with the lines resembling the archetypal exponential decaying function, where the constant: a determines the rate of decay. This of course is expected due to the statistical variations and dependency of events which says that as more time goes by, the chance of survival decreases (Goldratt & Cox, 2008).

Equation 2: Exponential decay function.

$$y = e^{-ax}$$

Where:

x = year

y = percentage of companies

a = rate of decay constant
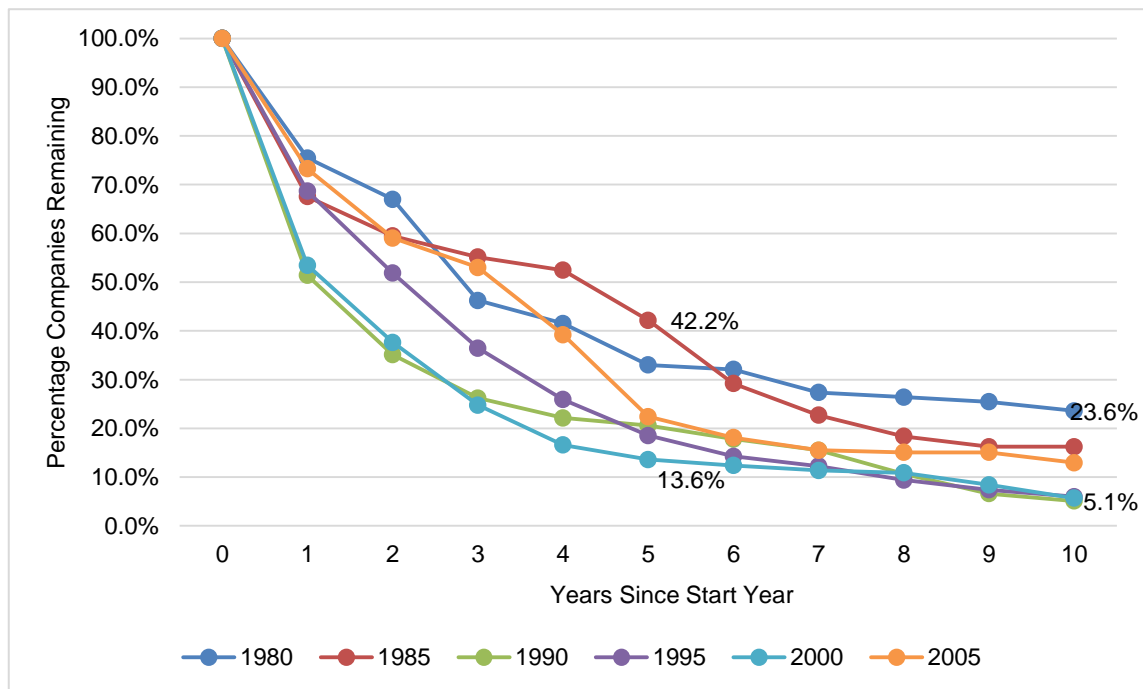
Figure 4: Growth outlier trends for various start years over ten year periods using the McGrath method considering revenue growth.

Over each of the ten year periods we see a definite exponentially decaying trend for the various start years. Of note however, is the variance in the rate at which these various curves decay, with some experiencing a far faster more severe decrease in the number of surviving companies than others.

Also of note is the differential in the percentage of companies able to survive after the prescribed periods of both 5 and 10 years. At 5 years it can be seen that for the 1985 start year after 5 years 42.2% of companies remain in contention whilst for the 2000 start year after 5 years only 13.6% of companies remain – a differential of 28.6%. At 10

years the differential that exists is in the order of 18.5%. Such data suggests that the start year has a notable impact on the number of growth outliers when using the McGrath method.

Figure 5 shows the growth outlier drop out trend for companies in terms of earnings growth and it is evident that the exponential decay curves are somewhat deformed. This suggests the factors which cause companies to fall out of contention may not be consistent throughout the years, resulting in essence, in a varying '*a'* constant. Of course if these factors had been consistent we could expect a more consistent decaying trend with fewer points of infection.

Of note in this regard, the red curve signifying the 1985 start year experiences three points of inflection where the rate of the decay changes significantly, suggesting the external conditions which may affect the earnings growth rate changes three times in quick succession. This again promotes the sentiments that the start has a significant effect on results, with some periods experiencing a high degree of turbulence where conditions supporting earnings growth are changing quickly.

Figure 5: Growth outlier trends for various start years over ten year periods using the McGrath method considering earnings growth.

Of great interest is the difference between the trends for earnings and revenue. A more pronounced inflection point can definitely be seen in the earnings growth line where a sharp drop off in the number of companies able to achieve consecutive years of growth after about the 3 to 4 year mark is noted. These trends do however culminate near the same end point, with the number of surviving companies tending to be below 5% after the 10 year period for each of the various start years.

Furthermore it must be noted that the difference in the number of companies surviving after ten years in terms of earnings for the various periods is quite significant, with a max differential existing between the 2000 and 2005 start years at 1.4% and 4.5% respectively. This further suggests that the start year matters. This is also evident in terms of revenue figures where depending on the start year a large difference exists in the number of companies able to achieve the ten year threshold.
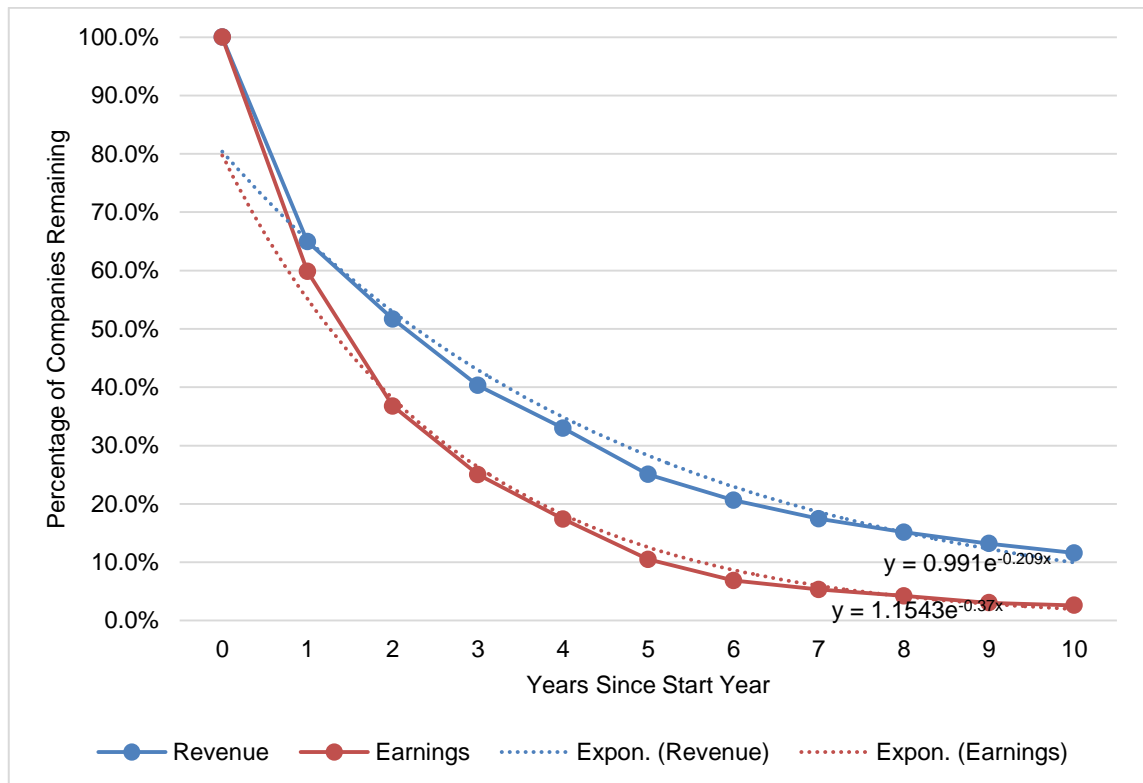
Figure 6: Comparison of the Growth outlier trends between earnings and revenue figures

In consideration of Figure 6 which compares the average trends over all start year periods between earnings and revenue, one must question the difference in drop off rate between the two and ask why earnings should experience a far higher rate of

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attrition. This may of course speaks to the very nature of these two measures and the intrinsic differences between earnings and revenue. To maintain a revenue growth rate, a company merely has to sell more product, when in comparison to maintaining earnings growth there are far more numerous, dynamic and complex levers to pull to achieve this, where pulling on one may negatively impact another. Therefore this results in the drop off rate of companies in terms of earnings being far higher and the number of companies able to achieve outlier status far lower.

5.1.2.   Outlier firms identified

5.1.2.1   Number of firms identified

Again as was alluded to in the previous section, it can be seen in Figure 7, the number of firms identified after 10 years is far less than those identified after 5 years, a fact which makes logical sense. Of interest however, is the far greater level of consistency in the number of firms identified after 10 years relative to five years which suggests that McGraths use of a 10 year period as an identifier is more consistent than a five year period. This observation is evident in Figure 8 looking at earnings figures as well.
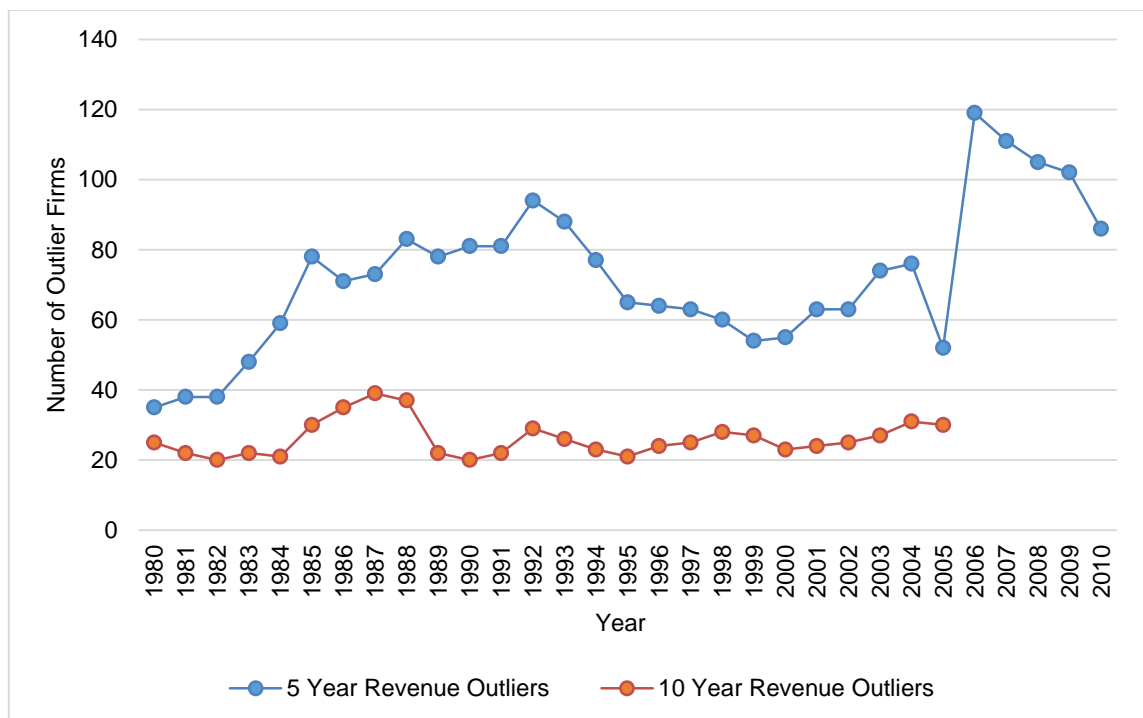
Figure 7: Number of Outlier firms identified using the McGrath Method in terms of revenue.
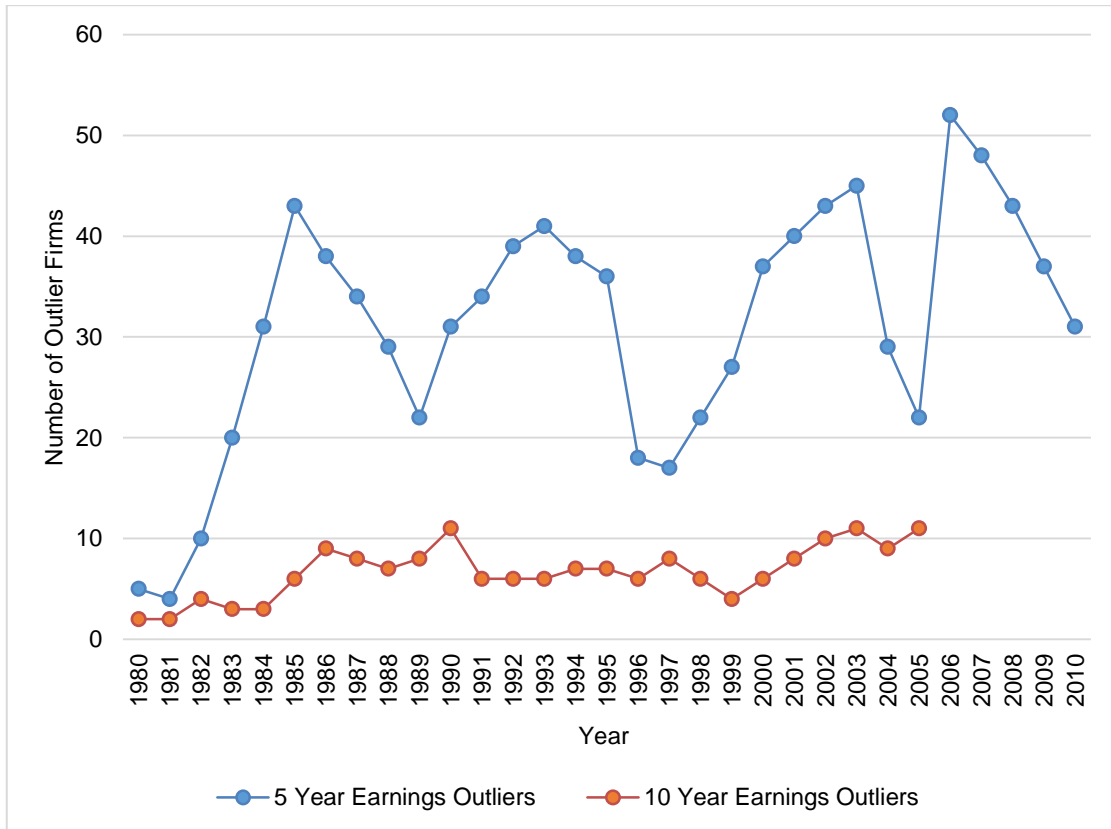
Figure 8: Outlier firms identified using the McGrath Method in terms of earnings.

5.1.2.2   McGrath growth outliers

In order to act as a comparative base, McGrath's method is again performed on all JSE companies using a rolling start year from 1976 to 2005 with her 5% flat growth threshold considering the three parameters of revenue, headline earnings and HEPS.

Using the McGrath method, a total of 45 companies were identified from 1976 to 2015, which were able to achieve the 10 years of consecutive growth across all parameters. A full list of these companies is included in Section 5.1.2.3.

Figures 9 and 10 look at the percentage distribution of firms which were able to achieve a certain number of consecutive growth years and at growth outlier trend over the entire study respectively.
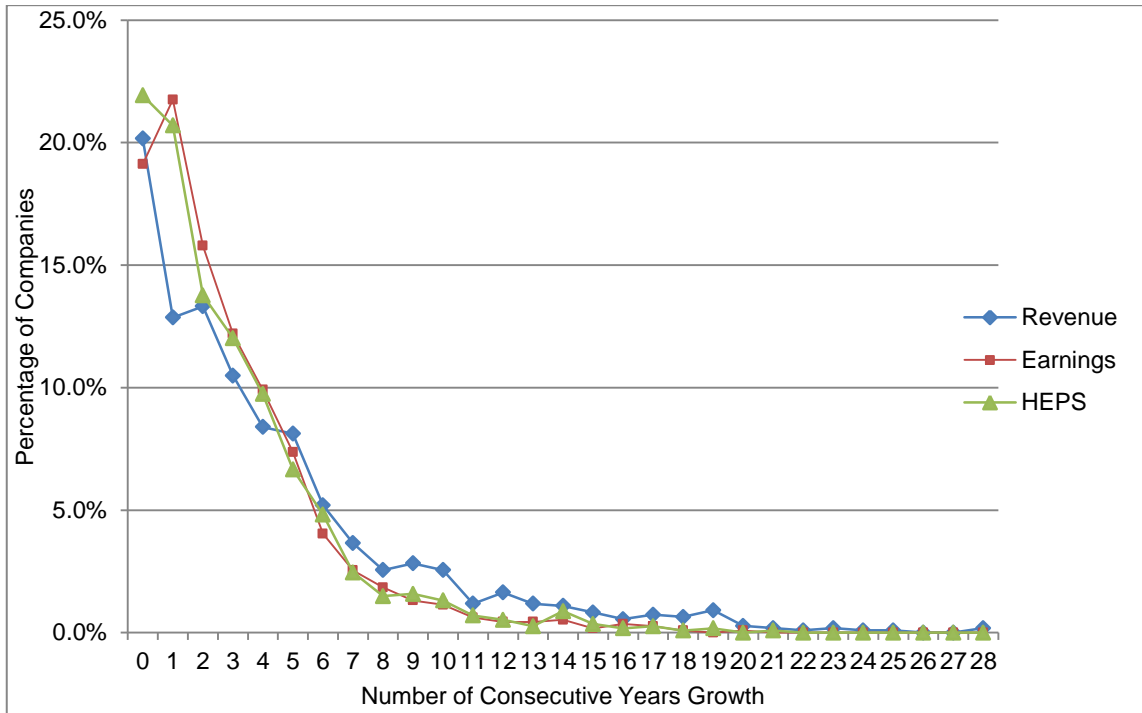
Figure 9: Percentage distribution of firms able to achieve certain number of consecutive growth years from 1976 to 2015.
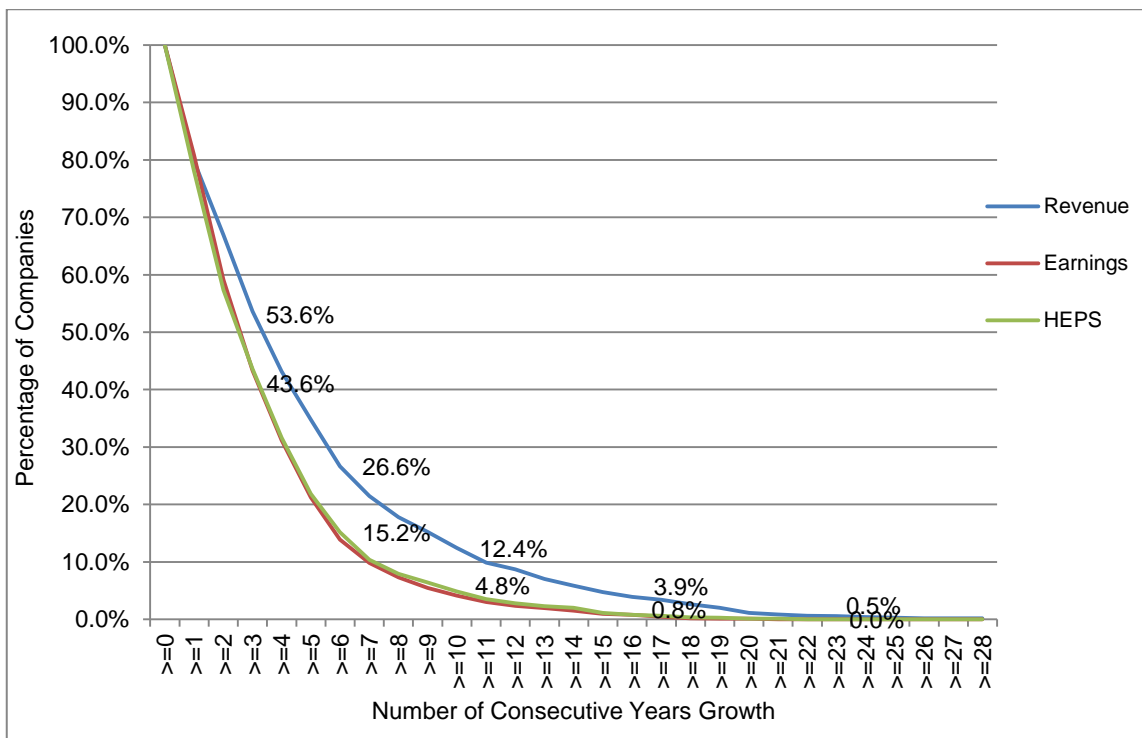
Figure 10: Graph showing growth outlier trends of all companies using McGrath's method from 1976 to 2015.

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5.1.2.3 List of Identified firms

Table 1: Full list of identified firms using the McGrath method for a rolling start year: 1976 - 2015.

Industry	Code	Company Name	Revenue Period of Consecutive growth	Total Growth Years	Best Consec Years	Growth Percent Over Period	Mean Growth	Growth Variance	Headline Earnings Period of Consecutive growth	Total Growth Years	Best Consec Years	Growth Percent Over Period	Mean Growth	Growth Variance
Ban	JSE:SBK	STANDARD BANK GROUP LTD	-	bank	bank	NA	NA	NA	1986-2008	27	22	526%	18%	1%
Ind	JSE:IPL	IMPERIAL HOLDINGS LIMITED	1988-2007	25	19	722%	27%	8%	1988-2007	23	19	757%	28%	8%
Ind	JSE:AFX	AFRICAN OXYGEN LIMITED	1985-2004	25	19	328%	11%	2%	1985-2004	23	19	435%	15%	13%
Ind	JSE:BVT	BIDVEST GROUP	1990-2009	24	19	902%	36%	16%	1990-2008	24	18	882%	35%	15%
Ind	JSE:MDC	MEDICLINIC INTERNATIONAL LIMIT	1987-2015	28	28	808%	29%	4%	1988-2005	25	17	317%	11%	43%
Ind	JSE:SUNX	SUNCRUSH LIMITED	1979-1997	18	18	327%	17%	2%	1979-1996	17	17	481%	25%	4%
Ind	JSE:APN	ASPEN PHARMACARE HOLDINGS LIMI	2001-2015	20	14	922%	33%	19%	1998-2015	23	17	713%	25%	42%
Ind	JSE:TRU	TRUWORTHS INTERNATIONAL LIMITE	2001-2015	15	14	206%	12%	1%	1999-2015	16	16	324%	19%	2%
Ind	JSE:EOH	EOH HOLDINGS LIMITED	1999-2015	16	16	694%	43%	2%	1999-2015	16	16	564%	35%	1%
Ind	JSE:ITE	ITALTILE LIMITED	1993-2008	21	15	330%	13%	2%	1993-2008	22	15	478%	18%	5%
Ind	JSE:PIK	PICK `N PAY STORES LIMITED	1986-2010	28	24	374%	13%	1%	1995-2010	24	15	372%	13%	3%
Ind	JSE:NWL	NU-WORLD HOLDINGS LIMITED	1988-2008	24	20	564%	21%	4%	1991-2006	21	15	638%	24%	17%
Ind	JSE:HYP	HYPROP INVESTMENTS LIMITED	1992-2006	22	14	577%	25%	7%	1993-2008	20	15	525%	23%	7%
Ind	JSE:MPC	MR PRICE GROUP LIMITED	1990-2015	25	25	513%	21%	1%	2001-2015	23	14	651%	26%	5%
Ind	JSE:WBO	WILSON BAYLY HOLMES - OVCON LI	1996-2010	18	14	451%	24%	4%	1996-2010	15	14	500%	26%	13%
Ind	JSE:CASX	CADBURY SCHWEPPES (SOUTH AFRIC	1980-1999	19	19	397%	21%	1%	1985-1999	17	14	474%	25%	5%
Ind	JSE:ABIX	AMALGAMATED BEVERAGE INDUSTRIE	1990-2004	14	14	226%	16%	1%	1990-2004	14	14	322%	23%	1%
Ind	JSE:BCF	BOWLER METCALF LIMITED	1987-2002	25	15	484%	17%	1%	1987-2002	24	15	482%	17%	2%
Ban	JSE:NED	NEDBANK GROUP LIMITED	-	bank	bank	NA	NA	NA	1987-2001	24	14	631%	23%	15%
Ind	JSE:ADCX	ADCOCK INGRAM LIMITED	1980-1997	18	17	334%	18%	1%	1985-1999	18	14	521%	27%	4%
Ind	JSE:CGSX	C G SMITH LIMITED	1981-1998	17	17	398%	22%	10%	1985-1999	17	14	276%	15%	2%
Ban	JSE:INP	INVESTEC PLC	-	bank	bank	NA	NA	NA	1989-2002	21	13	753%	29%	8%
Ban	JSE:INL	INVESTEC LIMITED	-	bank	bank	NA	NA	NA	1989-2002	20	13	754%	29%	8%
Ind	JSE:FBR	FAMOUS BRANDS LIMITED	2001-2015	19	14	489%	24%	3%	2002-2015	19	13	621%	31%	7%
Ban	JSE:CPI	CAPITEC BANK HOLDINGS LIMITED	-	0	bank	0%	NA	NA	2003-2015	12	12	506%	39%	6%
Ind	JSE:SAB	SABMILLER PLC	1986-1997	22	11	471%	16%	6%	1986-2009	28	23	570%	20%	2%
Ind	JSE:SHP	SHOPRITE HOLDINGS LIMITED	1992-2015	27	23	611%	22%	10%	2003-2015	24	12	580%	21%	38%
Ind	JSE:PNC	PINNACLE HOLDINGS LIMITED	2001-2015	15	14	411%	26%	3%	2001-2013	13	12	545%	34%	29%
Ind	JSE:SISX	SUN INTERNATIONAL (SOUTH AFRIC	1986-1998	13	12	289%	17%	4%	1986-1998	14	12	268%	16%	14%
Ind	JSE:BPRX	BARPROP LIMITED	1985-1997	12	12	94%	8%	0%	1985-1997	12	12	137%	11%	1%
Ban	JSE:INHX	INVESTEC HOLDINGS LIMITED	-	bank	bank	NA	NA	NA	1991-2002	12	11	531%	38%	13%
Ind	JSE:WALX	WALTONS STATIONERY	1979-1996	17	17	510%	30%	5%	1979-1990	14	11	512%	30%	8%
Ind	JSE:CLKX	CLICKS GROUP LIMITED	1980-1995	15	15	358%	24%	1%	1982-1993	13	11	323%	22%	6%
Ind	JSE:SPUX	SPUR STEAK RANCHES LIMITED	1987-1999	12	12	390%	33%	2%	1987-1998	11	11	390%	33%	5%
Ind	JSE:GRF	GROUP FIVE LIMITED	1999-2009	20	10	394%	13%	6%	2000-2010	20	10	400%	13%	31%
Ins	JSE:CLIINS	CLIENTELE LIMITED - FAS INSURA	2005-2015	10	10	143%	14%	1%	2005-2015	10	10	170%	17%	1%
Ind	JSE:AHHX	AFROX HEALTHCARE LIMITED	1987-2005	18	18	859%	48%	18%	1987-1997	17	10	838%	47%	14%
Ind	JSE:QDTX	Q DATA LIMITED	1987-1997	10	10	550%	55%	9%	1987-1997	10	10	439%	44%	4%
Min	JSE:AINX	ANGLOVAAL MINING LIMITED	1980-1997	17	17	279%	15%	8%	1980-1991	16	11	248%	13%	4%
Ban	JSE:FSR	FIRSTRAND LIMITED	-	bank	bank	NA	NA	NA	1997-2007	16	10	551%	31%	20%
Ind	JSE:CLS	CLICKS GROUP LIMITED	1996-2015	19	19	289%	15%	1%	2005-2015	18	10	329%	17%	2%
Ind	JSE:NPK	NAMPAK LIMITED	1985-2003	25	18	296%	10%	1%	1990-2000	24	10	410%	14%	7%
Ind	JSE:CGWX	CONSOL LIMITED	1978-1996	18	18	435%	23%	6%	1986-1996	17	10	439%	23%	13%
Ind	JSE:ECOX	EDGARS CONSOLIDATED STORES LIM	1985-1997	19	12	353%	17%	1%	1986-1996	16	10	697%	33%	27%
Ind	JSE:FINX	FINTECH LIMITED	1991-2001	13	10	378%	27%	20%	1990-2000	12	10	156%	11%	59%

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5.2. Alternate methodology results

Much of the most telling analysis regarding the alternate methodology results shall be undertaken, in relation to those results obtained using the McGrath method which shall be addressed in Section 5.3. The following section notes some observations that can be made when considering the alternate methodology results in isolation.

5.2.1. Growth outlier trends

As with the McGrath results, the alternate methodology also produces the archetypal exponentially decaying type trends, as can be seen in Figures 9, 10 and 11. Of interest however, is the similarity that exists in the trends between revenue and earnings, which suggests that the alternate method may filter companies to a far more stringent extent. Where some firms which previously may have surpassed the threshold with the McGrath method in terms of revenue, with the alternate method, these now seem to have dropped out of contention.
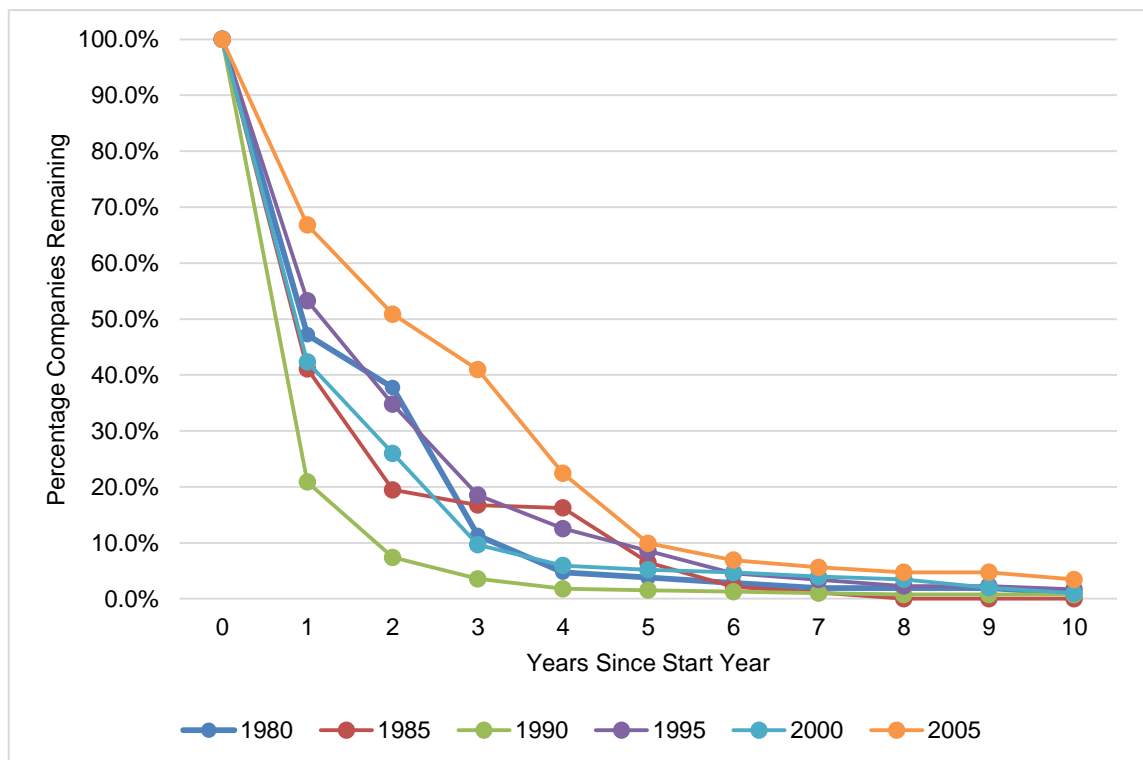
Figure 11: Growth outlier trends for various start years over ten year periods using the alternate method considering revenue growth.
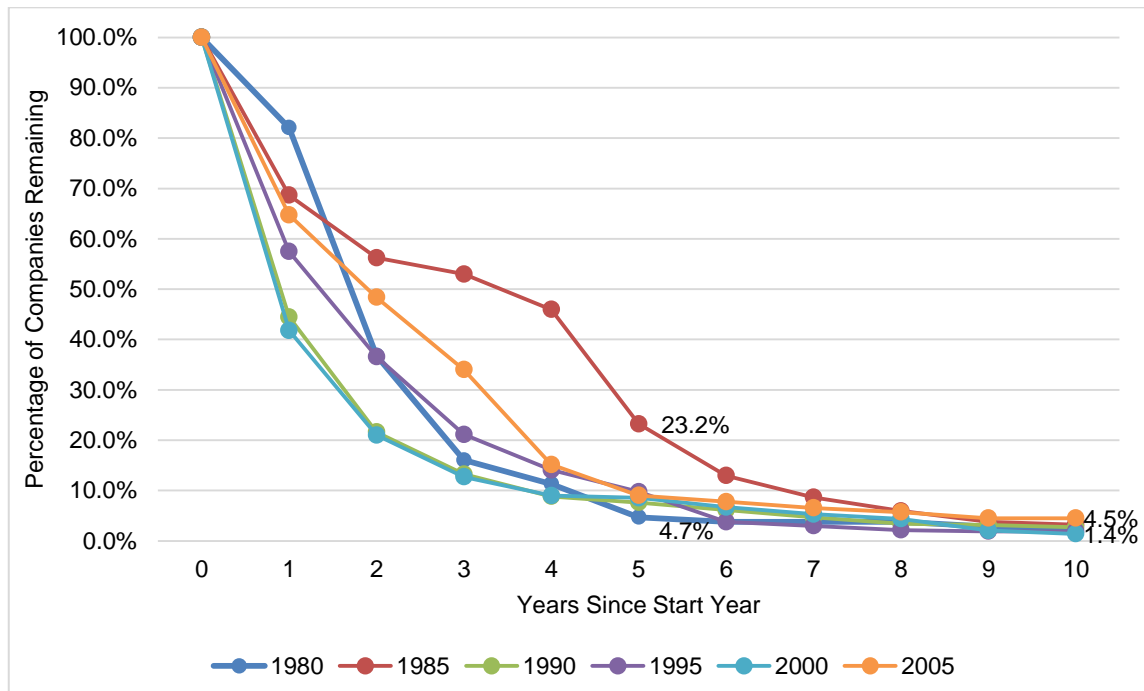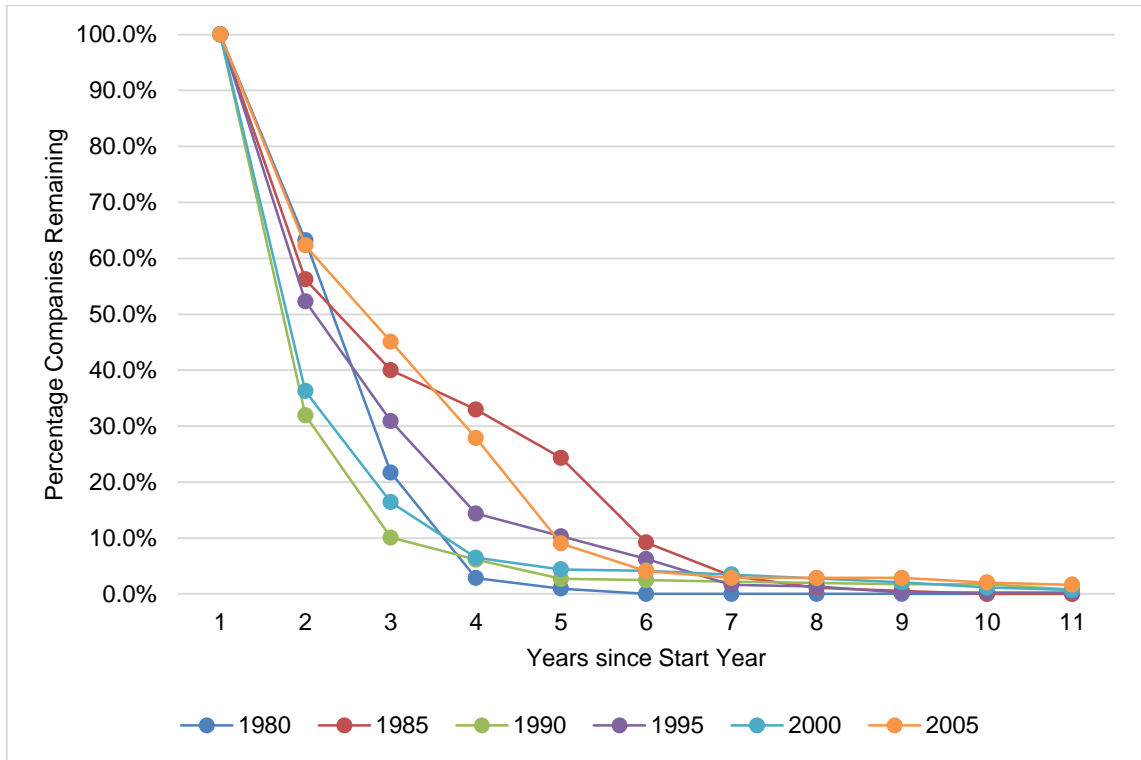
Figure 12: Growth outlier trends for various start years over ten year periods using the alternate method considering earnings growth.

Figure 13: Averaged growth outlier trends for revenue and earnings using the alternate method.

5.2.2.   Outlier firms identified

5.2.2.1   Number of firms identified

Similar to the McGrath method, the alternate method also shows far more consistency in the number of firms identified for the 10 year period than for the 5 year threshold period. Additionally it can be seen that during the start year period of 1981 to 1986 there were in fact, no firms identified which were able to achieve the 10 year threshold, an observation that will be discussed further in subsequent sections.
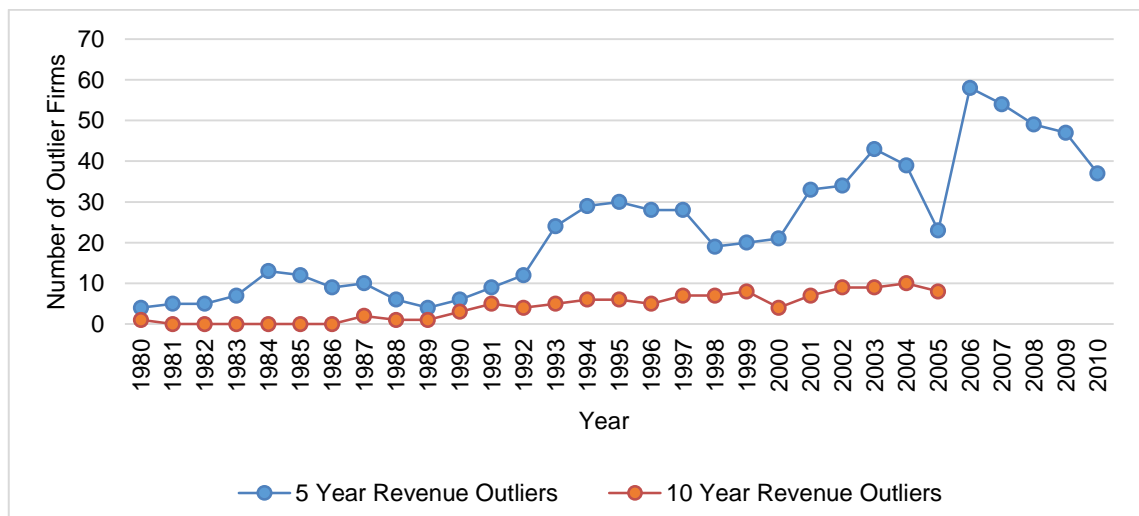
Figure 14: Number of firms identified using the alternate method in terms of revenue.
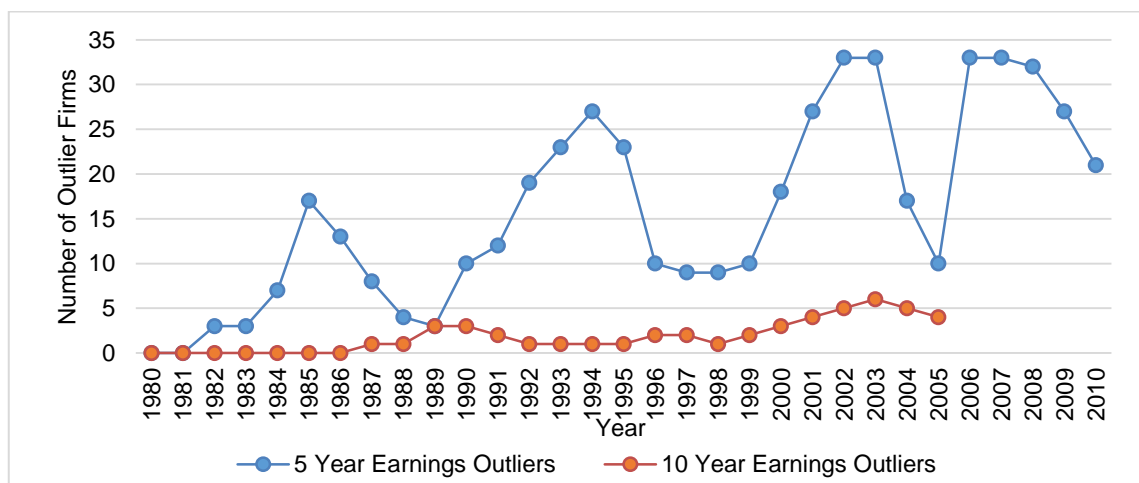
Figure 15: Number of firms identified using the alternate method in terms of earnings.

5.2.2.2   Alternate growth outliers

The alternate method uses a rolling start year from 1976 to 2005 and considers all listed companies from the various start years, able to surpass the threshold growth rate for a period of 10 consecutive years. This is done in terms of revenue, headline earnings and HEPS, filtering out those firms which were unable to achieve the threshold rate. The threshold rate as per Section 4.4.3 is based on the SA nominal growth rate for the relevant year in question. As per Table 3 depending on the start year of the period of study the number of identified firms in terms of revenue growth varied within the range from 0 to 10, with a median of 4.5 companies and a mean of 4.15. In terms of earnings, this range was lower from 0 to 6 with a median of 1.
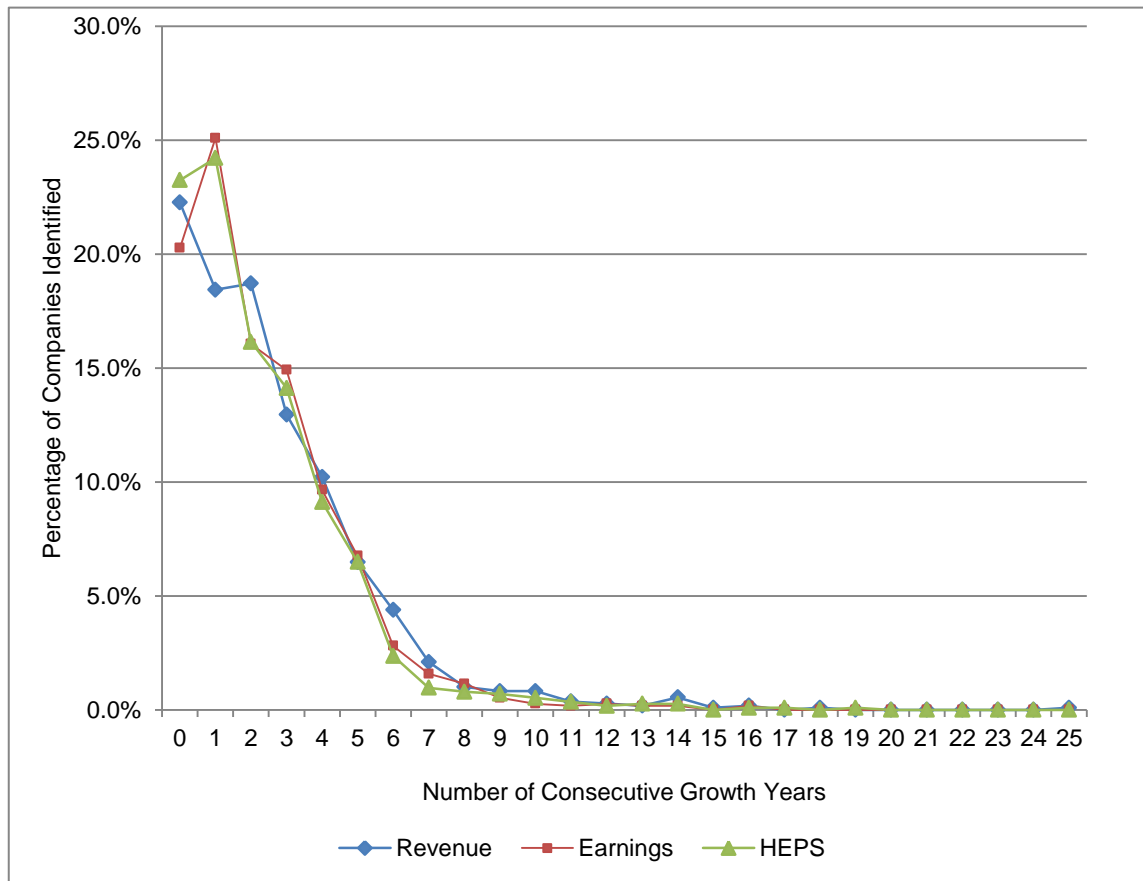
Figure 16: Percentage of firms able to achieve certain number of consecutive growth years from 1976 to 2015.

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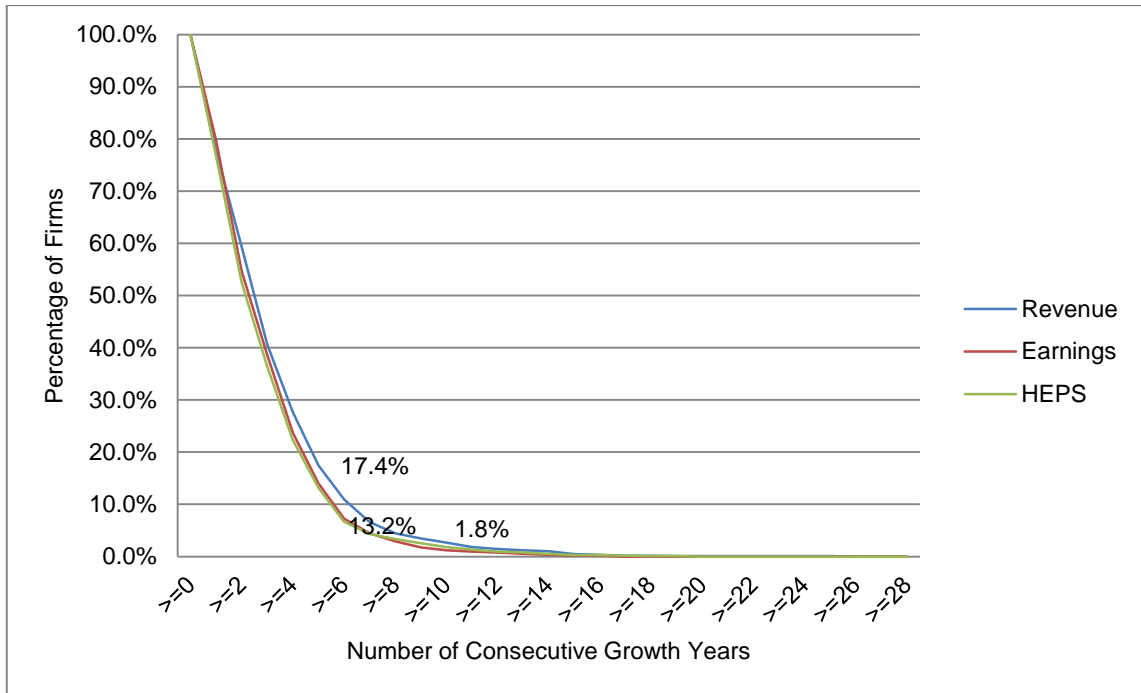
Figure 17: Graph showing drop off rate of companies using McGrath's method from 1976 to 2015.

5.2.2.3   List of identified firms

The list of outlier firms identified using the alternate method represent all SA companies over the period of 1976 to 2015 which have been able to achieve an outstanding operating performance, and have grown faster than the majority of firms across the economy for an extended period of time. These companies represent the growth outliers in the South African economy, which have been able to grow faster than the South African nominal growth rate and have, theoretically, been taking market share in the their respective industries. Further it is postulated that in terms of McGrath's theory as stipulated in her research, these firms have achieved a sustainable competitive advantage for an extended period (McGrath, 2013).

Table 2 gives the list of identified firms; these firms shall be thoroughly discussed in Sections 6.2.1. and 6.2.3. Notably at this stage, it can be seen that revenue figures for banking firms have been omitted since banks do not receive revenue from the sales of goods but from interest income derived from the difference in the their saving and lending interest rate (Wagner, 2014).

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Table 2: List of growth outlier companies identified between 1976 - 2015, able to achieve a period of 10 years consecutive growth above nominal GDP threshold growth rate using the alternate method.

Alternate Method Growth Outliers: 1976-2015.			Revenue						Headline Earnings					Headline Earnings Per Share					
Industry	Code	Company Name	Period of Consecutive growth	Total Growth Years	Best Consec Years	Growth Percent Over Period	Mean Growth	Growth Variance	Total Growth Years	Best Consec Years	Growth Percent Over Period	Mean Growth	Growth Variance	Period of Consecutive growth	Total Growth Years	Best Consec Years	Growth Percent Over Period	Mean Growth	Growth Variance
Ind	JSE:IPL	IMPERIAL HOLDINGS LIMITED	1991-2007	23	16	722%	27%	8%	22	14	757%	28%	8%	1988-2007	23	19	570%	21%	4%
Ind	JSE:APN	ASPEN PHARMACARE	2001-2015	20	14	922%	33%	19%	20	17	713%	25%	42%	1998-2015	20	17	381%	14%	30%
Ind	JSE:EOH	EOH HOLDINGS LIMITED	1999-2015	16	16	694%	43%	2%	16	16	564%	35%	1%	1999-2015	16	16	437%	27%	0%
Ind	JSE:MPC	MR PRICE GROUP LIMITED	1990-2015	25	25	513%	21%	1%	21	14	651%	26%	5%	2001-2015	20	14	584%	23%	4%
Bank	JSE:INL	INVESTEC LIMITED	Bank	NA	NA	NA	NA	NA	20	13	754%	29%	8%	1989-2002	19	13	471%	18%	5%
Ind	JSE:FBR	FAMOUS BRANDS LIMITED	2002-2015	18	13	489%	24%	3%	18	13	621%	31%	7%	2002-2015	18	13	503%	25%	4%
Ind	JSE:PIK	PICK `N PAY STORES LIMITED	1997-2010	22	13	374%	13%	1%	19	13	372%	13%	3%	1995-2008	19	13	369%	13%	3%
Bank	JSE:CPI	CAPITEC BANK	Bank	NA	NA	NA	NA	NA	12	12	506%	39%	6%	2003-2015	12	12	422%	32%	6%
Bank	JSE:INP	INVESTEC PLC	Bank	NA	NA	NA	NA	NA	19	13	753%	29%	8%	1989-2001	18	12	470%	18%	5%
Bank	JSE:INHX	INVESTEC HOLDINGS LIMITED	Bank	NA	NA	NA	NA	NA	12	11	531%	38%	13%	1991-2002	12	11	429%	31%	10%
Bank	JSE:NED	NEDBANK GROUP LIMITED	Bank	NA	NA	NA	NA	NA	23	11	631%	23%	15%	1990-2001	23	11	536%	19%	14%
Bank	JSE:SBK	STANDARD BANK GROUP LTD	Bank	NA	NA	NA	NA	NA	24	10	526%	18%	1%	1987-1997	23	10	469%	16%	1%
Ind	JSE:QDTX	Q DATA LIMITED	1987-1997	10	10	550%	55%	9%	10	10	439%	44%	4%	1987-1997	10	10	329%	33%	1%
Ind	JSE:SHP	SHOPRITE HOLDINGS LIMITED	2001-2015	24	14	611%	22%	10%	22	10	580%	21%	38%	2003-2013	22	10	455%	16%	34%

5.3. Comparison of methodologies

5.3.1. Start year considerations

It was evident from the preceding results that the variation of the start year had a significant effect on the number of outlier firms identified.

However, in order to get a firm understanding of the impact of the start year, the following graphs showing the trends in the number of growth outlier companies identified for every start year from 1980 to 2005 and 2010 for both 5 year and 10 year periods respectively for both methods are shown. For both the 5 and 10 year consecutive growth threshold periods, the percentages of companies able to achieve this is shown whilst curves depicting the actual number of companies achieving growth thresholds is shown previously in Figures 14 and 15.

Considering the red curve in Figures 18, that being the companies identified using McGrath's technique; the large variation in the percentage of companies able to achieve 5 years consecutive growth over the various years, is evident. This variation is

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less prevalent in the alternate method, denoted by the blue curve. Table 3, lists the relevant measures in terms of the number of companies able to achieve 5 years growth for both methods. It is noted that the variance and range of values is far higher for the McGrath method than the alternate method.
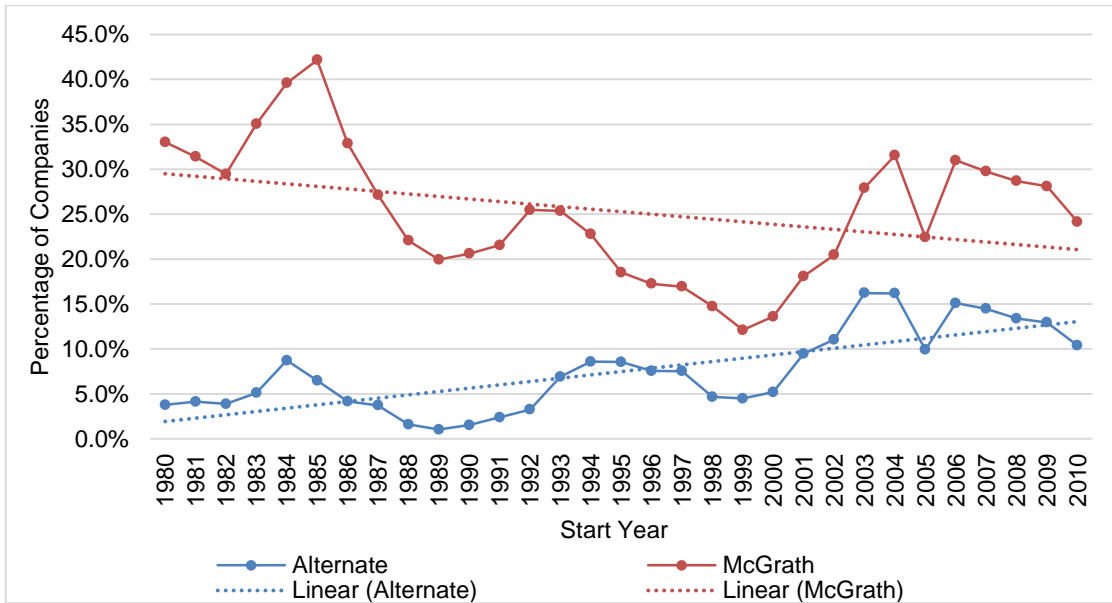
Figure 18: Percentage of companies achieving 5 years consecutive revenue growth for start years from 1980 to 2010 for the McGrath and Alternate method.
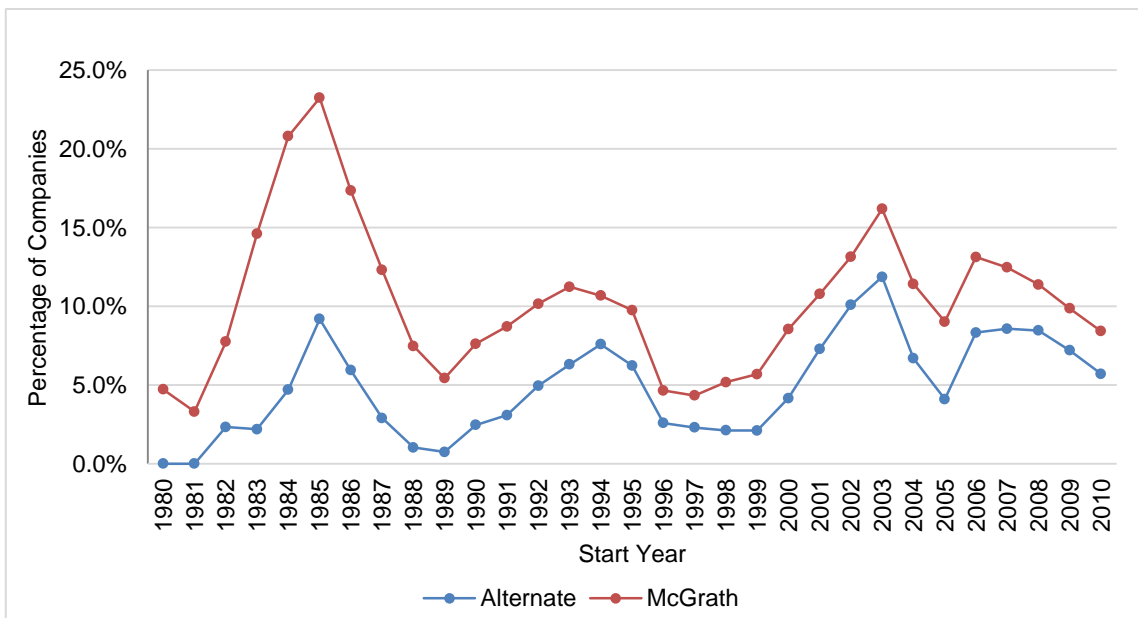
Figure 19: Percentage of companies achieving 5 years consecutive earnings growth for start years from 1980 to 2010.

Figure 19 is the equivalent representation for the earnings parameter, here it is noted that the degree of variance is far higher, with some severe cyclical peaks and troughs existing in the data. Furthermore, it can be seen that alternate methodology had a dampening effect relative to that which was noted in the revenue parameter. In other words, there was not a noticeable difference in the shape of the curves but rather, merely a lower amplitude in the peaks for this earnings parameter. Table 4 addresses the relevant parameters for the count in the number of companies able to achieve 10 years consecutive growth for the two methods, again it is noted that the variance of the McGrath method is far higher.

Table 3: Descriptive statistics for companies achieving 5 years consecutive growth

5 Years of Consecutive Threshold	McGrath Method				Alternate Method			
	Number of Companies		Percentage of Companies		Number of Companies		Percentage of Companies	
	Revenue	Earnings	Revenue	Earnings	Revenue	Earnings	Revenue	Earnings
Min	35,00	4,00	12,1%	3,3%	4,00	-	1,0%	0,0%
Max	94,00	45,00	42,2%	23,2%	43,00	33,00	16,2%	11,9%
Mean	65,81	29,04	24,7%	10,2%	23,16	15,94	7,5%	4,9%
Median	64,50	31,00	22,6%	9,4%	21,00	13,00	6,9%	4,7%
Mode	63,00	22,00	-	-	4,00	10,00	-	-
Variance	234,00	130,96	0,6%	0,2%	251,04	112,51	0,2%	0,1%
Standard Deviation	15,30	11,44	7,8%	5,0%	15,84	10,61	4,4%	3,1%

In consideration of the equivalent representations for companies able to achieve 10 years consecutive growth for the two parameters, similar observations were made. Considering Figure 20, the difference in the range in the number of companies identified for the various start years for the two methods, is substantial, where both methods had a large degree of variance, as stated in table 4.
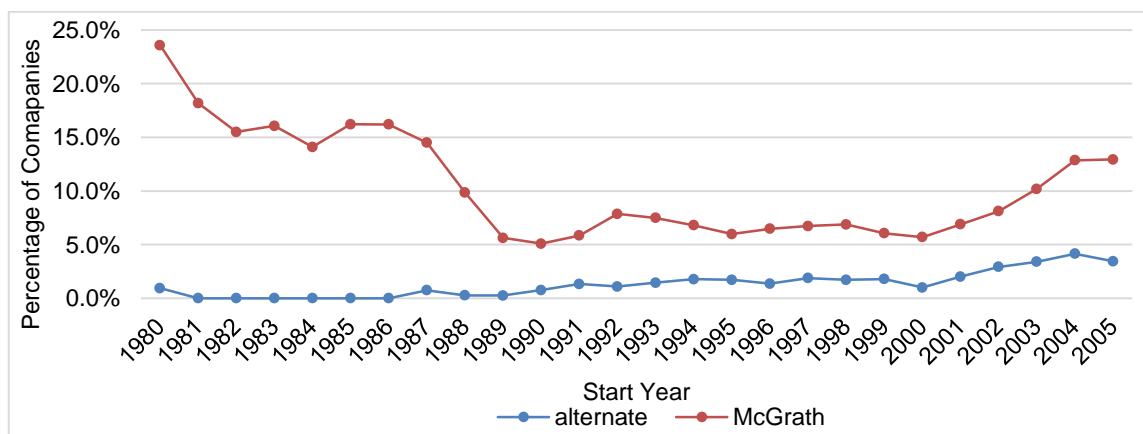
Figure 20: Percentage of companies achieving 10 years consecutive revenue growth for start years from 1980 to 2005.

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The McGrath method's range and variance is far greater than the alternate method. For the period from 1980 to 1990, the dampening effect which the alternate method previously seemed to have on the company data relative to the McGrath method, no longer seems exists, to the extent where these two curves seem wholly uncorrelated during that period. For both revenue and earnings, a large degree of variation is noted throughout the start years, however the alternate method reduces the amount of variation across the years.

Table 4: Descriptive statistics for companies achieving 10 years consecutive growth

10 Years of Consecutive Threshold	McGrath Method				Alternate Method			
	Number of Companies		Percentage of Companies		Number of Companies		Percentage of Companies	
	Revenue	Earnings	Revenue	Earnings	Revenue	Earnings	Revenue	Earnings
Min	20,00	2,00	5,1%	0,8%	-	-	0,0%	0,0%
Max	39,00	11,00	23,6%	4,5%	10,00	6,00	4,1%	2,2%
Mean	26,08	6,69	10,4%	2,3%	4,15	1,85	1,3%	0,6%
Median	25,00	6,50	8,0%	2,0%	4,50	1,00	1,2%	0,3%
Mode	22,00	6,00	-	-	-	-	-	-
Variance	25,30	6,67	0,2%	0,0%	10,90	3,05	0,0%	0,0%
Standard Deviation	5,03	2,58	4,9%	0,9%	3,30	1,75	1,2%	0,6%
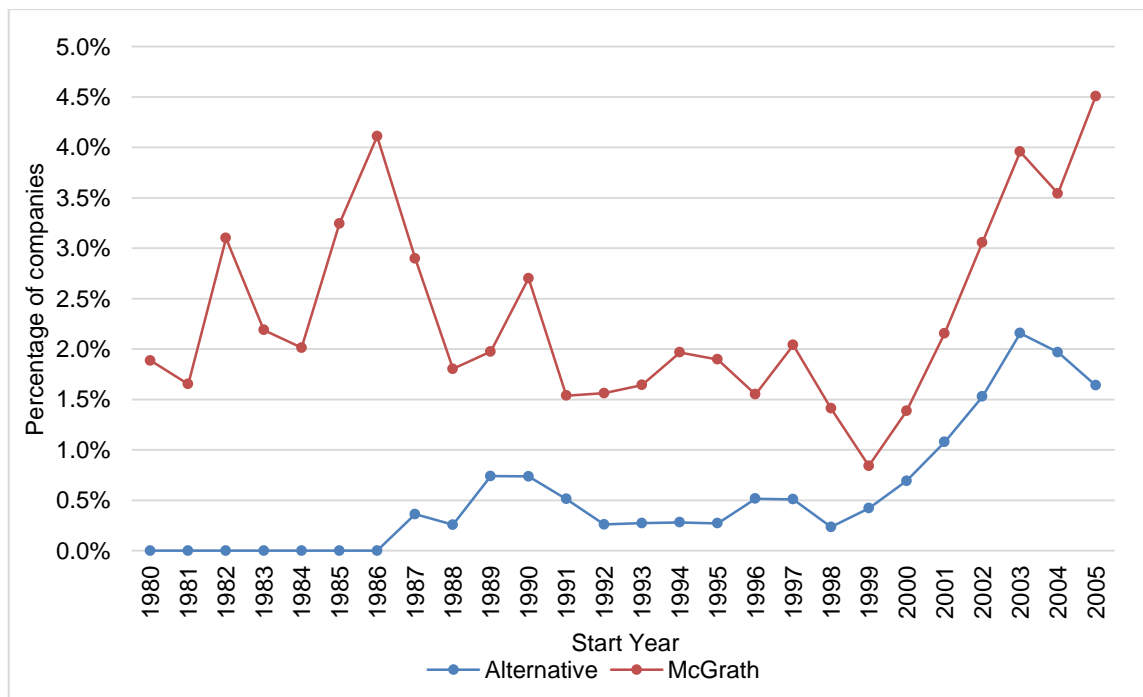
Figure 21: Percentage of companies achieving 10 years consecutive earnings growth from 1980 to 2005.

5.3.2.   Growth threshold

As was discussed in Section 2.6.2, one of the major issues with McGrath's study was her use of a single blanket threshold growth figure regardless of the growth and inflation figures for a specific country in a specific period. This study therefore undertook to use an alternate method whereby a specific growth figure was used for the specific year as articulated in 4.4.2. Performing the same exercise as previously in section 5.1.1 and 5.1.2 we see some very interesting results.
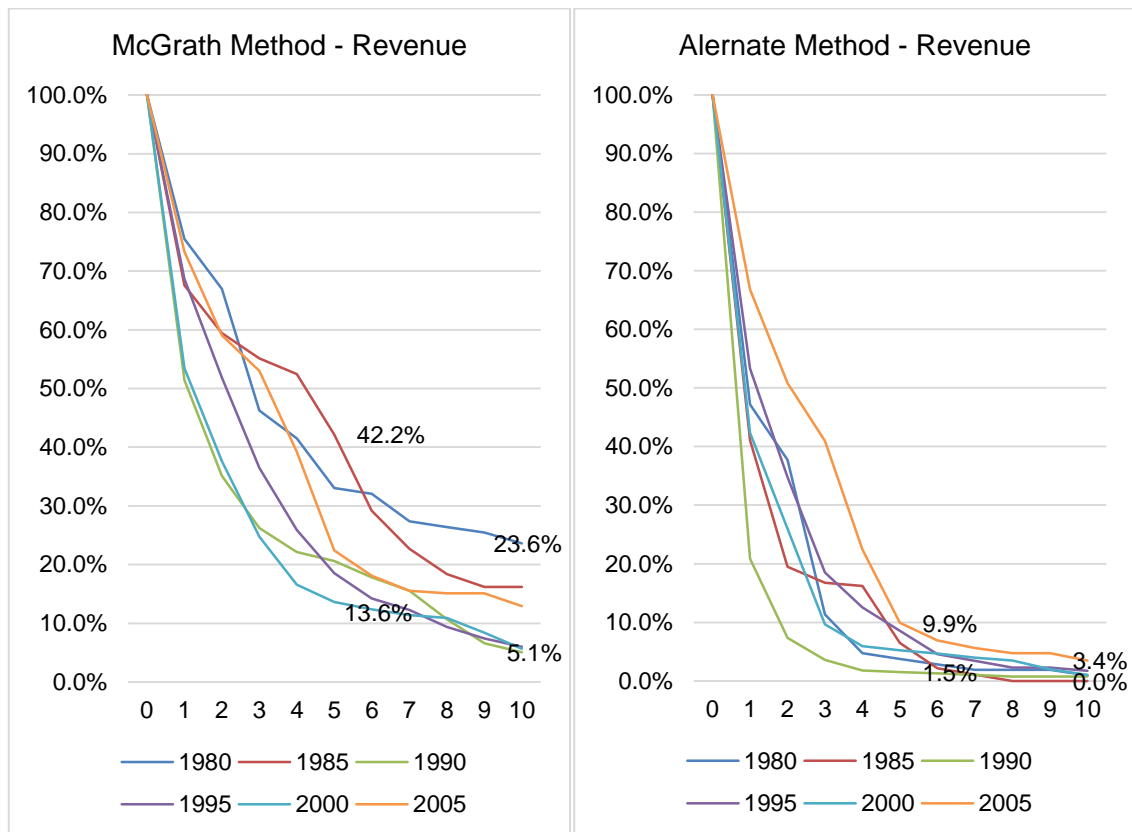
Figure 22: Comparison of growth outlier trends showing percentage of remaining outliers for both the McGrath & Alternate method for revenue.

These graphs showing a comparison between the revenue survivors after a progressive number of years for the McGrath and alternate methods shows the pronounced effect that the threshold growth rate has on the resulting number of firms identified. Although both can still be described as being exponential decaying functions, the rate of decay of the alternate methods varying threshold rate is far more severe, with companies dropping out far sooner and the resulting identifying outliers being far

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more rare. Of interest also, the difference in variation for the different intervals is far lower for the alternate method suggesting that it is a far better method for variations in the macroeconomic situation at the time. It is postulated that the varying growth rate threshold accounts far better for external effects resulting in a far more constant rate of decay.
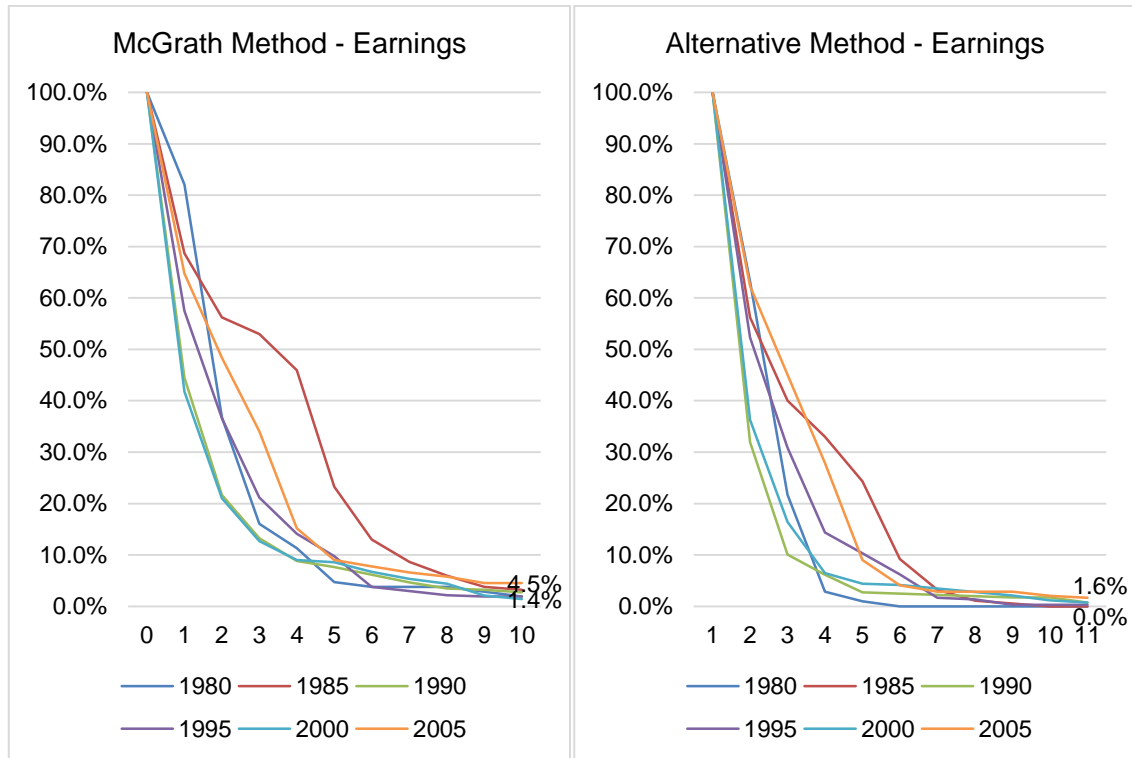
Figure 23: Comparison between growth outlier trends showing percentage of remaining outliers for both opposing methods in terms of earnings.

Of far more interest however is the comparison, as shown in Figure 24, of the variation between average trends of earnings and revenue for the McGrath method and alternate method. In the alternate method we see an almost identical trend in survivors between the two parameters whilst in McGrath's method the difference is quite distinct – suggesting that the variation in threshold growth rate has a more pronounced effect on the revenue parameter which therefore tends to bring these parameters into alignment. This difference also suggests that revenue growth is far more impacted by external conditions than earnings growth, this however needs to be explored further.
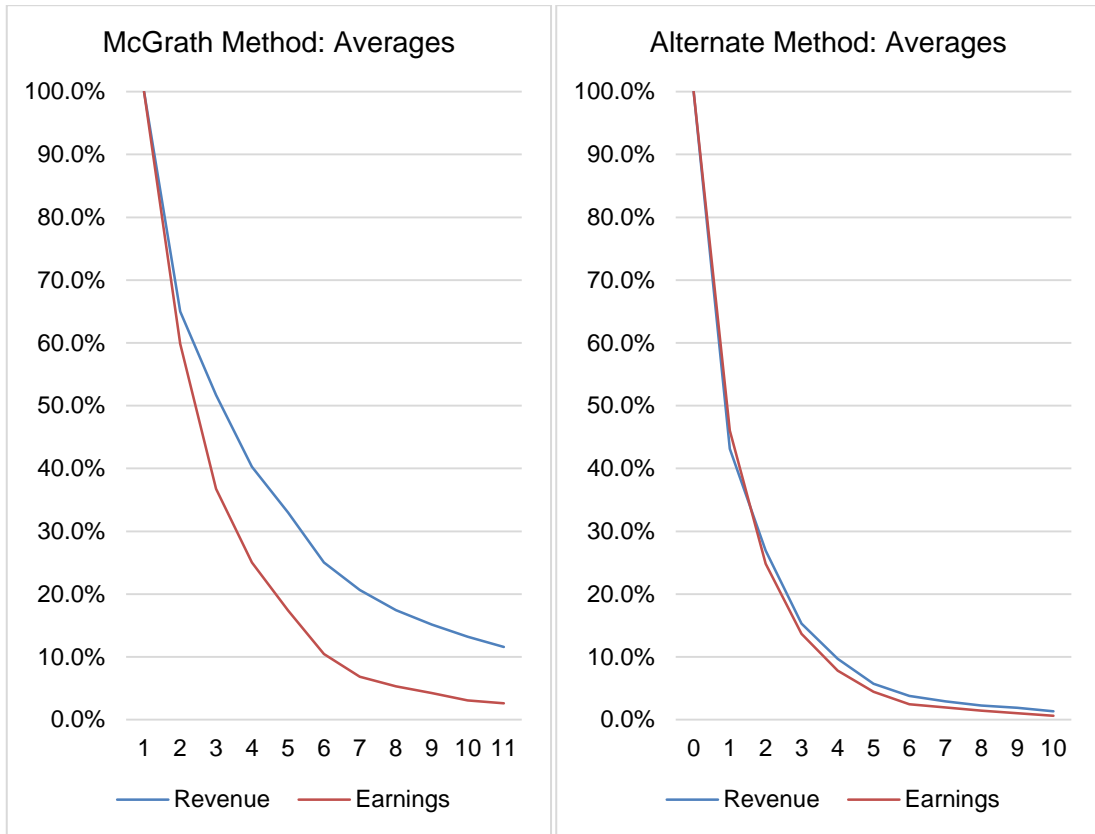
Figure 24: Comparison of the averaged growth outlier trends for the opposing methods.

5.3.3.   Number of firms identified

In comparison to the McGrath method, a number of distinct differences is noted in the findings of the Alternate method – possibly the most noticeable of which is the overall number of outlier firms identified. Considering the trend lines for the number of outlier firms identified as per Figure 25, it is evident that far fewer firms are identified using the alternate method than the McGrath method in terms of revenue, earnings and HEPS, to factors of 4.69, 2.61 and 3.36 respectively. Figure 26 shows a similar observation on an averaged basis.
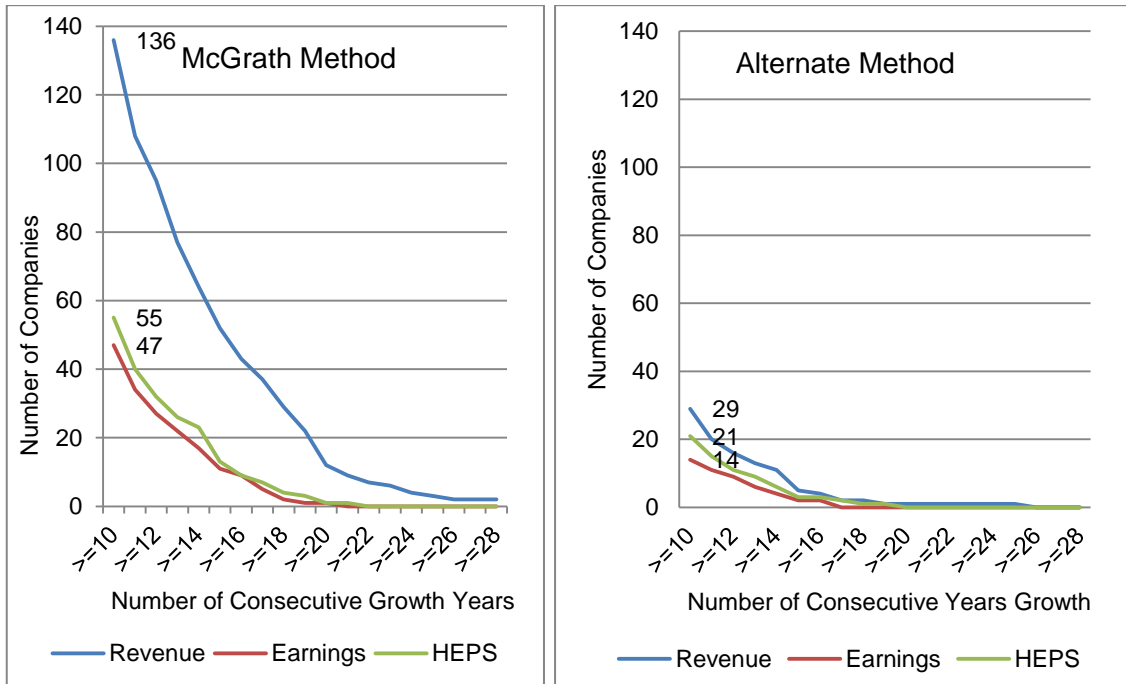
Figure 25: Number of growth outliers achieving greater than 10 years of consecutive growth using the opposing methodologies.
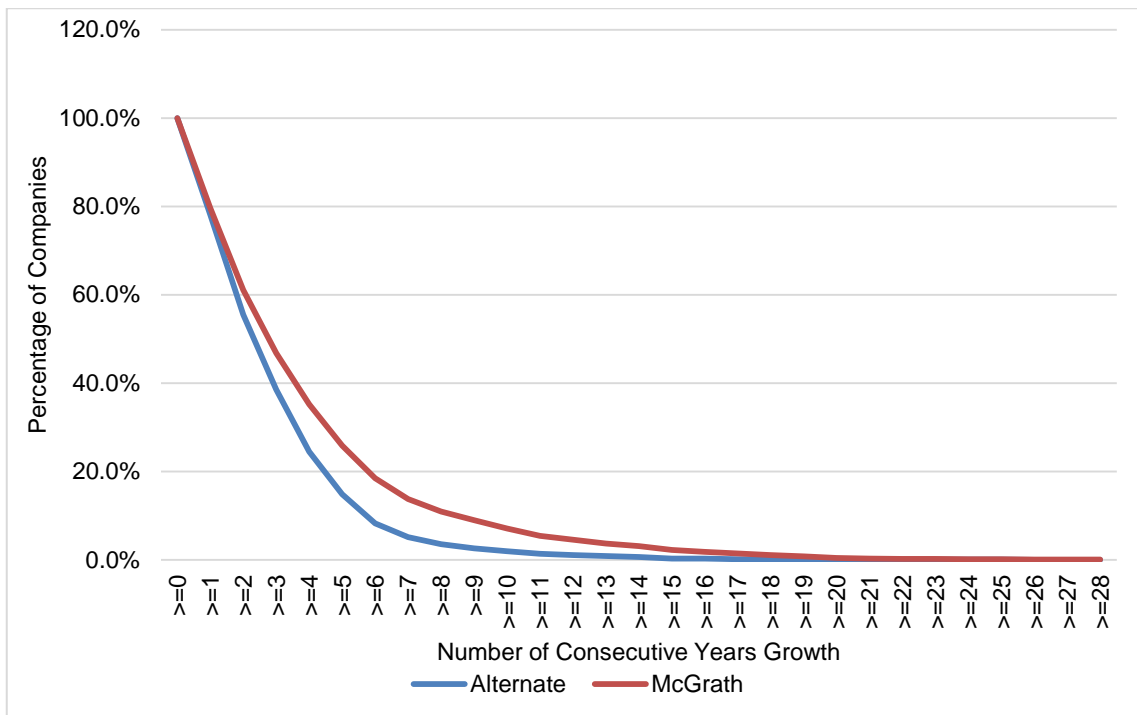
Figure 26: Comparison of growth outlier trends, averaged across all parameters for McGrath and Alternate methods.

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6. DISCUSSION

While the previous chapter presents the results and outputs as prescribed by the research methodology with a limited degree of analysis, this chapter serves to perform a thorough analysis of the findings and answer the various research questions. The discussion follows the order of the research questions laid out, but with some analysis correlating to other questions and issues and should again be viewed holistically.

6.1.   Examination of McGrath's methodology

6.1.1.   Question 1(a): Implications of the start year

It is evident from the results that the start year has a significant impact on the outlier firms identified, both from a qualitative and quantitative point of view, as shall be discussed separately in the following sections.

6.1.1.1   Quantitative implications

Depending on the start year, the number of firms identified for both 5 year and 10 year threshold period varies drastically. As shown in section 5.1 and 5.2 the degree of the variance in both growth outlier trend lines and the number of firms identified show a wide range of values.

Considering these results, one's whole viewpoint regarding the performance of companies in an economy could vary to a significant effect, depending on the start year selected. If McGrath had undertaken her study, within the context of the listed firms in the South African economy, as was the context of this study, she would have come to multiple different outcomes depending on the start year she selected. For instance, if she had chosen 1986 as her start year, she would have identified 16.2 % of companies as revenue growth outliers and 4.1% of companies as earnings growth outliers. However if she had chosen 2000 as her start year she only would have found 5.7% and 1.4% of companies as outliers in revenue and earnings respectively – two very different macroeconomic growth stories.

It is however noted, that the shape of drop out trend lines were roughly the same shape regardless of the start year. This trend can broadly be defined as being an exponentially decaying function with a varying decay constant, which determined the

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rate at which companies dropped out of contention. This decay constant is generally the aspect which varied between start years and which was symptomatic of the varying number of outlier firms identified depending on start year.

Indeed the 'shapes' of these various curves do behave in a very similar fashion however their exact paths and end points have a large degree of variance. This shows there is a large amount of evidence which suggests that the start year has a quantitative impact on the firms identified.

6.1.1.2 Qualitative implications

One of the key findings of McGrath's work was regarding the nature of the companies identified. She concluded that her list of outlier firms generally shared similar characteristics in that they had a balance of what she termed 'stability' and 'agility'. Her book, *The End of Competitive Advantage,* does an in depth analysis into identifying factors associated with these qualities in her 10 identified firms. With a list of 45 firms as per table 1, doing an in depth analysis of the firms identified using the McGrath method in the context of this study is not plausible. Considering the large number of firms identified, ranging from those achieving outlier status in the 80s to those achieving it in 2000, it is assumed that these firms are probably qualitatively different in terms of how they operated and the aspects which allowed them to excel. However this aspect requires further investigation which is beyond the scope of this study.

It is concluded therefore that the choice of McGrath's start year in the context of her global study had a material impact on her findings. Therefore it is likely that the start year would have had an effect on the number of companies identified and depending on the period, would impact on the nature of the companies identified. However in order to conclusively prove this is the case, McGrath's study needs to be repeated with varying start years as was undertaken in the context of this study.

6.1.2. Question 1(b): Implications of 5% growth threshold

6.1.2.1 Considerations in the South African context

As was postulated prior to the commencement of data testing, there was a concern with McGrath's use of a single blanket growth threshold across all companies

regardless of country of listing or year. Section 2.6.2 details how the use of a single threshold benchmark, may impact on the identification of companies depending on whether the company is listed in a country during a specific period of high nominal growth rates or low nominal growth rates. With low rates the threshold would essentially become high and difficult to surpass for companies listed in such environments, whilst in high rate environments, companies would be able to exceed the benchmark with relative ease. This would respectively equate to a disproportionately small and large number of growth companies being identified depending on the individual macroeconomic environments for a given time and region.
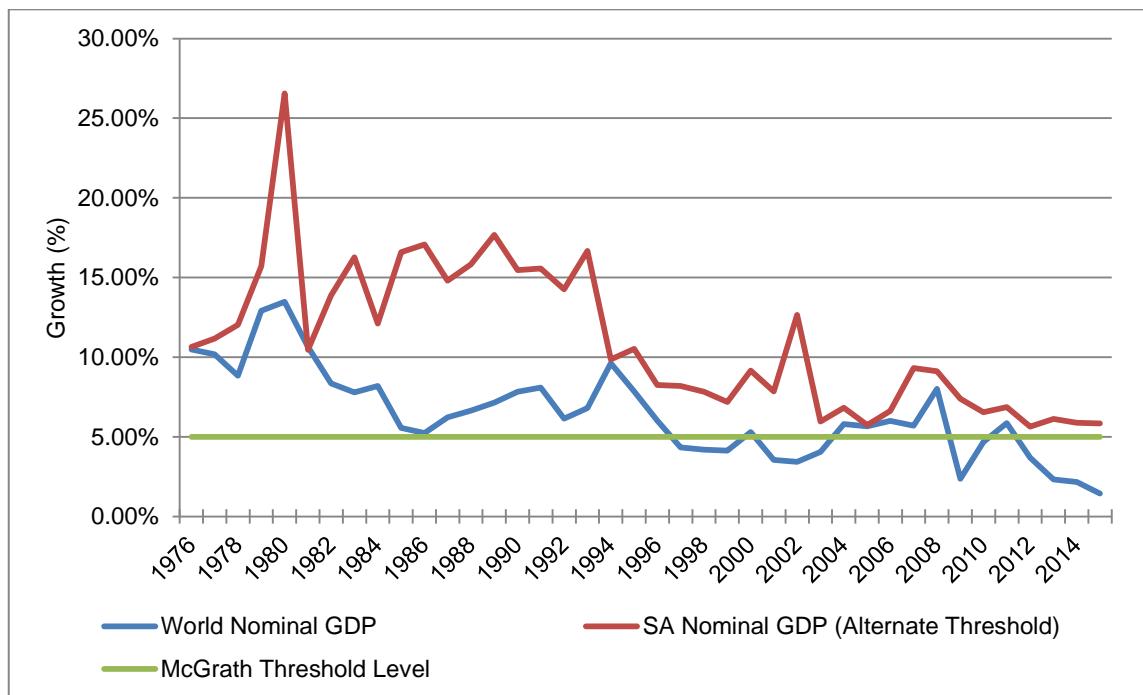
Figure 27: Comparison of nominal growth rates and threshold levels.

The results of this study seem to correspond to the issues postulated in the context of South Africa being a high nominal growth rate environment, with the number of firms being disproportionately high. As per Figure 27, South Africa's nominal growth rate is evidently higher than average world levels as well as being higher than McGrath's flat 5% threshold throughout the period of the study.

As expected, the behaviour of the findings in the context of this study correlate closely to that of a high rate environment. During certain periods the number of companies identified is disproportionately high. Considering Figure 28, from 1985 to 1992, the

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number of 5 year revenue growth outliers sat at over 30% for McGrath's method, correlating to a period when CPI inflation rates peaked to levels of 18.65% and which historically speaking was a period of great political strife and economic turbulence.
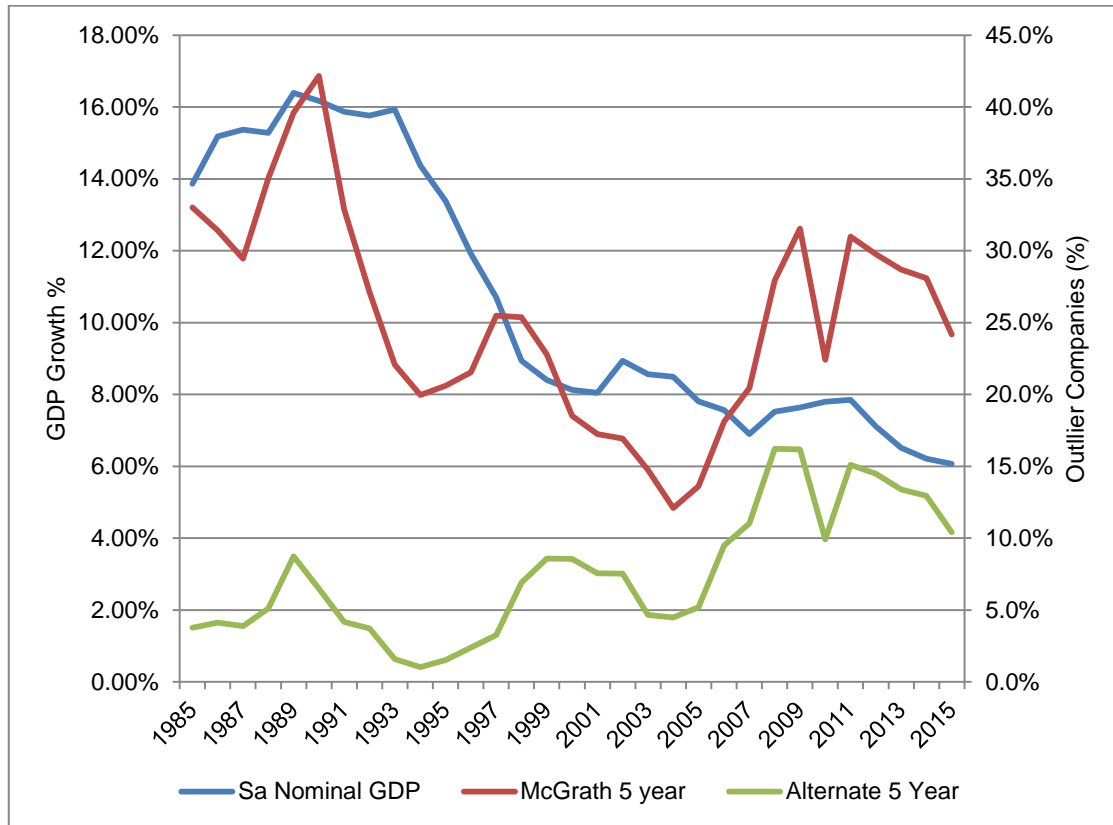
Figure 28: Five year rolling average nominal growth rate relative to percentage of outlier companies identified using McGrath and alternate method in terms of revenue. (Note: years listed correlate to end year of 5 year period, and growth rate of average of previous 5 years.)

During this time, inflation was at some of the highest levels ever experienced in contemporary South African history, at a peak in 1980 when implicit price deflator levels were 24.9% with an average of 15.7% over the period. The growth rate during this period swung erratically between highs of +6% and lows of -2% . It is evident that during this period McGrath's growth threshold of 5%, is overly lenient as a measure of a company excelling or taking market share and the percentage of identified outlier companies of over 30% during this period is not an accurate reflection of the economic situation of the time.

It seems almost as if the number of companies identified using the McGrath method

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has a fair degree of correlation to the blue trend, being the nominal GDP growth rate. This suggests that a disproportionate number of companies is identified with the McGrath method when the growth rate is high, and relatively much lower when it is low. The trend line showing the percentage of identified companies using the alternate method however tells a different story. The number of companies identified does not seem to be correlated to the SA nominal GDP with the alternate trend remaining fairly consistent whilst the GDP rate changed over the years. This suggests that the alternate method is a more consistent methodology regardless of nominal rate.

6.1.2.2   Fundamental consideration

In finality, in terms of the fundamentals of the method, a telling indication of the issues while using a single threshold growth level can be noted in the difference in results between the opposing techniques of the McGrath and the alternate method. This is shown specifically in terms of the definitive disparity in the number of outliers identified during the early to mid-1980s, as is evident in the prior figures, Figure 20 and 21.

During this period, McGrath's technique effectively identifies the most outliers for the entire study period whilst in stark contrast, the alternate technique identifies the least. This observation shows the essential problem with McGrath's use of a static threshold. It is evident that during this period, the large number of companies identified which are supposedly outliers simply cannot be defined as such as outliers cannot make up 20% of all companies; this is a literal contradiction of the concept of the term, 'outlier'.

This shows therefore that the technique of using a static threshold level regardless of context, is fundamentally limited in identifying companies which are supposedly taking market share and which can be considered as outliers from the population. These findings therefore suggest that the use of a static threshold has a material impact on the quality and quantity of firms identified.

6.2.   Identification of Outlier firms

6.2.1.   Overview of identified firms: alternate method

Code	Company Name	Est.	Short Description
IPL	IMPERIAL HOLDINGS LIMITED	1948	JSE-listed, consumer and industrial logistics company, headquartered in South Africa. Imperial's business includes vehicle imports, distribution, dealerships, rental, aftermarket parts, and vehicle-related financial products and services. Strategic position: defensible market leadership in logistics and vehicles in South Africa, defensible market leadership in inland shipping and contract logistics in Europe, fast growth in niched distribution and distributorship of consumer goods and pharmaceuticals to the relatively high-growth consumer markets and economies of Southern, East and West Africa, Coherent strategies for rapid foreign growth to counter the limited growth opportunities arising from high South African market share in vehicles and logistics (Imperial Holdings Limited, 2015; Marketline, 2016d).
APN	ASPEN PHARMA-CARE	1850	Global supplier of branded and generic pharmaceutical products as well as infant nutritional and consumer healthcare products in selected territories - a broad product portfolio including branded medicines, biologicals, generics, infant nutritionals and other consumer healthcare products.. Ranked in top 5 of generic drug manufacturers. Diverse manufacturing capabilities across 26 manufacturing facilities covering a wide variety of product-types including oral solid dose, liquids, semi-solids, steriles, biologicals, active pharmaceuticals ingredients ("API") and nutritionals (Aspen Holdings, 2015; Marketline, 2016a).

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EOH	EOH HOLDINGS LIMITED	1998	Largest ICT services provider in South Africa. Provider of technology, knowledge, skills and organisational ability to businesses across Africa. Delivering services across all major industries with a focus on the financial services, telecommunications, public sector, mining, manufacturing and retail sectors. Staff of 10 000 deliver services to over 2000 large enterprise customers across SA, Africa and some countries internationally (EOH Holdings Limited, 2015).
MRP	MR PRICE GROUP LIMITED	1985	Largest South African clothing retailer: main business of the Group is omni-channel retail distribution through 1150 corporate-owned, 15 franchised stores in Africa and its online channels. Growth of group has been achieved by steadily diversifying into new products. The retail chains are currently involved in clothing, footwear, sportswear, sporting goods, accessories and homewares (Marketline, 2016f).
INL	INVESTEC LIMITED	1974	International, specialist bank and asset manager that provides a diverse range of financial products and services to a niche client base in three principal markets, the United Kingdom, South Africa, and Australia. The group comprises of Investec Limited and Investec Plc and its principal business divisions include asset management, wealth and investment, and specialist banking.. Listed in both Johannesburg and London, Investec has expanded through a process of strategic acquisitions as well as organic growth (Marketline, 2016e; Investec, 2015)
FBR	FAMOUS BRANDS LIMITED	1960	Leading branded food services franchise operator. Famous Brands' vertically integrated business model comprises a portfolio of 27 brands represented by a franchise network of over 2500 restaurants across South Africa, the Rest of Africa,

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			the United Kingdom, and the Middle East, underpinned by substantial Logistics and Manufacturing operations. Business model includes process of acquiring smaller franchised restaurants and aligning these businesses to their highly integrated manufacturing, logistics and supply chain and through intense marketing of these brands through their centralised marketing division, these newly acquired restaurants are able to grow substantially at a far reduced cost to when operating independently (Famous Brands Limited, 2015).
PIK	PICK `N PAY STORES LIMITED	1967	Pick n Pay Holdings operates as the holding company for Pick n Pay Store. A major supermarket retailer with trading subsidiaries that retail food, clothing, general merchandise, pharmaceuticals and liquor operating throughout southern Africa in South Africa, Namibia, Botswana, Zambia, Mozambique, Mauritius, Swaziland and Lesotho. It has both owned and franchised store formats. Founded in 1967 by Raymond Ackerman, the group is still served by several members of the Ackerman family including the current chairman, Gareth Ackerman (Marketline, 2016h; Pick n Pay, 2015).
CPI	CAPITEC BANK	2001	Capitec Bank Holdings (CBH) operates as a holding company for Capitec Bank (bank), which is engaged in providing a range of banking and financial services. The bank focuses on banking services and provides savings, transacting and unsecured lending products to individuals. Provides retail banking predominantly targeted at low LSM market. Provides simplified and affordable banking facilities to clients via the innovative use of technology in a manner which is convenient and personalised. Recently named *the best bank in the world* in the inaugural Lafferty Bank Quality Ratings (Capitec Bank

INP	INVESTEC PLC	1974	Investec plc is the controlling company of the majority of the group's non-Southern African operations (Investec, 2015).
INL	INVESTEC HOLDINGS LIMITED	1974	Formerly listed company - currently listed as Investec Limited (Investec, 2015).
NED	NEDBANK GROUP LIMITED	1888	Nedbank Limited (Nedbank) is a provider of banking and financial products and services. It offers a range of individual banking, private banking, wealth management, small business banking, corporate banking and insurance products and services. In top 5 banks in SA. Provides a wide range of wholesale and retail banking services and a growing insurance, asset management and wealth management offering through four main business operations, namely Nedbank Corporate and Investment Banking, Nedbank Retail and Business Banking, Nedbank Wealth and Rest of Africa (Nedbank Group, 2015; Marketline, 2016g).
SBK	STANDARD BANK GROUP LTD	1862	Standard bank is a financial services organization. It offers a range of transactional banking, saving, borrowing, lending, investment, insurance, risk management, wealth management and advisory services to individuals, businesses and corporate clients. The bank operates in Africa, Europe, the Americas, the UAE and Asia. Leading African financial services group with a strategic position which enables them to connect Africa to other selected emerging markets as well as pools of capital in developed markets. Their balanced portfolio of businesses provide significant opportunities to grow. 20% owned by largest bank in the world – ICBC.

Holdings, 2016; Marketline, 2016b) .

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QDT	Q DATA LIMITED	1986	Formerly listed, information, communication and technology operator in South Africa. Merged with Persetal in 1997 to form Comparex Holdings in Nov 1998.
SHP	SHOPRITE HOLDINGS LIMITED	1979	Investment holding company whose combined subsidiaries constitute the largest fast moving consumer goods (FMCG) retail operation on the African continent, under which resides several different retail supermarket brands. Shoprite's twelve brands of stores within the group serve various target markets from low to high LSM consumers with various products and services. Shoprite's offerings include food, clothing, general merchandise, pharmaceuticals, liquor and financial services (Marketline, 2016j).

6.2.2.   Question 2(a): Exogenous characteristics of identified firms

In order to analyse the exogenous characteristics and test for similarities between the identified firms, table 5 is included.

The exogenous characteristics addressed in table 5 consider various outward aspects of the identified outlier companies. These aspects were generally defined as being quantifiable, with some qualitative data such as the definition of firms operational location or industry.

The matrix considers such aspects as the industry in which the firm operates, date first listed, current listing status, geographic footprint, number of countries in which the firm operates and number of employees as well as market related aspects including the market cap, and certain balance sheet characteristics including firm leverage and total assets.

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Table 5: Exogenous characteristics of outlier firms

Code	Company Name	Industry	First Listed	Current Status	Locations	Number of Countries	Number of Employees	Regional Concentration (0-10 000)	Product Concentration (0-10 000)	Market Cap / J203 Median Market Cap	Debt to Equity	Total Assets / SA GDP
IPL	IMPERIAL HOLDINGS LIMITED	Logistics	1988	Listed	Global	31	51 361	4 313,91	2 454,00	2,88	2,340	0,01647
APN	ASPEN PHARMACARE	Pharma-ceuticals	1987	Listed	Global	150	10 331	1 362,00	4 117,87	12,57	1,588	0,02215
EOH	EOH HOLDINGS LIMITED	ICT	1999	Listed	Africa	33	10 000	-	2 334,00	1,74	0,857	0,00210
MRP	MR PRICE GROUP LIMITED	Retail Clothing	1990	Listed	Africa	13	17 098	8 413,79	3 994,12	5,04	0,567	0,00197
INL	INVESTEC LIMITED	Specialist Banking	1989	Listed	Southern Africa & Mauritius	20	8 254	5 115,16	4 737,41	2,20	10,061	0,01111
FBR	FAMOUS BRANDS LIMITED	Food Service Franchise Operator	1995	Listed	Africa, Asia & Europe	16	1 630	9 061,85	4 114,73	0,86	0,307	0,00046
PIK	PICK `N PAY STORES LIMITED	Super-market Retailer	1986	Listed	Southern Africa	7	48 700	9 136,22	-	1,97	3,698	0,00368
CPI	CAPITEC BANK	Lowend Banking	2002	Listed	South Africa	1	11 440	10 000,00	4 270,85	4,20	3,608	0,01577
INP	INVESTEC PLC	Specialist Banking	1989	Listed	Global	20	8 254	-	-	4,77	10,061	0,01111
INL	INVESTEC HOLDINGS LIMITED	Specialist Banking	1988	Delisted	Global	-	4 874	-	-	1,89	19,572	0,05158
NED	NEDBANK GROUP LIMITED	Banking	1987	Listed	Africa	39	31 312	8 789,16	4 148,71	7,14	10,755	0,23196
SBK	STANDARD BANK GROUP LTD	Banking	1986	Listed	Southern Africa	20	54 361	8 742,55	4 247,17	14,06	10,064	0,49596
QDT	Q DATA LIMITED	ICT	1987	Delisted	South Afrca	-	-	-	-	-	-	-
SHP	SHOPRITE HOLDINGS LIMITED	Super-market Retailer	1987	Listed	Southern Africa	15	132 942	7 312,77	5 886,00	7,61	1,292	0,01100
	Min	-	1986	-	-	1	1630	0,00	0,00	0,00	0,00	0,00
	Max	-	2002	-	-	150	132942	10000,00	5886,00	14058,60	19,57	495,96
	Mean	-	1990	-	-	30,42	30042,85	5160,53	2878,92	4779,80	5,34	62,52
	Median	-	1988	-	-	20	11440	6213,96	4054,42	3537,13	2,97	11,11
	Mode	Banking	1987	Listed	Global	20	-	-	-	-	-	-
	Variance	-	23,43	-	-	6,2%	6,7%	14,5%	10,4%	14,5%	8,2%	7,2%
	Standard Deviation	-	4,84	-	-	25,0%	25,8%	38,1%	32,3%	38,1%	28,7%	26,9%

Several aspects relating to company balance sheet data, were given as ratios to give a proportional perspective to this information, including firms' Market capitalisation relative to the median market cap for companies listed within the J203 index amongst other ratios. Other ratios relating a firm's total assets to South Africa's 2015 gross domestic profit amount and firm debt to equity were included.

The calculation of a firm's product and regional concentration, was achieved through the use of a technique similar to that of calculating industry level firm concentration in the field of micro economics using the Herfindahl-Hirschman Index. The original method allows one to attach a quantifiable value to the degree of concentration in an

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industry by adding the squared market share percentages of each firm in an industry together to come to a total amount, with 10 000 being the maximum amount, whereby a single firm owns 100% market share.

In a similar regard this was done looking at the breakdown of revenue within a single firm. If a company's revenue was equally derived from 3 different product lines this would equal a concentration 3 333. This was also done looking at a firm's revenue from the different regions in which it operates, as with Capitec which only operates in South Africa, it has a score of 10 000 for regional concentration. In essence the lower the score the more diversified a company's operations; the higher the score and the more concentrated it is. The technique in this context, does have some limitations in the sense of the basis for different product lines. The basis of what constitutes a 'different line' is not easily defined and in different sectors, could have a different definition. For instance Aspen may define infant nutrition and sport nutrition as different product lines, or may define this difference at a higher level saying all nutrition exists in the same product line. For the purpose of this calculation, the companies definition of product lines as per their integrated reports, defined this taxonomy.

It is evident from the table, that in some cases the identified firms do share similarities with some of their counterparts and in other instances stand in stark contrast to the majority of other firms identified.

6.2.3.   *Question 2(b): Endogenous characteristics of identified firms*

Whilst there seemed to be no exogenous factor which is shared across the population of firms, it must be noted that there are definite pockets of outliers which share striking similarities in outward characteristic. The following section addresses such anomalies and considers some of the endogenous characteristics observed from some of the actions of the identified outlier firms. Due to time and resource constraints, the analysis cannot however, be considered an in-depth fully comprehensive investigation, and at this stage could be defined as being high-level cursory analysis.

6.2.3.1   A banking revolution

One such pocket of growth outliers sharing striking similarities, are firms operating in the banking space. If one considers that of the 14 companies identified in total, 6 of

these are banks; it is therefore evident that there is definitely a growth trend in banking in South Africa. Considering the banks identified, there seems to be a further grouping on the basis of time-period, in terms of the years in which the banks experience their consecutive growth. The Investec listings, Standard bank and Nedbank all excel roughly during the period of the 1990s, whilst Capitec stands in contrast achieving its period of consecutive growth, from 2001 onwards as is seen in Figure 29.
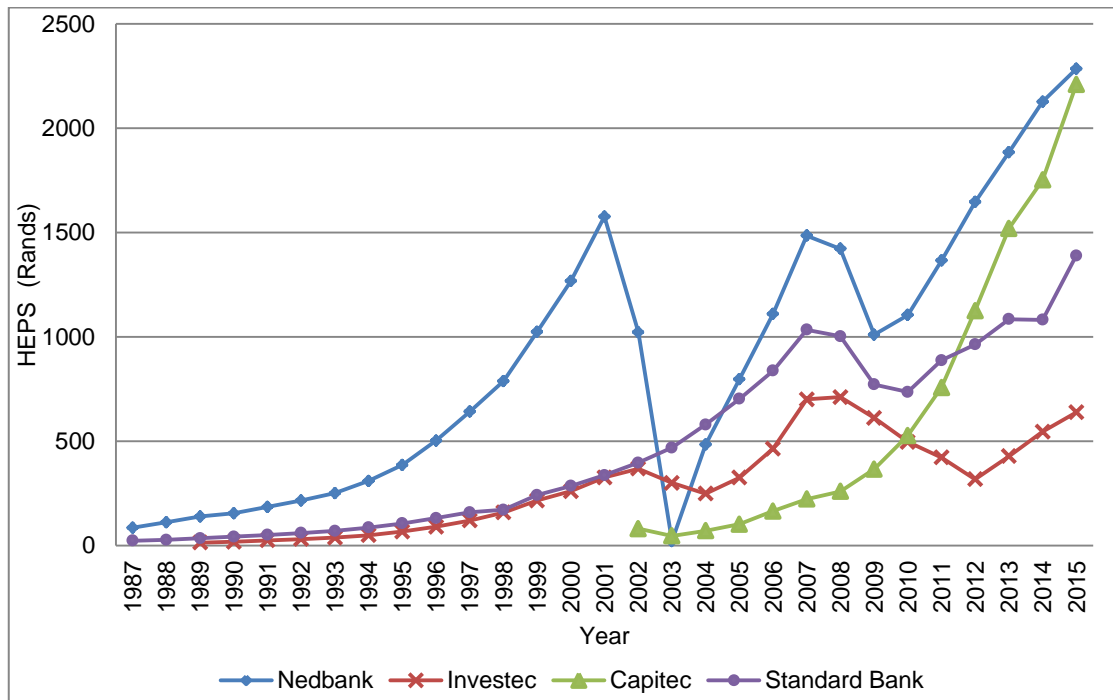
Figure 29: Comparison of HEPS figures of outlier banks between 1987 and 2015.

The banking boom

The analysis behind the causes of this banking boom could constitute, a paper in and of itself. However it can be noted that in the early 90s, after the fall of the Apartheid regime, the banking sector experienced a veritable boom. During this period, a large portion of the population which previously had been excluded from the formal economy and had not received banking services, now entered the market and this resulted in numerous years of uninterrupted growth for the banks (Schoombee, 2004).

That is until Capitec entered the market with its disruptive low cost banking model, which hugely reduced the charges involved with banking and in turn reinvented the way consumers viewed the banking industry. Of course base effects were also at play with

Capitec starting from a low base in 2001 relative to the size of the other banks at the time. However this is only partly the case, and the effects that Capitec's entry had on the retail banking market cannot be down played. Nor can the sheer number of years that Capitec has been growing its revenue, earnings figures, and client base, be ignored (Capitec Bank Holdings Limited, 2015).

The Capitec Revolution

In this extract from a Capitec integrated report (2005), their ground breaking model becomes clear, "Capitec is fermenting a revolution. A revolution is needed to make banking accessible to all South Africans. Our revolution is based on modern, low-cost technology, which enables us to offer our clients dramatically lower fees and a unique service" (p.3). The contrast between the high end banking model vs the low cost banking model is especially distinct in comparing the performance of Nedbank against that of Capitec in 2003. Although Nedbank was able to bounce back in subsequent years, the symbolic differential between the performance of the two companies over this period is of interest.

In that year, Nedbank's HEPS fell dramatically to 1% of the high they achieved two years earlier. The Nedcore chairman, Chris Liebenberg, quoted from a Nedbank integrated report (2003), attributes the poor results to several factors but most notably to large increases in operating expenses, "the results were influenced by an unacceptable increase in expenses of some R2,7 billion, which saw our cost-to-income ratio, excluding foreign currency translation losses, move out to 70%" (p.8).

Liebenberg further notes that one of the biggest challenges facing the country is the unbanked portion of the population, "delivering meaningful banking services to the under banked market remains the biggest single unresolved challenge, also in terms of the charter requirements" (p.7). It was evident indeed that the climate within banking in South Africa was auspiciously ready for a disrupter to enter the market, and Capitec was undoubtedly that disruptive force, achieving incredible earnings and customer growth in subsequent years. With this growth continuing through even the testing period after the global financial crises of 2008 and 2009 when most banks experienced downturns and even to this day, Capitec's growth has not faltered (Oct 2016).

When considered in the context of transient competitive advantage, Capitec's so called banking revolution and subsequent years of uninterrupted growth correlate in many

aspects to the various theories. Indeed Capitec's growth story speaks very much to the model of a disrupter, which through its innovative business model, was able to enter the market with a competitive advantage, and take market share from their competitors.

As much as Capitec's success, affirmed their own model, we see through the reactionary actions and the discourse of their competitors, that some were able to respond far more effectively to the disruption and stem the loss of market share somewhat. Such actions speak very much to the theory of competitive dynamics, where an opposing firms reactions determine the degree to which the protagonist firm obtains a competitive advantage (Jacobson, 1992; Young, Smith & Grimm, 1996). Whilst several of these outlier banks reacted effectively, many firms not listed within the identified outliers, were unable to respond to Capitec's entry into the market and continue to see their market share eroding.

6.2.3.2   Battle of the supermarkets

The presence of two major supermarket retail chains in the outlier firms identified, is also of interest, specifically in terms of the periods over which they achieved their exemplary performance. Pick 'n Pay achieved its period of consecutive revenue and earnings growth from 1997 to 2008, whilst Shoprite did so between 2003 and 2013.

Considering Figure 30, it is evident that although their growth periods coincide somewhat, there is decidedly a point in 2008 when Shoprite experiences a notable surge in growth whilst Pick 'n Pay seems to plod along on the same trajectory. Then in 2010/2011 there is a notable inflection point when Pick n Pay starts to lose market share, whilst Shoprite's growth trajectory continues emphatically.

Looking at the figures alone, one can only speculate on the reasons for this shift in consumer sentiment becoming more favourable towards Shoprite. More so than being down to a single mechanism, it is likely that this is due to a multitude of factors, such as continuous superior marketing campaigns, better perceived value by the consumer and greater adoption and traction in expanded and diversified markets, amongst many other possible factors (Marketline, 2015). Indeed the presence alone of these two supermarkets in the outlier group, does not tell the entire story. An in depth analysis of the underlying causes may divulge reasons for the shift and the identification of Shoprite's competitive advantage. However this transition of favour from Pick 'n Pay to

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Shoprite, when considered from the perspective of the theory of transient-advantage, suggests that several of McGrath's and Sull's postulations may be in play. Especially the need for firms to have a balance of both stability (absorption) and agility (McGrath, 2013b; Sull, 2009).
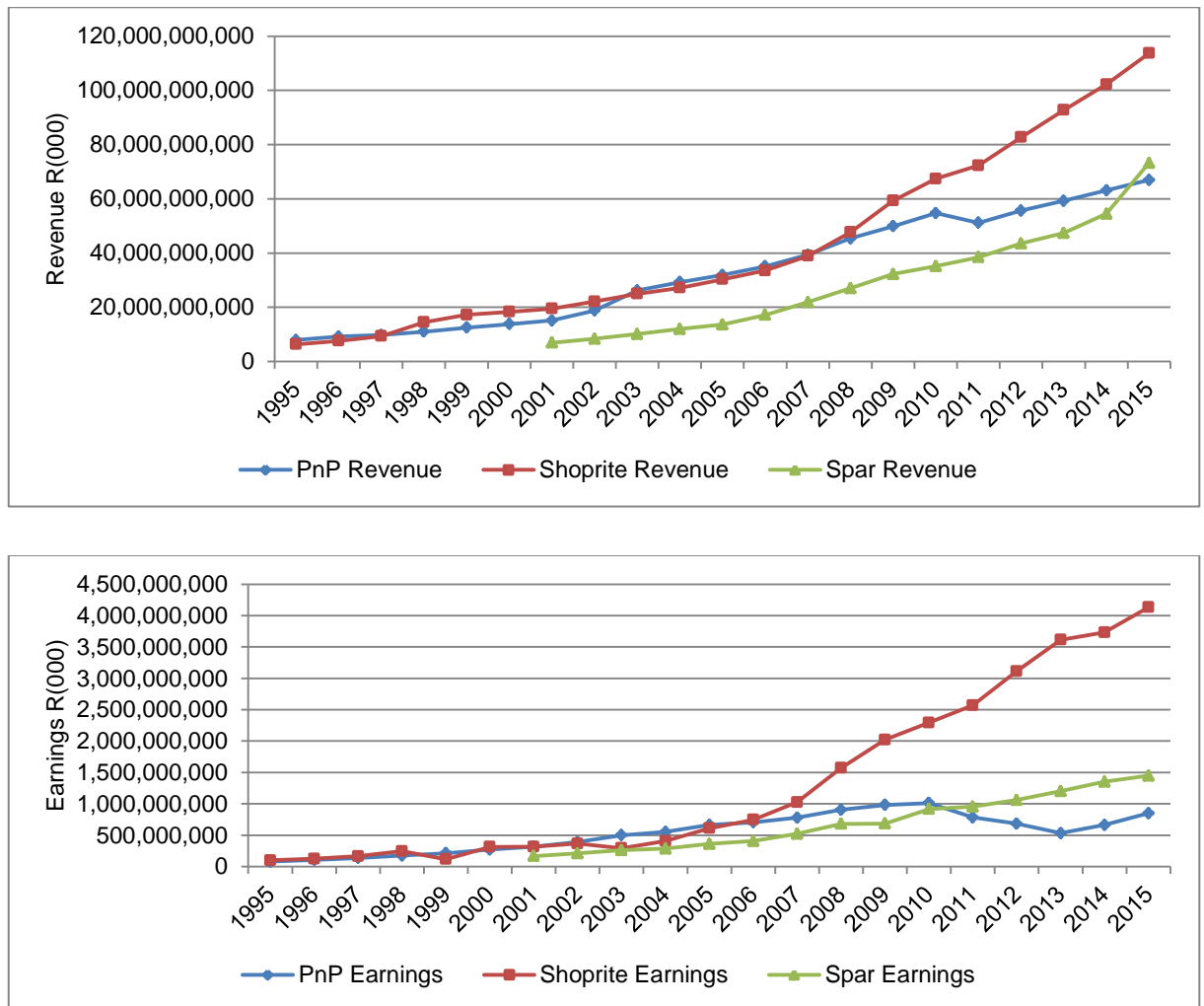
Figure 30: Graphs showing comparison of revenue and earnings figures between Pick 'n Pay and Shoprite.

Looking at the transition period of 2006/2007 for Shoprite and the inflection point of 2010 for Pick 'n Pay, it is possible that we are seeing the tell-tale symptomatic effects derived from the differences between the two companies. With Shoprite having the agile ability to morph into the form required by the market, whilst Pick n Pay seemingly remaining stable over the preceding years but lacking the agility to align to the change in the market as achieved by Shoprite (McGrath, 2013b).

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The green curves signifying another major supermarket, Spar, is included to shed light on an issue that may exist with the framework. Spar, has not been identified as an outlier company due to a lapse in its earnings performance in 2009. Indeed it is possible that Spar may have been a quality operator from which valuable lessons may be learnt, but due to the rigidity in the framework may have been prematurely excluded. Of course it also possible that nothing noteworthy could have been observed, but it is evident that this issue with the framework does exist.

6.2.3.3   Aspen Pharmaceuticals

One of the more extraordinary growth stories is that of Aspen Pharmaceuticals which was able to achieve 17 years of consecutive earnings growth above the SA nominal growth rate. Figure 31, looks at the extraordinary growth rate the company achieved over this time. From 2000 the company grew their earnings from R175 Million in 2001 to R5.25 Billion in 2015. That is an accumulated year on year growth of 400% and a mean growth rate of 29% per annum and compound annual growth rate (CAGR) of 27.5% – an impressive feat of growth for any company, but coupled with the fact that their headline earnings per share grew at a very similar rate of 27% per annum (CAGR of 25.5%); a special achievement indeed.

It is often the case that companies which undertake a growth by acquisition strategy, do so at great cost where quality assets which are acquired are done so at a premium. In this regard growth in revenue is achieved through sacrificing levels of return on invested capital; with Aspen it would appear that this wasn't the case (Rumelt, 2011). Since the company's inception with its listing on the JSE in 1998, it is evident that much of Aspens growth was achieved through a series of acquisitions, joint ventures and favourable agreements. Notably including partnerships with GlaxoSmithKline, non-exclusive collaboration agreement with Bristol-Myers Squibb, agreements with Nestle and Merck, and the acquisitions of a multitude of branded pharmaceutical products as well as a few large pharma companies including, Australian based Sigma Pharmaceuticals Limited (Marketline, 2016a).

As is stated in the final parting address of former Aspen chairperson, Nobuhle Judith Dlamini, taken from the 2015 integrated report, the incredible growth that the company experienced is evident. "In preparing this, my eighth and final statement as Chairman of Aspen, I was struck by the profound transformation the Group has undergone since

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my appointment as a director in 2005. The Group was at that stage still very much focused on South Africa, with fledgling offshore business interests limited mainly to Australia… Fast forward 10 years to 2015 and behold Aspen as a fully-fledged multinational pharmaceutical company with extensive global reach, more than 10 000 employees and an annual revenue of R36,1 billion. Its market capitalisation as at 30 June 2015, compared to 2005, has grown by an astonishing 1 724% to R164 billion and it now operates 26 manufacturing facilities on 18 sites across six continents" (p. 27).
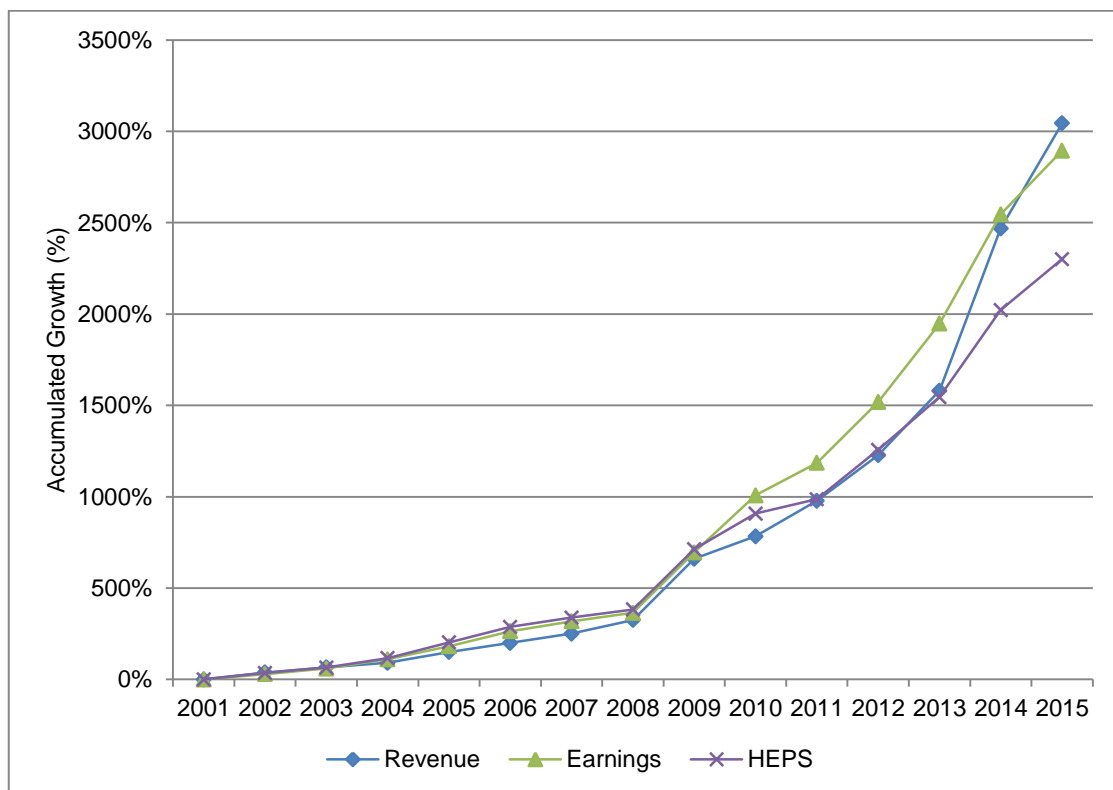
Figure 31: Aspen Pharmaceuticals totalised percentage growth for analysed parameters.

For all this M&A activity and various agreements and deals which Aspen undertook, the extraordinary aspect is that through the majority of these actions, Aspen was able to find or create value which is evident in the consistent growth in their return on equity value over the years (Aspen Holdings, 2015). A deep dive investigating each of these actions in terms of the individual synergies or value creating mechanisms would be an extremely worthwhile exercise moving forward. Such an exercise would help to understand the technique of achieving growth by acquisition whilst keeping earnings per share and return on invested capital growing consistently.

Aspen's growth by acquisition model speaks very much to McGrath's theory, in terms of her concept of constantly engaging in new arenas whilst disengaging in others. As discussed, Aspen's progress over the years to become a leading multinational drug company, has seen their product offering, and the markets in which they operate evolve constantly. With those of diminishing profitability being left behind, whilst moving into more lucrative higher growth arenas, their strategy is very much in line with the theory of transient competitive advantage (McGrath, 2013b).

6.2.3.4 EOH

EOH is the largest technology services provider in South Africa, a notable accomplishment considering that it was only listed on the JSE in 1998. Apart from their exemplary CAGR of 35% for the period since their listing, EOH has achieved a highly consistent year on year growth rate with a variance in the HEPS growth rate of just 0.3%. Figure 29 shows EOH growth rate for revenue, earnings and HEPS. Of note is the incredible consistency in these trends.
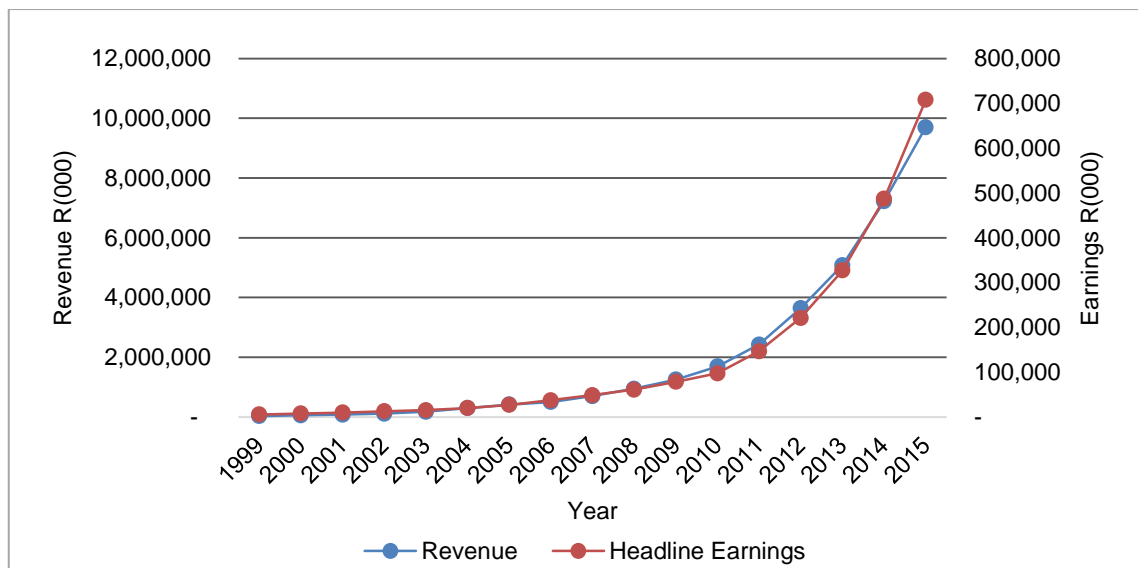
Figure 32: Headline earnings and revenue figures for EOH from 1999 to 2015

Similar to Aspen, much of EOH's growth was derived from a number of strategic partnerships and specific acquisitions which enabled them to diversify the landscape of their technology offerings and exposed them to a solid customer base early on. Possibly the most important of which was their early acquisition of Enterprise Softworx in 2001, which launched them into the world of enterprise business systems – an area

which drove a large portion of their growth moving forward. Furthermore it is widely considered that the company's move into the outsourcing/consulting space also attributed to much of their growth (Keith, 2009). This was driven in large part by their acquisition of Atos KPMG Consulting for ZAR20 million in 2003 and their 2004 acquisition of Idea 2 Action; a consultancy specializing in IT infrastructure and business application design and installation (Marketline, 2016c).
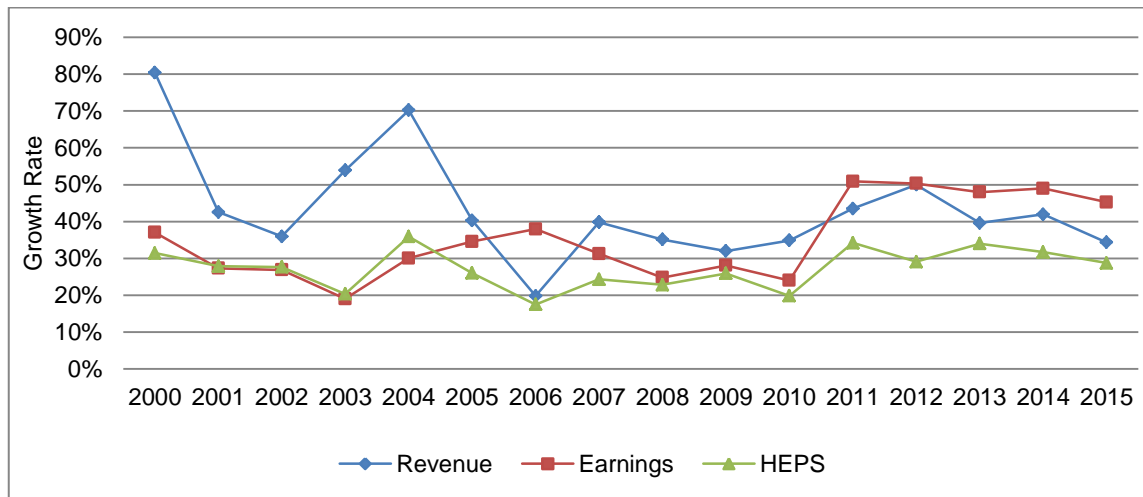
Figure 33: Growth rate for analysed parameters for the EOH Group.

Much like Aspen, EOH's growth model could be construed as a growth by acquisition model. However when its actions are considered in the context of transient-advantage theory the conclusion reached is very different relative to Aspen. With EOH, it is postulated that these acquisitions in the early years since listing, positioned EOH perfectly to be a leading player in South Africa in an industry during a period in which it experienced exponential growth. In essence, EOH existed in the right place at the right time, in the right form. From this point onwards, EOH's position within the market was seemingly set and its competitive advantage seemingly stable, which enabled them to grow unhindered for the next 16 years. The company did not have to continuously disengage from old markets nor engage in new markets nor innovate drastically from the space they were in. Rather it seemed that as the market realised that a digital strategy was essential, their revenue and earnings and customer base grew with this realisation.

Of course there were instances where transient-advantage was applicable to EOH, and much of such analysis is a matter of opinion. Indeed it could be argued that those

early acquisitions were driven by EOH's realisation of a change in the market. Furthermore there is evidence that once EOH was in this position, they never got complacent, and through numerous bolt on acquisitions continuously diversified their services and products in the digital business space (McGrath, 2013b). This begs the question: were these acquisitions the source of their competitive advantage, or was their initial strong position of being in the right place at the right time solely responsible? This point is greatly open to debate, and would require far more in-depth analysis, with input from company insiders, to come to a more definitive conclusion.

6.2.3.5 Mr Price Holdings

Of all the companies listed on the JSE between 1976 and 2015, Mr Price has the highest number of consecutive years of revenue growth, with a total of 25 uninterrupted years, spanning all the way from 1990 to the latest data in 2015. This is remarkable if one considers the shifts in the macroeconomic environment in South Africa during this time, with its periods of deep political unrest, economic crises and wildly varying inflation and interest rates. The fact that the Mr Price group has been able to grow their revenue consistently on average by 21% per annum with a variance of a mere 1.16% is evidence of the magnitude of the achievement.

Over the past 25 years, Mr Price has continuously innovated their product offering, always being resistant to complacency, and consistently questioning the scope of their operations in the South African market (Mr Price Group Limited, 2015). Starting out initially as a fashion retailer, over the years the Mr Price group has diversified its product offering, launching Mr Price home in 1998 and Mr Price Sport in 2006 amongst other minor acquisitions and launches. Currently the group's offerings include clothing, footwear, accessories, sporting apparel, intimate wear, cosmetics, home textiles, home ware, furniture, and kids' merchandise. Furthermore the group has over the years expanded into several other African markets initially setting up new operations in Botswana and Namibia in 2000 and later launching operations in Nigeria, Ghana and Zambia –the group now has a footprint in 13 African countries in total. Most recently the group has expanded its distribution channel from being purely retail to include an e-commerce offering with the launch of its online store in 2013 (Marketline, 2016f).
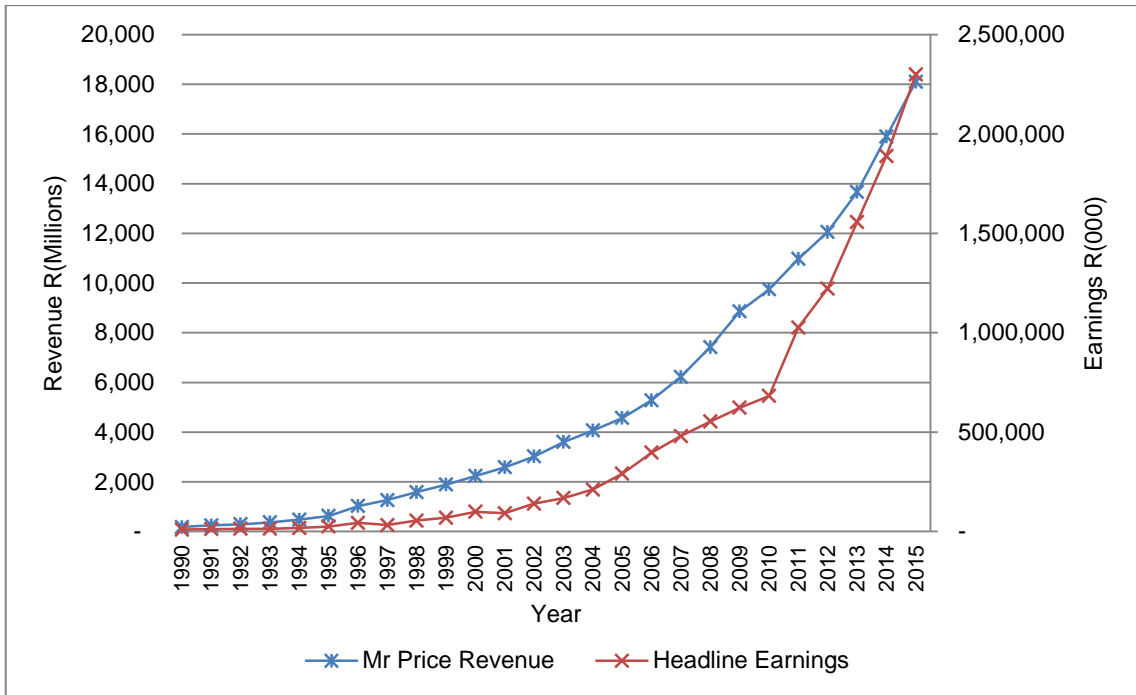
Figure 34: Revenue for the Mr Price group from 1990 to 2015, with a CAGR of 20.1%.
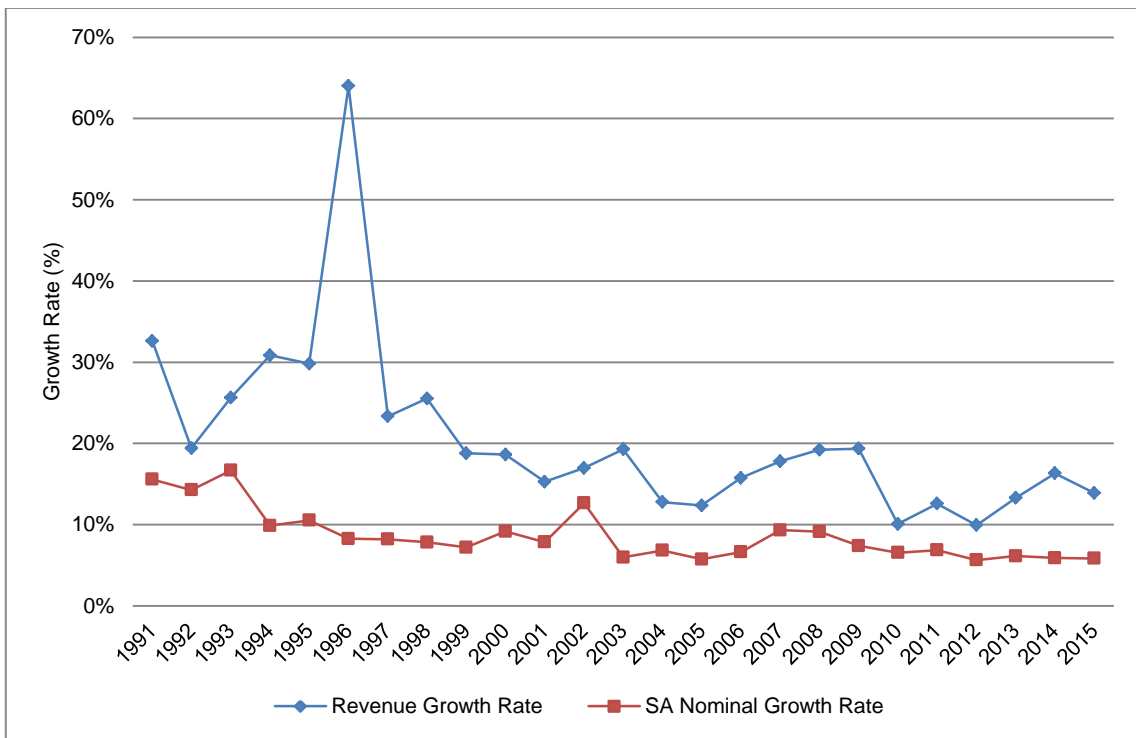
Figure 35: Comparison of Mr Price's revenue growth rate relative the SA nominal growth rate.

It is evident that through its constant diversification in both market and product, the Mr Price group has been able to achieve consistent exemplary growth regardless of external macro environment. In his 2015 chairman's report, Nigel Payne details how the value proposition of Mr Price's fashion offerings' hold a significant advantage over the competition in all the countries in which they operate, "We have significant evidence that the 'emerging consumer' supporting our offering can be found in large numbers, both in emerging markets, some of which we have already entered, as well as in developed markets with younger populations" (p.24).

If Mr Price's actions are considered from the context of the theory of competitive advantage, it would seem that more so than market being transient, it was Mr Price's impeccable brand which enabled them to excel, coupled with them diversifying their product offering into seemingly quite different arenas, which allowed them to extend the value that their brand offered consumers into areas which offered far greater growth potential than where they currently operated.

Such an observation, more so than affirming either opposing argument regarding competitive advantage, seems to speak to each theory from different aspects. It seems part of Mr Price's growth was due to their strong 'Mr Price' brand which has high standing with large portions of the SA population; this aspect suggests that Mr Price holds a sustainable competitive advantage which allows them to retain market share. On the other hand, it was Mr Price's gradual diversification into different products which drove a large portion of their growth. Again these two aspects, rather than affirming any side of the argument, further broadens the landscape of competitive theory suggesting that no aspect is right all the time.

6.2.3.6   Imperial Holdings

Imperial holdings is contestably one of the finest performing companies in South African history, with a period of uninterrupted consecutive growth of 19 years. The company's growth path continued on a strong trajectory all the way from 1990 until 2008, when due to over exposure to the South African motor vehicle sector, the company experienced a major drop in earnings with the large decrease in demand which occurred in that sector (Imperial Holdings limited, 2009). The effects of a major restructuring and unbundling which occurred in that year also lowered revenues and earnings sharply. The group, along with many other South African companies and firms

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worldwide, were impacted by the Global Financial Crises of 2008/2009.

The groups' high growth years leading up to 2008 were driven in large part by organic growth derived from a booming South African and world economy. The majority of Imperial's revenue during this period came from distributorships businesses, of which in 2005 and 2006, this portion grew from being 22% to being 29% of their business, whilst their logistics business fell from being 29% to 22% of the business. This differential grew more pronounced by a further 2% the following year (Imperial Holdings limited, 2006).
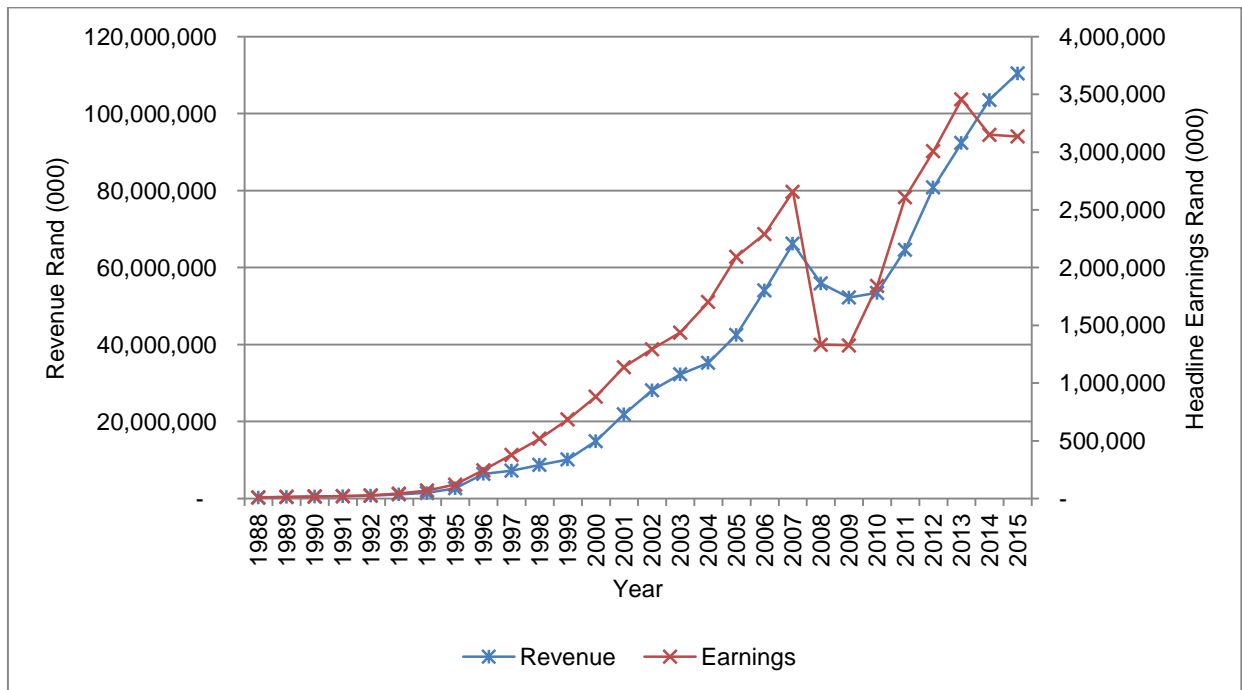
Figure 36: Imperial holding revenue and HEPS from 2000 to 2015.

Imperial's distributorships division imports and distributes a range of passenger, light and heavy commercial vehicles, automotive products and motor cycles on behalf of principals throughout the world into Africa. With at least 30 % of Imperials business being in essence made up of imports, the exposure of the firm to the rand was evident. So when in late 2008 with the rand's approximate jump from seven rand to ten rand to the USD, coupled with severely depressed demand due to depressed sentiments during the financial crises; the company's revenue and earnings figures suffered dramatically (Imperial Holdings limited, 2008; Marketline, 2016d).

Considering this situation in the context of McGrath's strategic principles of balancing

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agility and stability, it would seem that Imperial, was overly weighted on the side of stability, but in so doing relinquished much of their agility. During the boom years of the mid 2000s, the growing concentration of the business in the logistics and vehicle distribution sector proved to be highly beneficial, however when the environment changed in 2008, this lack of diversification proved to be highly costly.

The change in the environment then forced a reaction from the business and they were compelled to undergo a large restructuring and unbundling in 2008/2009 to acclimatise to the altered landscape. Indeed it was their structure and makeup which allowed them to reap the rewards during the period of high economic growth in the mid-2000s that then also caused them great discomfort during the recession of 2008/2009.

6.2.3.7   Famous Brands

Famous Brand's business model can loosely be described as a growth by acquisition model where FBR undertakes a process of acquiring smaller franchised restaurants and aligning these businesses to their highly integrated existing manufacturing, logistics and supply chain. Through intense marketing of these brands through their centralised marketing division, these newly acquired restaurants are able to grow substantially at a far reduced cost to when operating independently, resulting in highly profitable businesses ("Business Model", 2016).

This simple business model has enabled the company to grow their earnings at a CAGR rate of 33.3 % over the previous 14 years. However when one looks deeper into the actions of the company, it becomes evident that their strategy goes beyond the mere objective of scaling the businesses they acquire – although that is its core.

Considering a brief history of the Famous Brands group; the company was first listed on the JSE as Steers Holdings Limited as a joint venture in 1994. In the early years since listing they made several minor franchise acquisitions but notably also strengthened their food supply chain and logistics business with the acquisition of Pleasure Foods Limited, Baltimore Foods Limited and TruFruit, amongst others. The company then went on to acquire the Bimbo franchise and took a controlling share in Mug and Bean, Wimpy and Tashas amongst a multitude of other franchise acquisitions (Marketline, 2014).

It was evident that FBR's business in South Africa was doing well, but the group had

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ambitions to diversify the group's geographic footprint and extend their reach further afield to foreign markets. This started most prolifically with obtaining a controlling stake in Wimpy UK; as of 2015 they operate 83 Wimpy UK stores. Over the proceeding years the group has very effectively brought a number of their brands to foreign countries including the fast food pizza restaurant Debonairs, their burger joint Steers and their takeaway fish offering FishAways to varying levels of success (Famous Brands Limited, 2015).
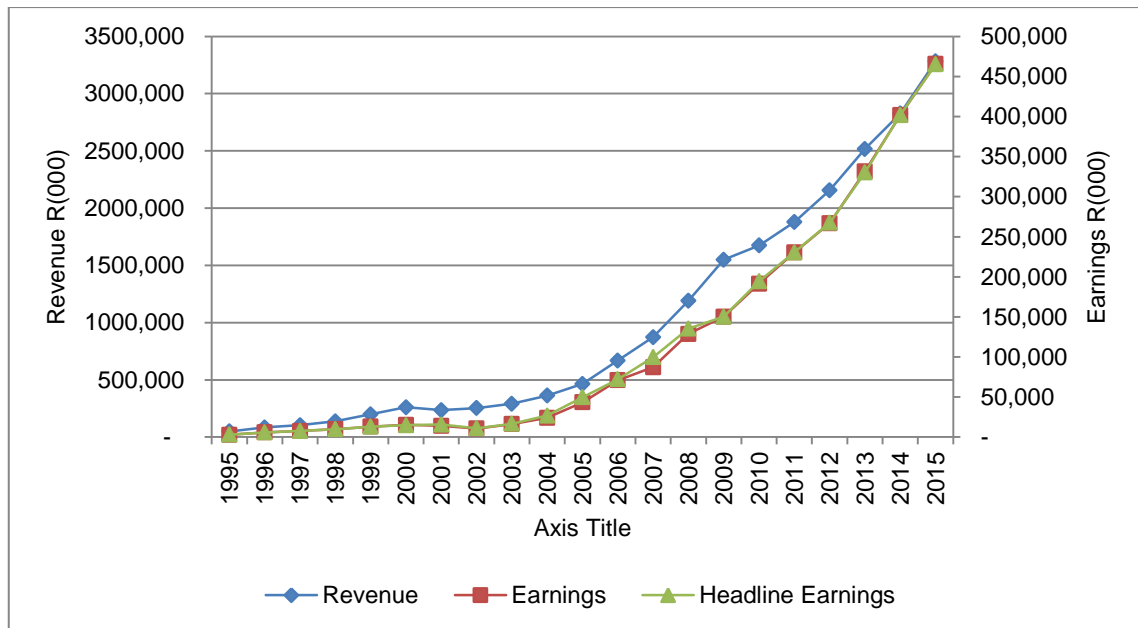
Figure 37: Various income metrics for Famous Brands from 1995 to 2015.

Notably, the group does not however jump in at the deep end when entering new geographies with a brand, but quite carefully 'tests the waters' before committing to a large capital outlay of a large number of stores. An example of such was the group's entry into the Indian market with the opening of two Debonairs Pizza restaurants in Mumbai in 2013. India, a country with currently one of the highest GDP growth rates and fastest growing populations, showed great potential as a market in which one of Famous Brands largely meat free food franchise offerings would almost certainly excel. Two years later however, after extensive deliberation, the group decided to pull out of the subcontinent due to its relatively disappointing performance ("Famous Brands Exits India," 2015).

This act of slowly entering new markets and then gauging potential before making

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sizable investments of time and money into a venture speaks to a large degree to McGrath's principles of taking an options-orientated pattern to market exploration. McGrath details how growth outliers do not make single monolithic bets in new markets but rather make numerous smaller acquisitions and small initial investments to explore various opportunities following up with more substantial investments as the opportunity warrants (McGrath, 2013b). This is a pattern which Famous Brands seems to have followed closely over the years, much to the benefit of their shareholders.

Interestingly however FBR has just recently made their largest acquisition ever with their purchase of a high-end British burger chain for R2.1 billion rand – the occurrence of Brexit playing greatly to their favour in terms of currency conversion in the purchase (Mahlaka, 2016). Former CEO and current strategic advisor responsible for M&A activity, Kevin Hedderwick says the group had been eagerly looking for international deals to scale up the business to a large extent, "Considering the amount of time we have been to-ing and fro-ing in the UK, we were looking for a deal that would move the needle. Gourmet Burger Kitchen is not a small transaction but it's quite big for Famous Brands."

The group does of course have experience in the UK with the operation of several other of their brands in the region, so it is likely that they are aware of the dynamics that are taking place in that market. Time will tell however whether this acquisition, which seems to fly in the face of their prior strategic principles, will prove fruitful for the group.

6.3. Implications for the status of firm-level Competitive advantage

6.3.1. Question 3: Transient or sustainable competitive advantage

It is evident in the literature that there exist two opposing schools of thought, regarding the topic of firm-level competitive advantage. Two camps where academics on either side of the discussion, hold fundamentally different viewpoints regarding the number of firms predominantly possessing a sustainable competitive advantage or predominantly possessing only transient-advantage.

In consideration of this question, in the context of this study, the proportion of firms which have been able to achieve several years of consecutive growth for the various

start years from 1980 to 2015 were analysed. Given the issues raised regarding the McGrath method, the results from the alternate method are considered and are included in Figures 39 and 39.
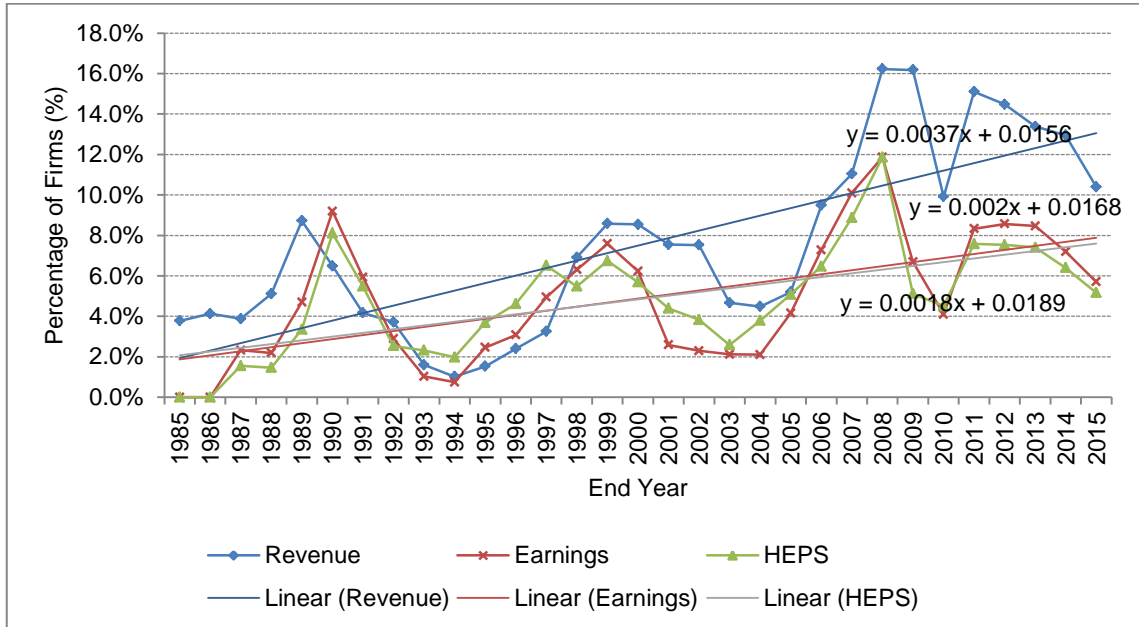
Figure 38: Trends in the percentage of firms achieving 5 years consecutive growth with a rolling start year for end years from 1985 to 2015.
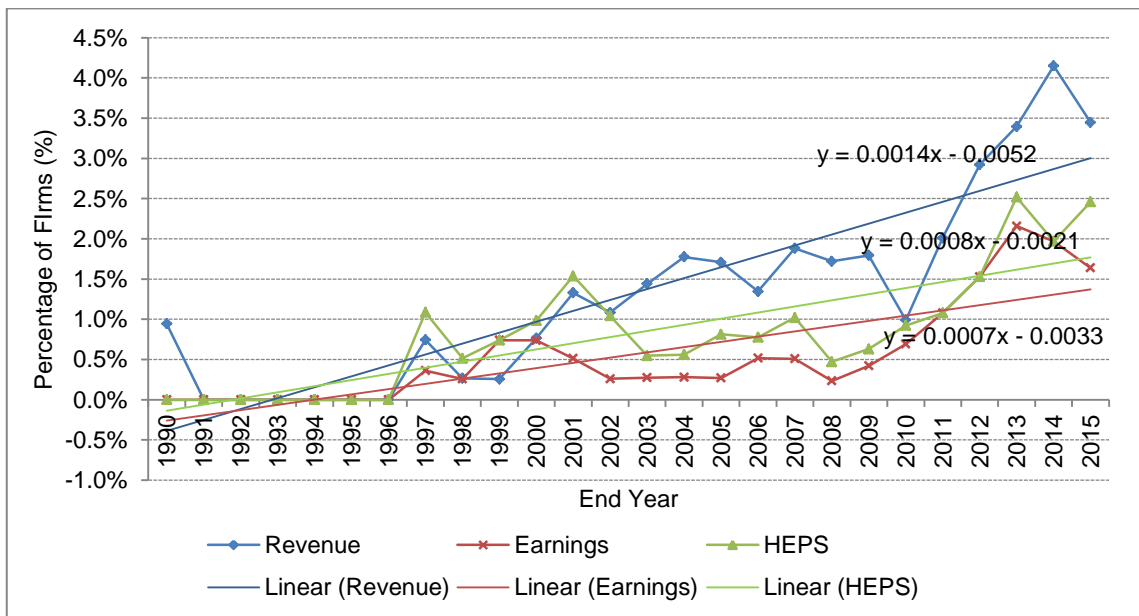
Figure 39: Trends in the percentage of firms achieving 10 years consecutive growth with a rolling start year for end years from 1990 to 2015.

Through the use of trend analysis in finding the trendlines for the given time series data, the growth or decline in the percentage of firms for each metric can be gauged by the magnitude of the slope coefficient. Specifically, regression analysis is used to find the slope of the curve for each metric – this figure can be considered to be the long term trend influence in the data (Wegner, 2012).

According to Figure 38, it is evident that the proportion of firms growing for a minimum of five consecutive years are experiencing a notable upward trend. This can be seen in terms of all three metrics, in terms of revenue with a slope of 0.37%, earnings with a slope of 0.2% and headline earnings per share showing a slope of 0.18%.

Similarly in Figure 39 considering the number firms growing for a minimum of 10 years, the same upward trend is noted, with all metrics showing a lower rate of increase. In terms of each metric, revenue now has a slope of 0.14%, earnings a figure of 0.08% and HEPS with a slope coefficient of 0.07% - all showing a notable positive increasing trend over the period of the study.

It must be explicitly stated that it cannot be assumed that as time passes, the percentage of firms achieving periods of consecutive growth will increase. Furthermore this analysis is by no means proving correlation or causation between growth in the number outliers and the progression of time. Conclusions regarding these trends are limited to the period under study from 1980 to 2015.

Upon consideration of these trends it is evident that the proportion of firms able to achieve both five years and ten years of consecutive growth seem to be increasing for the period under study. This observation suggests that the mechanisms which reduce the length of the period of firm-level competitive advantage, instead of getting worse, would appear to getting less severe. This further suggests that instead of transitioning towards transient competitive advantage, it would appear that South Africa is instead tending towards sustainable firm-level competitive advantage.

7. CONCLUSION

7.1. Principle findings

The work which took place around this study was in essence, conducted to take an in-depth look into the theory around competitive advantage and test the hypothesis, methods and assumptions that the leading academics in the area of transient competitive advantage, are putting forward. Specifically in this regard, the work of Rita McGrath formed the central theory and methodology that was interrogated. McGrath's work in the space of the analysis of firm-level competitive advantage is widely considered as a seminal piece of work on the subject in that it enables the quantitative analysis of large populations of companies and provided a framework for companies to strategise on how to excel in the transient-advantage economy. Furthermore her methods have been acclaimed to be an effective conceptual method of testing whether companies possess a competitive advantage; this paper set out to test these concepts and hypotheses amongst other aspects.

7.1.1. Issues regarding McGrath's methodology employed

Upon due consideration of the methodology McGrath employed in her 2012 study identifying outlier companies in a global context, a number of issues were identified regarding the techniques and assumptions used. It was suspected that McGrath's methodology may impact the scope and efficacy of identifying firms which were able to achieve a competitive advantage. The study set out to interrogate the robustness of this methodology through performing a similar study, using available data in the South African context regardless of firm market cap. This quantitative study enabled the testing of various issues that were identified and enabled a conclusion regarding the use of this methodology in the context of McGrath's study to be postulated.

It is concluded that the findings of this research brought some of McGrath's techniques and assumptions up for deliberation. Firstly it raises some questions regarding McGrath's use of a single start year in that this limits the scope of a study to that specific period. For the period of her study from 2000 to 2009, the occurrence of a major crisis, in the form of the global financial crisis (GFC), is suspected to have a major impact on the number and nature of companies she identified. McGrath defends this choice on the basis that each decade seems to have some sort of event occur and

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therefore the occurrence of the GFC would not differentiate the results of this period from any other 10 year period (McGrath, 2012).

The findings of this work suggest however that the start year does indeed make a difference to the number and the nature of companies identified. Upon performing multiple iterations of both five and ten year studies, using a rolling start year from 1980 to 2005 and 2010 (for the five and ten year study periods respectively), a large range and degree of variance is noted in the number of firms identified. Furthermore the exogenous characteristics of these identified firms is noted to vary to a large extent over the years, with a multitude of different companies being identified. Therefore it is concluded that the start year does have a material impact on the results, and it is further postulated that should McGrath have selected a different start year, the number and nature of the companies she identified would have been different.

The second contentious aspect of McGrath's methodology, was her use of a single threshold growth level. The findings of this study agree with the issues postulated prior, which posited that McGrath's use of a static benchmark would have a varying effect on the number and nature of companies identified, depending on the external circumstances of the market under consideration. Specifically it was suspected that for studies in countries during periods when the national nominal growth levels are high, the number of growth outliers identified would be far higher than in countries experiencing periods of low growth or recession, when the number of outliers identified is relatively far lower. In the findings of this study it was observed that there was a high degree of variance during periods when the nominal GDP growth rate was high relative to when the it was low. In other words, the number of outliers identified during periods of boom was far greater than the number identified during periods of low growth.

It is therefore concluded that the use of a single threshold growth level without consideration of context will have a material impact on the nature and quantity of companies identified. Depending on the circumstances of the specific market this may effect results in either direction, resulting in a disproportionately high or low number of companies, where the relative average quality of such companies may be much lower or much higher respectively.

Such a conclusion in the context of McGrath's study, implies that for the period of her study for 2000 to 2009, companies in countries with a high growth rate and high

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inflation rate, would have a far lower hurdle to surpass than countries with a low growth rate whose benchmark would be far higher. Countries similar to South Africa in this regard would have a far lower hurdle rate to surpass, and provided they have the same number of companies with a market capitalisation greater than $1 billion, would have a disproportionate number of outliers in the results. It is proposed that this was perhaps not the case since the firm entry threshold of a $1 billion market cap may have precluded many companies in such countries from the study.

7.1.2.   Characteristics of outlier firms

The highpoint around McGrath's work in competitive advantage around the period of her study in identifying growth outliers, arguably came with the release of her 2013 book, *The End of Competitive Advantage*. In it, McGrath postulates that the selection of growth outliers she identified, although having no outward aspects in common, did share certain intrinsic characteristics and did partake, to some extent, in the same actions. Such aspects include having a balance of agility and stability, continuously engaging in new profitable arenas whilst disengaging from older less promising ones and gradually shifting as opposed to dramatic restructuring amongst other observations. Part of the objective of this study was to interrogate whether identified firms in a South African context shared any exogenous or endogenous characteristics, whereby the following section addresses such aspects, albeit that the investigative study was done at a far higher, less in-depth level.

Looking at the findings from the latter part of this study in studying the characteristics of the identified firms, it is postulated that as with McGrath's work, these companies do not seem to share any overt characteristics such as being uniform in size, location or in market or any other measurable characteristic which was considered. It was noted however that there were periods when pockets of outliers within certain industries were found. Most notable of which was banking in the 1990s. However more so than this being a recurring phenomenon, it is more likely that this was an anomaly that occurred during a certain time for a specific reason. Considering McGrath's framework, one could conclude that 'banks in South Africa perform well', this must however be taken in context.

During the period of the 1990s it can be seen that banks seemed to excel, and a large number of banks were identified in this period and as postulated in Section 6.2.3.1, this

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was predominantly due to the external environment at the time. This trend however, does not continue uninterrupted into the 2000s and one can reasonably assume on that basis, that such a blanket statement as 'banks in South Africa perform well' is false. Although banks did have a period in which they seemed to excel, they largely failed to adapt to the changing circumstances, and many were unable to continue growing headline earnings per share into the proceeding decade. This further implies that more so than possessing the traits needed to deal with an environment characterised by transient-advantage, it would suggest that some of these banks had merely been in the right place, at the right time, in the right form. Indeed, it seems that during this period, more so than possessing a competitive advantage, it was due to a 'growing pie' in the banking sector which was growing disproportionately to the SA economy that enabled these firms to achieve these years of uninterrupted growth.

In this regard, it is concluded that during certain times, unlike McGrath's findings, some identified firms do indeed share certain outward traits. Specifically in this case, being in the banking sector. However to conclude that the majority of banks will do well in South Africa in perpetuity, would be false and this seeming anomaly, needs to be taken in context.

Additionally this observation does point to another issue with McGrath's framework, where just because a company does achieve 10 years of uninterrupted growth, does not necessarily mean that it has a competitive advantage and is taking market share from competitors. It could be the case whereby the pie making up the sector is growing disproportionately to the economy, and therefore firms within that sector do not necessarily have a competitive advantage.

A recurring theme which was noted in the actions of some of the identified firms was the common practice of engaging in numerous acquisitions. It was observed that several companies used a multitude of different acquisitions, deals and strategic partnership type deals in order to accelerate growth faster than organic growth. More so than just growth acceleration, these deals also seemed to sustain their growth through allowing them to diversify their offering with new products or expand into new markets or to extend the capabilities of their business. In most cases this was a continuous process where every couple of years, the company would acquire a new business or make a new deal, and through synergies or high value deals, these outliers were able to extract value and grow for several years moving forward. This can very

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much be likened to McGrath's observation of 'continuous morphing rather than extreme changes', 'stability coupled with agility' and an 'options orientation' to market exploration as opposed to an inflexible dogmatic approach (McGrath, 2013a). Indeed these acquisitions were not massive once-off mergers, but small and continuous bolt-on type acquisitions, bringing a constant stream of new customers into the businesses, and in turn a seemingly sustainable growth.

In a similar thread, whilst some companies did not engage in acquisition activity per se, they did diversify their offering and expand their footprint through their own innovative actions, which in turn gave them a sustainable form of growth. A prime example of such would be the Mr Price Group, whereby through fully utilising the brand strength of their Mr Price brand they were able to move into new products, new markets and through new channels and each time the Mr Price brand gave them credibility in this new space. Again several of McGrath's characteristics can be seen in these actions, including constant innovation, constant reconfiguration and the balance of agility and stability. Nonetheless, one may argue that much of the growth of Mr Price was not derived from their ability to respond to a transient competitive environment, but rather due to several factors which over the years have given a substantial competitive advantage. It could be argued that it is Mr Price's outstanding distribution network, brand equity and scalable business model which has enabled them to achieve 25 years of uninterrupted growth (Mr Price Group Limited, 2015). This point is of course open to much discussion and opinion.

When one considers Imperial from the context of McGrath's theory, the most notable observation is the company's misalignment to McGrath's theory in that the group seemed to be overly stable, with a minimal degree of flexibility (McGrath, 2013a). The interesting consideration was that as opposed to this being an outright negative, it is in actuality the factor which enabled the company through the period prior to receding, to grow at such a constant and excessively high rate.

In this observation, exists an important distinction in McGrath's theory in that through the principle of balancing stability and agility, there is a certain degree of sub optimisation in certain circumstances. In these certain instances scalability and efficiency are somewhat sacrificed and the company may actually perform below capacity. At other times however, it is this sacrifice that enables companies to effectively and swiftly respond to changes in the environment. Additionally, it can

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enable a company to take advantage of a change in the environment whilst competitors fall by the wayside, immobile and unable to react accordingly, much in this case like Imperial.

Of all the outlier companies, Capitec Bank's presence stands out from the group in that it can be defined, more so than other identified firms, as the quintessential disruptor. Capitec's rise over the previous 13 somewhat years, was driven in large part by their low cost, high tech, contrarian business model, with its relatively far cheaper per unit branch cost (Capitec Bank Holdings Limited, 2015). It was these factors which empowered the company with unmatched economies of scale in the industry, that enabled them to expand their number of branches and reach more customers faster, more effectively and with lower costs than any other bank in South Africa. When analysing Capitec's meteoric rise in an industry which is renowned, as per Porter's industry forces analysis, for having excessively high barriers to entry, one would assume that they surely must have manifested McGrath's characteristics in their actions more so than any other of the outliers. This however, would be an incorrect assumption.

Indeed, although Capitec did undertake a certain degree of continuous innovation over the years, their most important innovation came in the actual conception and implementation of their initial business model. Once this was stage was complete, it formed the base of their competitive advantage. Capitec's enterprise architecture, their brand, their resources and the very unique business model they possessed, gave them the higher ground over their competitors in the part of the market which was experiencing the most growth in the South African banking industry. This is not to say that McGrath's factors were not present. Capitec it would seem, possesses the balance of agility and stability to react to challenges that the market throws at it, and does seem to consistently innovate. It is concluded however, that more prevalent than McGrath's observations are these seemingly static factors which gave Capitec its initial competitive advantage and is what continues to allow it take market share from competitors.

7.1.3. *The status of firm-level competitive advantage*

Of the two opposing viewpoints regarding the status of firm-level competitive advantage, the findings of this study in the context of firms listed on the JSE from 1980

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to 2015 suggest that there is a transition towards sustainable competitive advantage for the period under study. It can be seen that the percentage of companies able to achieve consecutive years of uninterrupted growth for all analysed metrics tend towards higher proportions over the years under study. This can be seen for both five year periods and ten year periods of consecutive year growth requirements, with higher slope coefficients being noted for the five year period.

These findings correlate to the recent work of Bennett and Gartenberg (2016), where their empirical findings suggest a shift back towards sustainable competitive advantage after entering into the 21st century. Prior to the year 2000 it appeared the periods of firm-level competitive advantage were becoming increasingly shorter, whilst after that point, these periods appeared to be increasing again.

The findings from this study in the South African context appear to show a similar trend, however due to a lack of historical data stretching back far enough, it is unclear if a similar transition point exists at some point in the data. However for the period considered, it would appear there is an increasing trend in the number of companies achieving multiple years of uninterrupted growth above the nominal GDP rate. This would suggest that firm-level competitive advantage, in the South African context, is becoming more sustainable.

7.2.   Additional findings

7.2.1.   Implications for theory regarding transient competitive advantage

McGrath's work lead her to the conclusion that the age of sustainable competitive advantage is over. The central idea of her position is predicated on the idea that the first principles which define a company's ability to retain a competitive advantage are changing. After analysing the revenue and earnings figures of over 5000 companies through her methodology, she was only able to identify ten outliers which were able to achieve at least ten years consecutive growth. Through analysing the actions and makeup of these companies McGrath concluded that the age of sustainable competitive was over.

The findings of this research suggest however, that to take such an absolute position regarding competitive advantage may perhaps be overly constraining. Through the

analysis of the outlier companies identified using the alternate method, a method postulated to be contextually better suited to the task, and considering the trend towards seemingly higher levels of sustainable-advantage, it is concluded that to take such a stance would be premature.

Considering the qualitative study, these findings suggest there are instances when companies seem to take market share in certain markets with seemingly very little action/reaction type interaction with competitors (Jacobson, 1992; Young, Smith & Grimm, 1996). In such industries, it would seem that Porters industry forces analysis is very much applicable, and the conclusion of such an analysis affirms the observation that companies do indeed have a sustainable competitive advantage (Porter, 1980). In the context of the identified outliers in this study, this is observed most prevalently in the banks, specifically Nedbank, Investec and Standard Bank, the super market Pick 'n Pay, and the logistics company: Imperial holdings. There is a large amount of evidence which suggests that these companies held the higher ground in their respective industries in serving their target markets from a resource based view and from an analysis of the industry forces. With far less evidence that firms had to engage in large degrees of competitive discourse or continuously innovate or were required to diversify into unfamiliar markets in order to grow. This is not to say that this kind of transient competitive advantage type behaviour did not happen at all, but that it was far less prevalent.

On the other hand, there are also several instances of companies within the outliers which show a fair amount of evidence that their years of consecutive top line and bottom line growth required a high degree of competitive discourse with other companies vying for market share. In these markets defined by a high degree of competition, there was a necessity for outliers to constantly innovate in order to increase the perceived value of their offering, at times diversifying their operations into seemingly obscure high growth markets, expanding into new geographies and always remaining agile enough to adapt to conditions as the environment of business changes whilst still being stable enough to absorb setbacks in their various sectors. These observations could be seen most readily in the clothing retailer group Mr Price, Aspen Pharmaceuticals and the information communication technology company EOH.

Therefore it is concluded that there exists a large amount of evidence on both sides of the argument for and against the transition from sustainable to transient competitive

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advantage. To assume at this stage that the concept of sustainable advantage is obsolete is premature. As with economic theory, one cannot merely study a single theorem and expect that position to account for every situation that may develop in a modern economy. The effective economist must be aware of a wide array of theorems and know which is applicable at that particular time for a specific situation. In the same regard, the academic in the field of competitive advantage must be aware of all the theories which make up this domain, and which to apply to the specific circumstance. To merely assume there is one all-encompassing theory regarding competitive advantage and that all other theories are now null and void would be incorrect. The fact of the matter is that at this stage, the topic of transient competitive advantage is not developed sufficiently to make such an absolute judgement on the matter, and more study and evidence is needed in this regard.

7.3.   *Implications for business*

Research into the field of firm-level competitive advantage, as was discussed in the first chapter of this paper, has far reaching consequences for business from the perspective of several stakeholders, most prevalently being the strategist and the investor. The observations and conclusions drawn from this paper impart the most value these parties, especially for those operating in the South Africa context.

In strategy formulation, the theory around both sustainable and transient competitive advantage provides the backbone of the analysis regarding in which markets the firm should operate, what kind of competitive discourse the firm should engage in with competitors, the degree of innovation to be undertaken, and in seeking the correct balance of agility and stability in order to ensure sustainable growth. The strategist could in essence, consider the list of outliers and find the firm most closely associated to the strategist's firm both in terms of characteristics and operating market. At this point the strategist could determine what internal and external factors helped the firm achieve its outstanding growth. Then on a discretionary basis, he/she could decide if these strategies and characteristics are something that could plausibly be applied to his or her own firm to achieve sustainable growth.

For the investor, this research serves to assist in the selection of equities for investment purposes. Analysing companies in such a way, speaks very much to understanding the underlying operations which drive the growth of a company and

hopefully result in large dividends being paid out and a high degree of share price growth. Indeed using the methodology of identifying growth outliers for investment could be equated to being something of an investment style. Companies which are able to achieve consecutive years of HEPS percentage growth above the national nominal GDP growth rate are deemed to be healthy growing companies which are consistently taking market share from their competitors. Therefore it is postulated that this metric is a strong indicator of the actual underlying performance of a business and in turn shows that the management team are doing the right things. Furthermore given that a company is able to achieve several consecutive years of higher than nominal growth, it is postulated that there is a high likelihood that this company is enjoying a sustainable competitive advantage which is driving its consistent growth. It is postulated that gauging the future value of an equity using the past performance of actual operations of the business may form an effective indicator of future equity price growth.

7.4.   Limitations

The use of various accounting metrics has been noted as a limitation in analysing a company's growth and the degree to which they are taking market share in their respective sectors since several of these metrics are open to a certain degree of accounting manipulation and other effects. Earnings can include certain irregular amounts that are not truly reflective of the operations of the company such as sales of assets and accounting write-downs, the effects of which may result in firms being incorrectly included or excluded from the list of outliers. Furthermore a company can grow their earnings figures through acquisitions which may in fact reduce the firms return on equity, which is not a positive form of growth. These are both issues which effected McGraths methodology.

The alternate method however, considered growth of headline earnings per share, which negated both of these limitations. There are however, still limitations when using the HEPS figure, since these earnings do not make allowances for the costs involved in maintaining the company's asset base in order to ensure future operations. In other words, a company could effectively be growing their headline earnings but at the same time have an increasing net working capital and capital expenditure, which could negate this growth, and would fundamentally mean that the company is not growing as

the growth identification framework requires. As is stipulated in the following section this limitation could be mitigated by analysing the growth using free cash flow (FCF) instead of HEPS.

As has been stated, the analysis of the firm-level operational action of the identified outliers, occurs at a superficial level, and is based on the secondary data of official statements from within the company and analysis from various sources external to the company. This method could not be considered an in depth analysis of the exogenous aspects of the company, nor speak to such important aspects as the culture within firms nor day to day actions and decisions regarding operations, as McGrath had been able to achieve. Therefore this paper cannot speak to the same level regarding such aspects that academics in the field of competitive advantage, address in great lengths in their research.

It is noted that the data set used does not account for every company ever listed on the JSE over this period. It is suspected that some firms which delisted after a relatively short period of time may have been missing from the population. This data set was unfortunately the only data resource available to the researcher and therefore the study had to be conducted within this limitation, conceding that the results obtained have a reduced degree of accuracy. However in the context of the objectives of this study which is in essence the identification of thriving firms, it is postulated that missing a small portion of somewhat arbitrary companies would have a low impact. Especially considering the low likelihood that these obscure companies would have achieved the benchmark requirements of either of the two methodologies, it is therefore postulated that this limitation would have had a fairly immaterial effect on the analysis or conclusions reached, albeit that it may have affected some quantitative results to a certain degree.

Unlike McGrath's work in the global context, this study was confined to companies listed on the South African Johannesburg Stock Exchange, and the scope and relevance of its findings are restricted to this context. It follows that one cannot merely extend the findings of this study to broader geographies or periods. However the observations made can be used as an effective relative measure when analysing companies listed in other locations or periods. Furthermore these results can be used to draw some generalised conclusions when considered in conjunction with other similar studies.

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The analysis of results in this study was not done using statistical analysis and this therefore limits the application of the findings of this study. Statistical analysis was concluded to be ill suited for the objectives of this research both from the view-point of pragmatic implementation and value derived. Upon examination, it was pronounced that the undertaking of analysing the actions of a sufficient number of non-outlier firms in order to achieve a representative sample of the population, would effectively be impossible given the research resources at hand. Furthermore it was postulated that the amount of value gained by completing such an undertaking given the objectives of this study, would not be sufficient to motivate this decision. Analysis was however done on the basis of inductive reasoning whereby conclusions were reached on the basis of making observations in the evidence and inferring conclusions from this evidence. Such a technique is however open to a large degree of biases and opinion, and the conclusions reached must therefore be critically examined in this context.

7.5. *Considerations for future work*

This area of competitive advantage, as has been stated previously is fairly under developed and there exists the potential for a large amount of research to be done in this space. Specifically in the context of this study, several extensions of this work could be undertaken to further the scope and application of this research.

Firstly as specified in the previous section, several limitations could be overcome through analysing companies' free cash flow as a metric of indicating a firms performance. It is postulated that growth of this metric would represent one of the most accurate indicators of a company which is achieving sustainable growth. As stated, FCF is not subject to such limitations which would misrepresent growth where companies are growing earnings but with a rising net working capital and increased capital expenditure. The use of pro forma FCF and FCF projections form the basis of techniques used to value companies, which further supports this metric as an effective measure of a company's growth.

With the data which was available, the context of this study was limited to companies in the SA context, however given access to the required data, this study could be extended to look at all listed companies throughout the world regardless of market capitalisation. Such an undertaking, would provide a unified view of this aspect of economic study, and would close the loop in analysing firm-level   competitive

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advantage.

Through the use of the methodology outlined in the so called alternate method, one could resolve the issues that existed with McGrath's work and extend the findings of this work in a global context. Such an exercise would produce an immense amount of value to the empirical research and theory that exists in the study of competitive advantage. Additionally, with the excel algorithm module that has been developed, this task should be far more easily achievable, provided that this data can be obtained.

As asserted prior, the use of the growth outlier identification framework may make for an effective investment style. Such work would seek to answer whether the identification of growth outlier companies can be used as an effective investment style in selecting shares which are able to beat the J203 All Share Index. This future work lends itself to a statistical comparison between the examined method's cumulative returns and the cumulative returns achieved through an equal weighting investment on the J203 index.

One final aspect that could possibly be addressed in future iterations of this work, would be a more thorough in-depth analysis into the activity and makeup of the identified outlier companies. Largely due to resource and time constraints, the analysis of the outlier firms was completed at a fairly high level and a somewhat superficial basis. A deep dive exercise interviewing various personnel within the companies, coming to terms with the softer more difficult to define aspects of company operations, could reveal a huge amount of value in understanding what separates the growth outliers from the herd.

7.6. Final thought

It must be remembered that academics, like all people, are subject to various cognitive frames and biases which drive their actions and predispose them to certain thoughts and conclusions in analysing various information. In Howard Mark's book (2011), *The Most Important Thing*, Marks speaks about a predisposition of the collective market, to assume that during the height of booms and busts things are forever going to be good (or forever bad), and that this state will continue into perpetuity as if we have entered an age of a new normal in which we have overcome the old phenomena which previously plagued the market and shall never again experience a crises (or we'll never

get out of this crises). Invariably however, Marks continues, things do change and the opposite side of the cycle eventually shows its face again, proving the herd wrong, albeit that the time this takes to occur may vary considerably.

It is postulated that at times, academics may fall into traps of cognitive biases in which they are inclined to believe that the work they're doing will lead to conclusions which will be marked as the discovery of a new normal. This may then in turn, predispose them to put forth a theory which redefines the way in which we view the world, much the way that Porters seminal work changed the way strategists analysed businesses' competitive environments. Discoveries of this degree are an extremely rare occurrence, and by their very nature are increasingly more difficult to discover. McGrath's work is without doubt an innovative way of quantifying a firm's competitive advantage and conceptually does make for an excellent starting point moving forward. However it is postulated that her findings do not prove conclusively that we are living in the age of the end of competitive advantage, and more research needs to be done in this regard.

It must be considered however, that we may in fact be living through a period of increased technological advance, and in essence, are at the top of the positive cycle. This may well be a period during which a large number of disruptive technological breakthroughs occur which shift the competitive landscape (Rumelt, 2012). This is not to say however, that this will continue into perpetuity, and has become the new normal. It is possible that the number of these breakthroughs will again diminish, and that sustainable competitive advantage will yet again be the order of the day.

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APPENDIX 1: ADDITIONAL FIGURES OF INTEREST
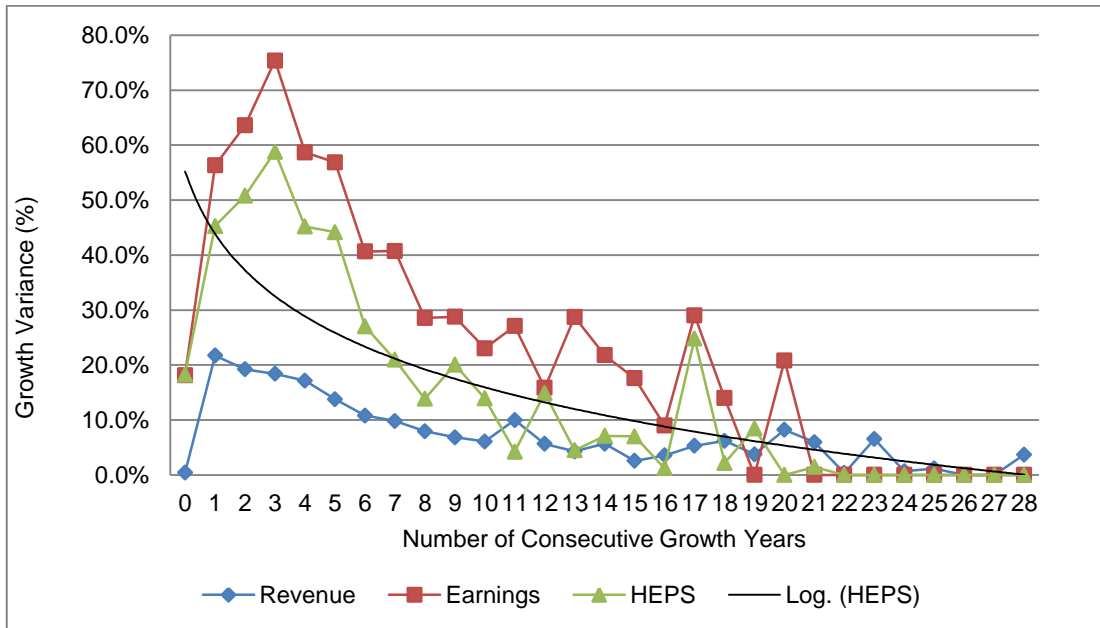
Figure 40: Average growth variance by firms able to achieve a certain number of consecutive years of growth (McGrath Method).
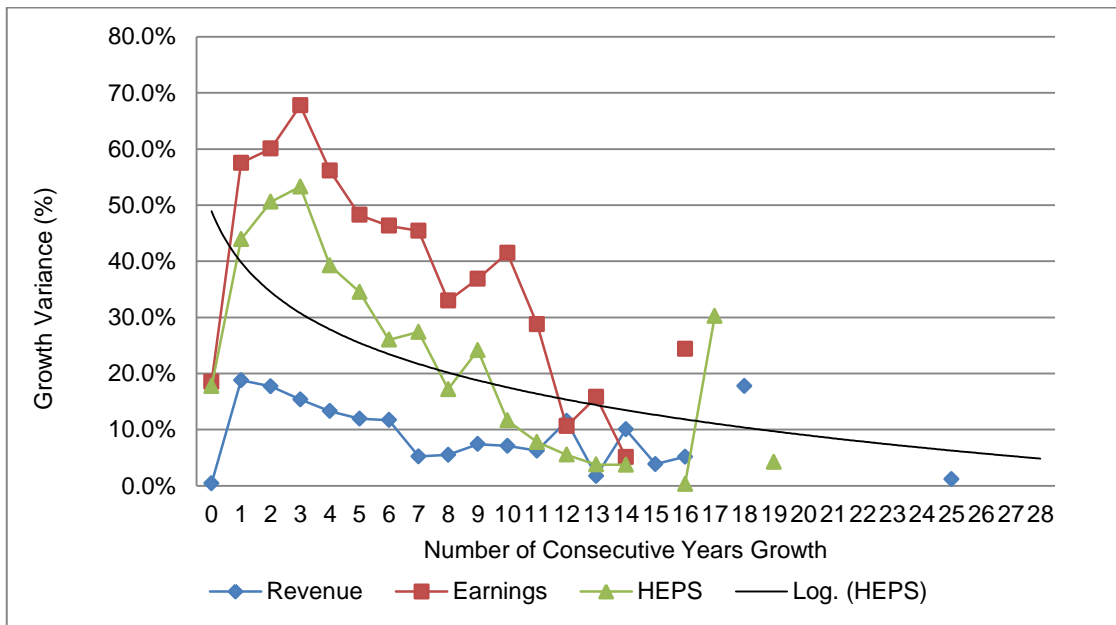
Figure 41: Average growth variance by firms able to achieve certain number of consecutive years of growth (Alternate Method).

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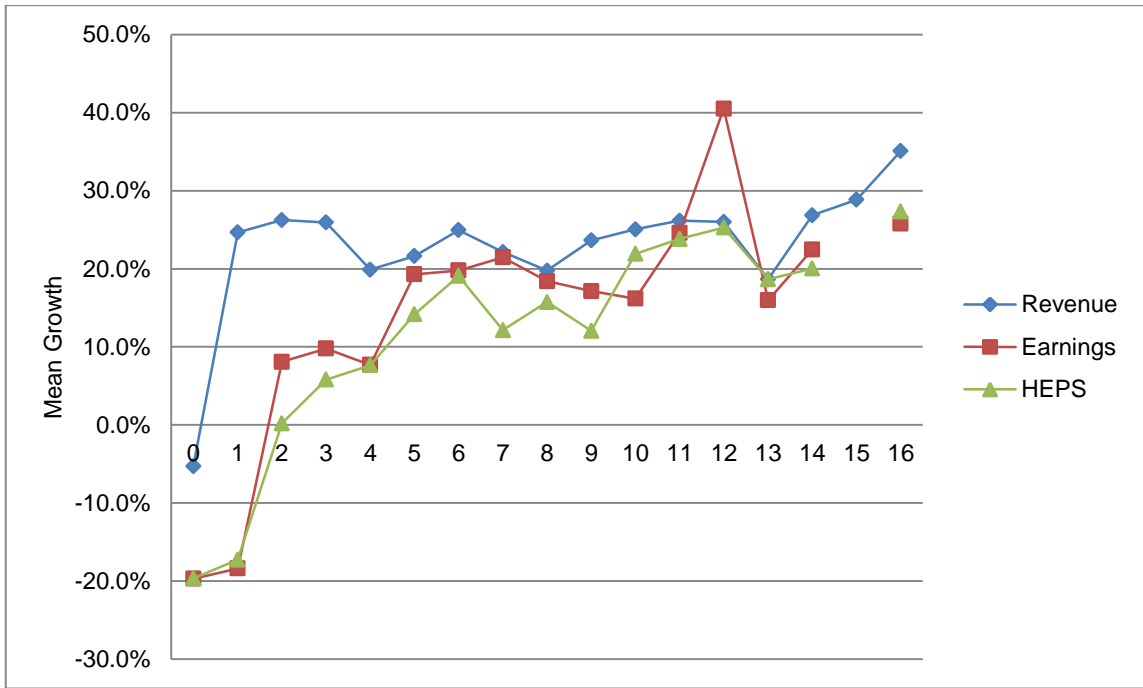
Figure 42: Average mean growth by firms able to achieve certain number of consecutive years of growth (Alternate method).
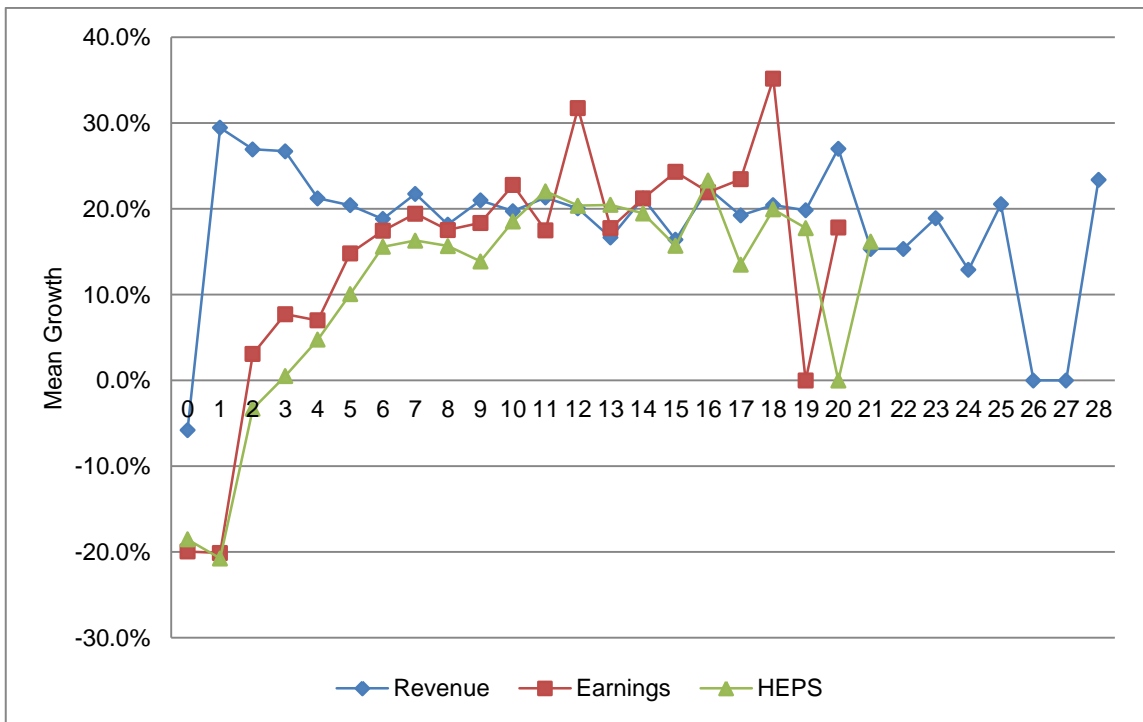
Figure 43: Average mean growth by firms able to achieve certain number of consecutive years of growth (McGrath Method).

110
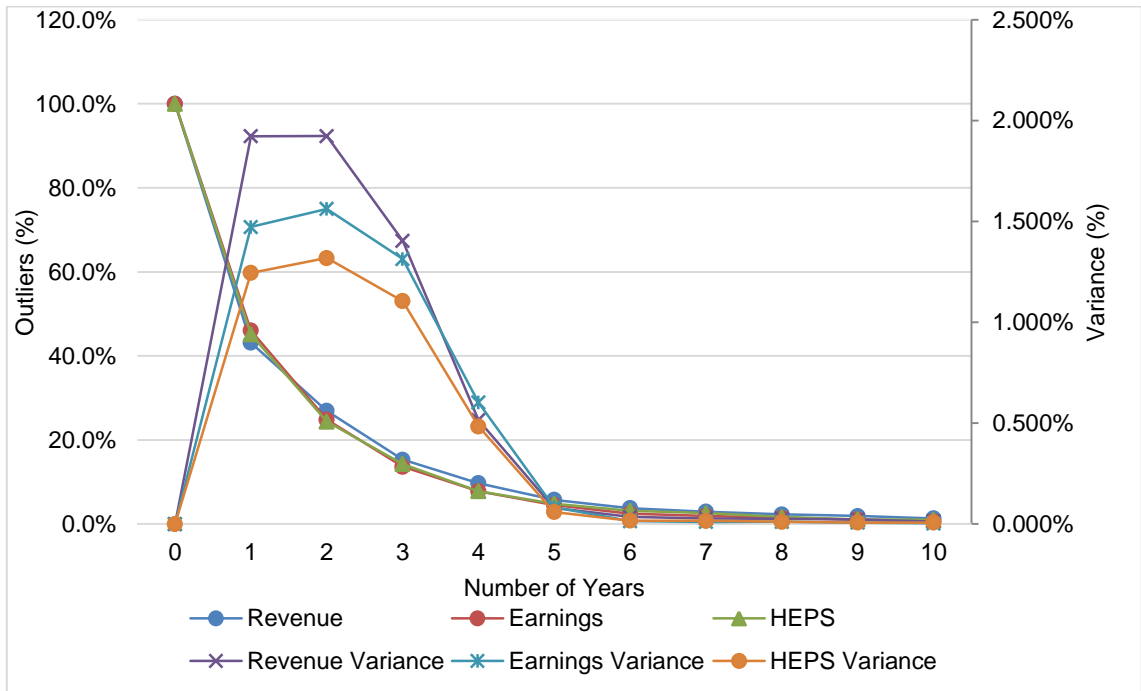
Figure 44: Percentage of outliers in terms of the various metrics relative to their respective variances (Alternate method).
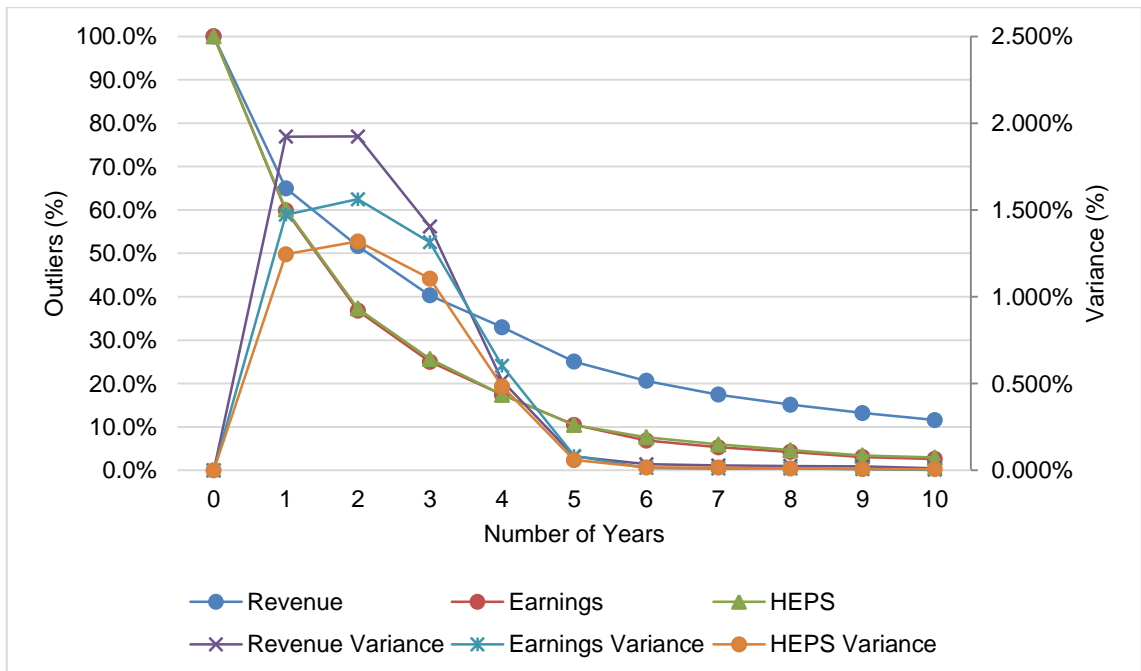
Figure 45: Percentage of outliers in terms of the various metrics relative to their respective variances (McGrath method).
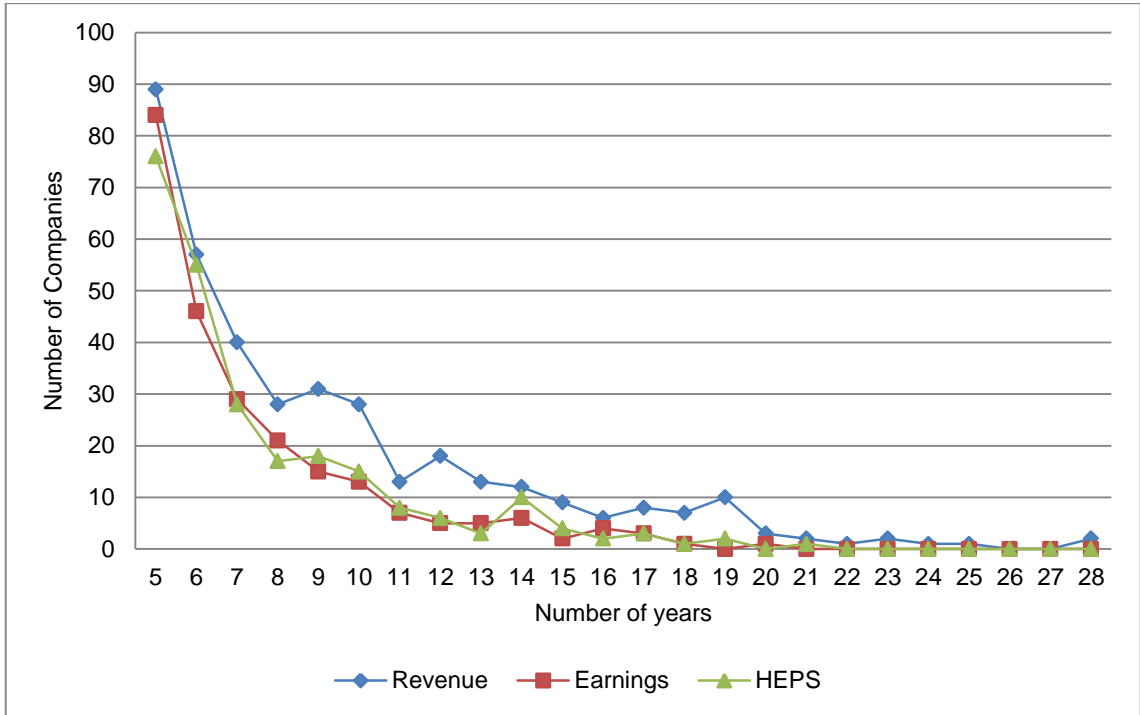
Figure 46: Number of growth outliers achieving greater than 5 years consecutive growth (McGrath method).
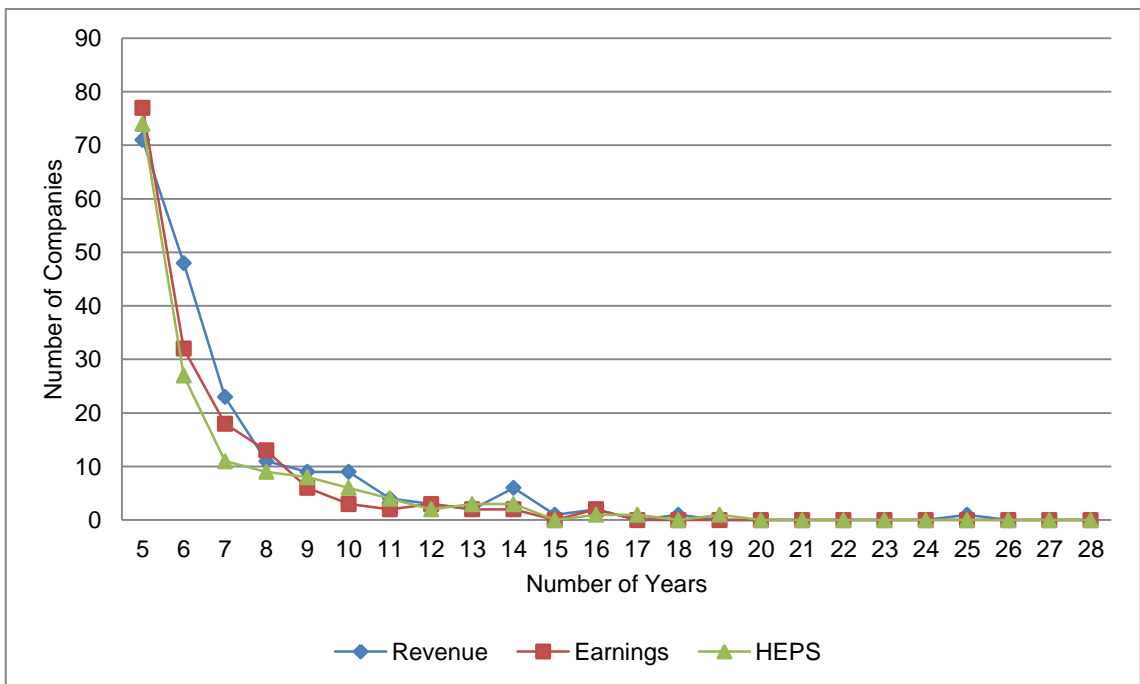
Figure 47: Number of growth outliers achieving greater than 5 years consecutive growth (Alternate method).

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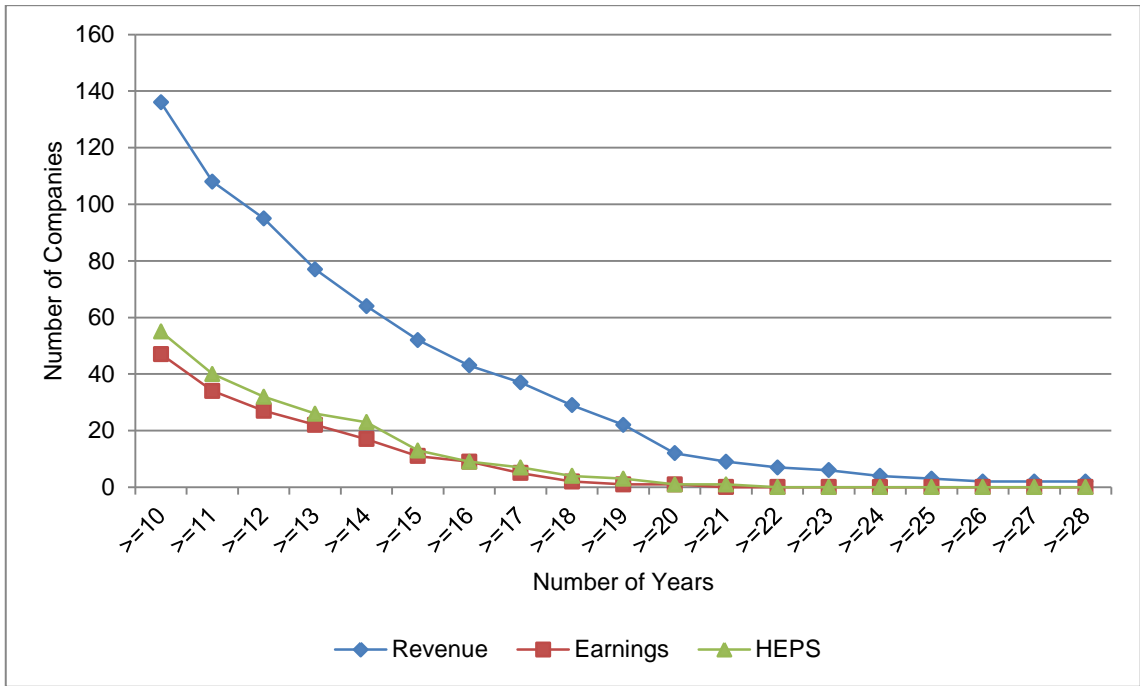
Figure 48: Number of firms achieving greater than ten years consecutive growth (McGrath method).
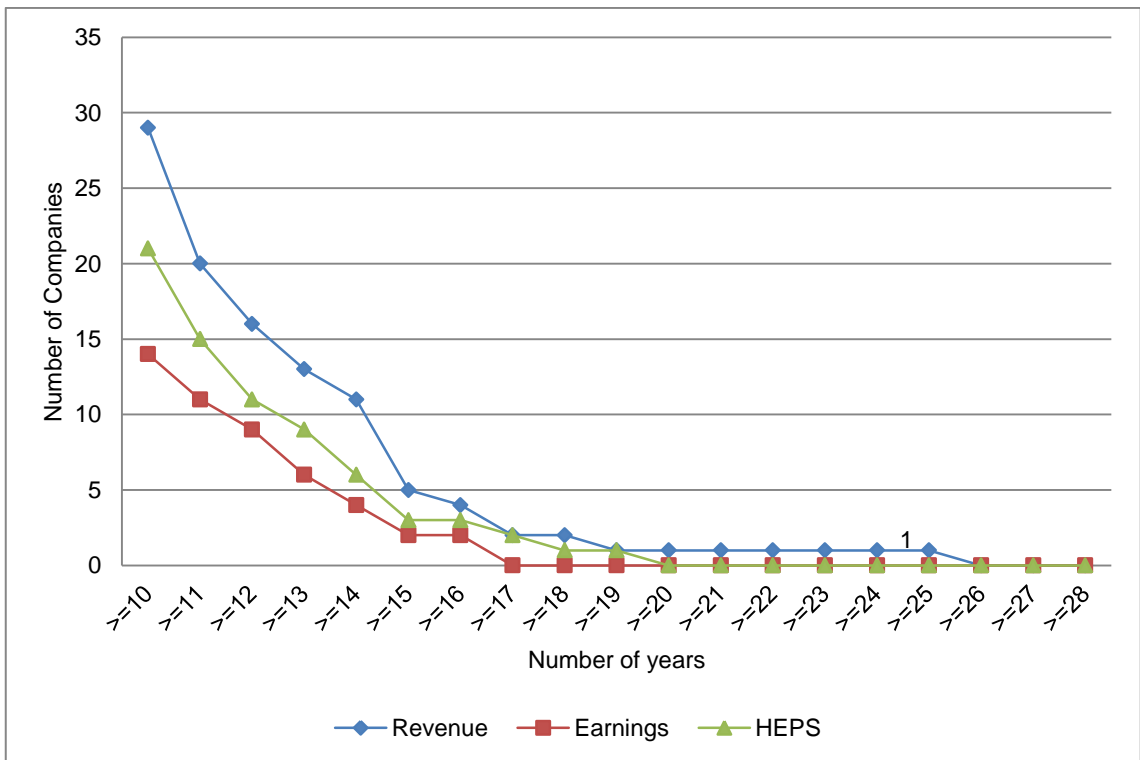
Figure 49: Number of firms achieving greater than ten years consecutive growth (Alternate method)

APPENDIX 2: DATABASES

i. *JSE company income statement data*

i.i. Banking Companies

Note: The company code when suffixed with an 'x' as the forth letter denotes that's the company in question has delisted.

Table 6: Example of banking firm data

Code	Name	Year	Revenue	Attributable Earnings	Headline Earnings	Headline Earnings as published
abl	AFRICAN BANK INVESTMENTS LIMITED	1998	und	140067200	140067200	35.84
abl	AFRICAN BANK INVESTMENTS LIMITED	1999	und	513737000	518653000	94.3
abl	AFRICAN BANK INVESTMENTS LIMITED	2000	und	723184000	718041000	121.9
abl	AFRICAN BANK INVESTMENTS LIMITED	2001	und	751068000	762865000	130.1
abl	AFRICAN BANK INVESTMENTS LIMITED	2002	und	498866000	510642000	104.4
abl	AFRICAN BANK INVESTMENTS LIMITED	2003	und	659902000	680059000	140.4
abl	AFRICAN BANK INVESTMENTS LIMITED	2004	und	755961000	762085000	161.6
abl	AFRICAN BANK INVESTMENTS LIMITED	2005	und	941000000	954000000	202.7
abl	AFRICAN BANK INVESTMENTS LIMITED	2006	und	1140000000	1109000000	223.3
abl	AFRICAN BANK INVESTMENTS LIMITED	2007	und	1334000000	1334000000	268.36
abl	AFRICAN BANK INVESTMENTS LIMITED	2008	und	1511000000	1519000000	211.6
abl	AFRICAN BANK INVESTMENTS LIMITED	2009	und	1803000000	1810000000	225.2
abl	AFRICAN BANK INVESTMENTS LIMITED	2010	und	1906000000	1890000000	235.2
abl	AFRICAN BANK INVESTMENTS LIMITED	2011	und	2341000000	2341000000	291
abl	AFRICAN BANK INVESTMENTS LIMITED	2012	und	2742000000	2754000000	342.5
abl	AFRICAN BANK INVESTMENTS LIMITED	2013	und	-4287000000	365000000	45.1
arcx	ARCAY GROUP LIMITED	2000	und	-6989000	4565000	15.1
arcx	ARCAY GROUP LIMITED	2001	und	-11057000	8035000	23.3
arcx	ARCAY GROUP LIMITED	2002	und	-35869000	-15972000	-26.6
bat	BRAIT SE	1999	und	192700000	192700000	206.8
bat	BRAIT SE	2000	und	232000000	232000000	252.7
bat	BRAIT SE	2001	und	182500000	182500000	201.4
bat	BRAIT SE	2002	und	80400000	80400000	89.2
bat	BRAIT SE	2003	und	-165400000	-41800000	-46.7
bat	BRAIT SE	2004	und	12900000	41500000	46.5
bat	BRAIT SE	2005	und	211700000	211700000	237.1
bat	BRAIT SE	2006	und	300700000	265500000	293
bat	BRAIT SE	2007	und	338700000	322000000	314.1
bat	BRAIT SE	2008	und	393000000	268800000	253.3
bat	BRAIT SE	2009	und	166600000	166600000	157

bat	BRAIT SE	2010	und	185600000	185600000	174.8
bat	BRAIT SE	2011	und	175000000	175000000	156
bat	BRAIT SE	2012	und	2607000000	2173000000	545
bat	BRAIT SE	2013	und	2926000000	2926000000	581
bat	BRAIT SE	2014	und	2433000000	2433000000	480
bat	BRAIT SE	2015	und	23143000000	23143000000	4527
bga	BARCLAYS AFRICA GROUP LIMITED	1987	und	105400000	105400000	49.2
bga	BARCLAYS AFRICA GROUP LIMITED	1988	und	122200000	122200000	51.3
bga	BARCLAYS AFRICA GROUP LIMITED	1989	und	150700000	150700000	63.1
bga	BARCLAYS AFRICA GROUP LIMITED	1990	und	197500000	196900000	82.1
bga	BARCLAYS AFRICA GROUP LIMITED	1991	und	321300000	321300000	93.4
bga	BARCLAYS AFRICA GROUP LIMITED	1992	und	491400000	491400000	107.6
bga	BARCLAYS AFRICA GROUP LIMITED	1993	und	686500000	683800000	120.8
bga	BARCLAYS AFRICA GROUP LIMITED	1994	und	618700000	666400000	117.8
bga	BARCLAYS AFRICA GROUP LIMITED	1995	und	754300000	774300000	136.8
bga	BARCLAYS AFRICA GROUP LIMITED	1996	und	1130000000	1026000000	178
bga	BARCLAYS AFRICA GROUP LIMITED	1997	und	1319000000	1319000000	222.2
bga	BARCLAYS AFRICA GROUP LIMITED	1998	und	1598000000	1692000000	271.3
bga	BARCLAYS AFRICA GROUP LIMITED	1999	und	1905000000	1968000000	309.7
bga	BARCLAYS AFRICA GROUP LIMITED	2000	und	1593000000	1988000000	310.3
bga	BARCLAYS AFRICA GROUP LIMITED	2001	und	2452000000	2456000000	378.7
bga	BARCLAYS AFRICA GROUP LIMITED	2002	und	1686000000	1888000000	291.1
bga	BARCLAYS AFRICA GROUP LIMITED	2003	und	3391000000	3441000000	528.1
bga	BARCLAYS AFRICA GROUP LIMITED	2004	und	4505000000	4447000000	689
bga	BARCLAYS AFRICA GROUP LIMITED	2005	und	5511000000	5484000000	841
bga	BARCLAYS AFRICA GROUP LIMITED	2006	und	6368000000	6536000000	987.16
bga	BARCLAYS AFRICA GROUP LIMITED	2007	und	8105000000	7872000000	1181.8
bga	BARCLAYS AFRICA GROUP LIMITED	2008	und	9595000000	9413000000	1401.9
bga	BARCLAYS AFRICA GROUP LIMITED	2009	und	10592000000	9908000000	1466.2
bga	BARCLAYS AFRICA GROUP LIMITED	2010	und	6840000000	7621000000	1099.4
bga	BARCLAYS AFRICA GROUP LIMITED	2011	und	8118000000	8041000000	1122.6
bga	BARCLAYS AFRICA GROUP LIMITED	2012	und	9674000000	9719000000	1355.9
bga	BARCLAYS AFRICA GROUP LIMITED	2013	und	8393000000	8807000000	1227.3
bga	BARCLAYS AFRICA GROUP LIMITED	2014	und	11981000000	11843000000	1397.7
bga	BARCLAYS AFRICA GROUP LIMITED	2015	und	13216000000	13032000000	1538.4

i.ii. Industrial companies

Table 7: Example of insurance company data

Code	Name	Year	Turnover	Attributable Earnings	Headline Earnings	Headline Earnings as Published
adcx	ADCOCK INGRAM LIMITED	1980	85,692,000	6,825,000	6,825,000	7.36
adcx	ADCOCK INGRAM LIMITED	1981	100,289,143	7,896,000	7,896,000	8.52
adcx	ADCOCK INGRAM LIMITED	1982	115,184,571	8,782,286	8,782,286	9.462857
adcx	ADCOCK INGRAM LIMITED	1983	124,513,000	9,839,000	9,839,000	10.6
adcx	ADCOCK INGRAM LIMITED	1984	145,663,000	10,264,000	10,264,000	11.06
adcx	ADCOCK INGRAM LIMITED	1985	163,291,000	9,339,000	9,339,000	10.02
adcx	ADCOCK INGRAM LIMITED	1986	202,374,000	11,045,000	11,045,000	11.7
adcx	ADCOCK INGRAM LIMITED	1987	250,855,000	17,658,000	17,658,000	16.04
adcx	ADCOCK INGRAM LIMITED	1988	334,640,000	26,209,000	26,209,000	23.62
adcx	ADCOCK INGRAM LIMITED	1989	471,235,000	38,327,000	38,327,000	28.6
adcx	ADCOCK INGRAM LIMITED	1990	615,730,000	49,376,000	49,376,000	36.4
adcx	ADCOCK INGRAM LIMITED	1991	773,630,000	62,024,000	64,226,000	47
adcx	ADCOCK INGRAM LIMITED	1992	914,997,000	92,200,000	76,493,000	55.8
adcx	ADCOCK INGRAM LIMITED	1993	971,470,000	93,185,000	98,334,000	71.5
adcx	ADCOCK INGRAM LIMITED	1994	1,009,009,000	70,678,000	113,363,000	82.1
adcx	ADCOCK INGRAM LIMITED	1995	1,165,774,000	142,795,000	132,306,000	95.6
adcx	ADCOCK INGRAM LIMITED	1996	1,501,698,000	202,967,000	197,280,000	98.2
adcx	ADCOCK INGRAM LIMITED	1997	1,825,604,000	357,396,000	357,704,000	124.3
adcx	ADCOCK INGRAM LIMITED	1998	1,665,400,000	446,700,000	454,800,000	157.8
adcx	ADCOCK INGRAM LIMITED	1999	1,683,800,000	537,100,000	537,200,000	186.3

i.iii. Insurance Companies

Table 8: Example of insurance company data.

Code	Name	Year	Turnover	Attributable Earnings	Headline Earnings	Headline Earnings as Published
cliins	CLIENTELE LIMITED - FAS INSURANCE	2005	512,147,000	76,669,000	76,714,000	23.8
cliins	CLIENTELE LIMITED - FAS INSURANCE	2006	623,334,000	91,759,000	91,759,000	28.47
cliins	CLIENTELE LIMITED - FAS INSURANCE	2007	860,958,000	104,837,000	104,832,000	32.41
cliins	CLIENTELE LIMITED - FAS INSURANCE	2008	966,431,000	134,206,000	134,004,000	41.42
cliins	CLIENTELE LIMITED - FAS INSURANCE	2009	1,166,310,000	144,287,000	144,033,000	44.52
cliins	CLIENTELE LIMITED - FAS INSURANCE	2010	1,323,135,000	159,739,000	159,505,000	49.31
cliins	CLIENTELE LIMITED - FAS INSURANCE	2011	1,466,337,000	194,957,000	199,497,000	61.65
cliins	CLIENTELE LIMITED - FAS INSURANCE	2012	1,598,393,000	238,432,000	256,005,000	78.9
cliins	CLIENTELE LIMITED - FAS INSURANCE	2013	1,640,911,000	293,095,000	293,340,000	89.62
cliins	CLIENTELE LIMITED - FAS INSURANCE	2014	1,712,089,000	307,811,000	307,609,000	93.58
cliins	CLIENTELE LIMITED - FAS INSURANCE	2015	1,875,488,000	360,558,000	359,473,000	109.33
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2004	3,603,000,000	418,000,000	405,000,000	80.5
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2005	3,933,000,000	585,000,000	536,000,000	103.3
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2006	5,422,000,000	669,000,000	531,000,000	100.4
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2007	6,501,000,000	1,073,000,000	886,000,000	165.2
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2008	7,323,000,000	1,156,000,000	934,000,000	172
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2009	9,187,000,000	1,212,000,000	1,238,000,000	224.7
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2010	13,830,000,000	1,717,000,000	1,545,000,000	278.8
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2011	17,222,000,000	2,577,000,000	1,638,000,000	295.3
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2012	19,869,000,000	2,199,000,000	2,129,000,000	383.7
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2013	24,861,000,000	2,063,000,000	2,062,000,000	372
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2014	34,186,000,000	3,246,000,000	3,064,000,000	542
dsyins	DISCOVERY HOLDINGS LIMITED - FAS INSURANCE	2015	27,694,000,000	5,480,000,000	5,285,000,000	882.4

i.iv. Mining companies

Table 9: Example of mining company data.

Code	Name	Year	Turnover	Attributable Earnings	Headline Earnings	Headline Earnings as Published
aflx	AFLEASE GOLD AND URANIUM RESOURCES	2000	63490000	14665000	14665000	12.77
aflx	AFLEASE GOLD AND URANIUM RESOURCES	2001	90475000	16057000	16057000	13.05
aflx	AFLEASE GOLD AND URANIUM RESOURCES	2002	111368000	15593000	15593000	10.53
aflx	AFLEASE GOLD AND URANIUM RESOURCES	2003	100964000	-409624000	-179299000	-95.16
aflx	AFLEASE GOLD AND URANIUM RESOURCES	2004	16128000	-120580000	-110780000	-33.27
agl	ANGLO AMERICAN PLC	1985	und	1194000000	1194000000	130.75
agl	ANGLO AMERICAN PLC	1986	und	1501000000	1501000000	164.25
agl	ANGLO AMERICAN PLC	1987	und	1809000000	1809000000	197.5
agl	ANGLO AMERICAN PLC	1988	und	2645000000	2645000000	287
agl	ANGLO AMERICAN PLC	1989	und	3130000000	3130000000	338
agl	ANGLO AMERICAN PLC	1990	und	2591000000	2591000000	279.5
agl	ANGLO AMERICAN PLC	1991	und	2607000000	2607000000	281
agl	ANGLO AMERICAN PLC	1992	und	2461000000	2461000000	265.08
agl	ANGLO AMERICAN PLC	1993	2882000000	2984000000	2984000000	320.5
agl	ANGLO AMERICAN PLC	1994	3323000000	3369000000	3369000000	361.25
agl	ANGLO AMERICAN PLC	1995	3932000000	4397000000	4071000000	435.75
agl	ANGLO AMERICAN PLC	1996	4470000000	7106000000	5015000000	536
agl	ANGLO AMERICAN PLC	1997	51679000000	5817000000	5013000000	530.75
agl	ANGLO AMERICAN PLC	1998	54204000000	6189333333	5008000000	530
agl	ANGLO AMERICAN PLC	1999	71171000000	9541000000	8041000000	522.15
agl	ANGLO AMERICAN PLC	2000	1.02434E+11	13523000000	13820000000	884.47
agl	ANGLO AMERICAN PLC	2001	1.27455E+11	27377000000	15257000000	1034.4
agl	ANGLO AMERICAN PLC	2002	1.5872E+11	16381000000	18435000000	1310

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ii.   Growth rate data
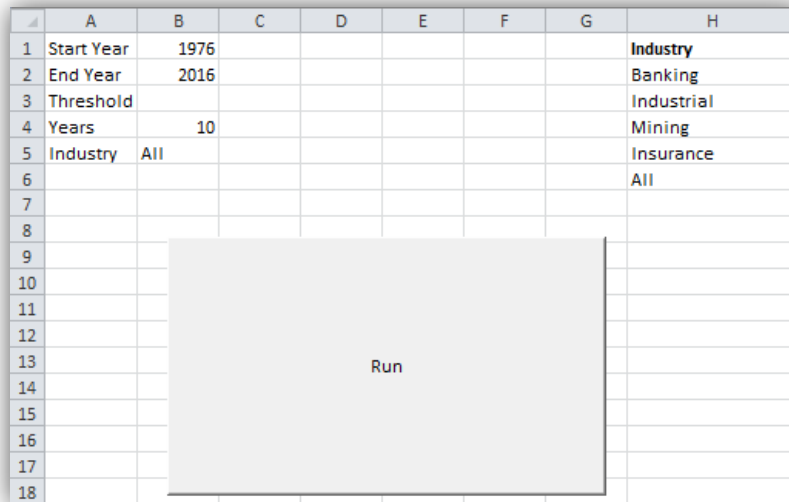
Table 10: Relevant South African growth rate data (The World Bank, 2016).

Year	Nom Growth Rate %	Growth % + CPI%	Real Growth Rate %	CPI %	GDP deflator
1976	12,90%	13,27%	2,25%	11,02%	10,42%
1977	11,06%	11,06%	-0,09%	11,15%	11,17%
1978	15,05%	14,15%	3,01%	11,14%	11,68%
1979	19,49%	17,08%	3,79%	13,29%	15,13%
1980	33,18%	20,28%	6,62%	13,66%	24,91%
1981	15,82%	20,61%	5,36%	15,25%	9,93%
1982	13,50%	14,26%	-0,38%	14,64%	13,94%
1983	14,42%	10,46%	-1,85%	12,30%	16,57%
1984	17,21%	16,63%	5,10%	11,53%	11,52%
1985	15,39%	15,08%	-1,21%	16,29%	16,80%
1986	17,08%	18,67%	0,02%	18,65%	17,06%
1987	16,90%	18,26%	2,10%	16,16%	14,50%
1988	20,02%	16,98%	4,20%	12,78%	15,18%
1989	20,07%	17,13%	2,39%	14,73%	17,26%
1990	15,15%	14,00%	-0,32%	14,32%	15,52%
1991	14,55%	14,32%	-1,02%	15,33%	15,73%
1992	12,12%	11,74%	-2,14%	13,87%	14,57%
1993	17,91%	10,95%	1,23%	9,72%	16,47%
1994	13,07%	12,14%	3,20%	8,94%	9,56%
1995	13,63%	11,78%	3,10%	8,68%	10,21%
1996	12,55%	11,65%	4,30%	7,35%	7,91%
1997	10,79%	11,20%	2,60%	8,60%	7,99%
1998	8,33%	7,38%	0,50%	6,88%	7,79%
1999	9,60%	7,58%	2,40%	5,18%	7,03%
2000	13,37%	9,54%	4,20%	5,34%	8,80%
2001	10,55%	8,40%	2,70%	5,70%	7,64%
2002	16,36%	12,86%	3,70%	9,16%	12,21%
2003	8,91%	8,81%	2,95%	5,86%	5,79%
2004	11,38%	5,94%	4,55%	1,39%	6,53%
2005	11,01%	8,68%	5,28%	3,40%	5,45%
2006	12,21%	10,23%	5,59%	4,64%	6,27%
2007	14,68%	12,46%	5,36%	7,10%	8,85%
2008	12,30%	14,73%	3,19%	11,54%	8,83%
2009	5,85%	5,59%	-1,54%	7,13%	7,50%
2010	9,58%	7,30%	3,04%	4,26%	6,35%
2011	10,08%	8,21%	3,21%	5,00%	6,65%
2012	7,85%	7,87%	2,22%	5,65%	5,51%

2013	8,33%	7,66%	2,21%	5,45%	5,99%
2014	7,43%	7,92%	1,55%	6,38%	5,80%
2015	7,09%	5,84%	1,25%	4,59%	5,76%

APPENDIX 3: GROWTH OUTLIERS ALGORITHM MODULE - HOW TO GUIDE

1. Open the Excel program and select the sheet named, 'Interface'.

2. Click the 'Run' button.

3. Specify the input details namely the following:

    a. The start year (1976-2015)

    b. The end year (1976-2015)

    c. The threshold growth level, (left blank selects the varying nominal growth rate threshold.)

    d. The threshold number of years

    e. The selected industry (all, banking, industrial, mining or insurance)

4. To view the results, go to the sheet named 'Results'.

5. Certain automated graphs can also be obtained in the sheet named 'GraphData'.

Company Type	Code	Company Name	First Year	Last Year	Dropout year	Best Period Start	Best Period End	Total Growth Years	Best Consec Years	Growth Percent Over	Mean Growth	Growth Variance	Sharpe Ratio	Dropout year2	Best Period Start2	Best Period End2	Total Growth Years2	Best Consec Years2	Growth Percent Over2	Mean Growth2	Growth Variance2	Sharpe Ratio2	Dropout year3	Best Period Start3	Best Period End3	Total Growth Years3	Best Consec Years3	Growth Percent Over3	Mean Growth3	Growth Variance3	Sharpe Ratio3	Dropout year4	Best Period Start4	Best Period End4	Total Growth Years4	Best Consec Years4	Growth Percent Over4	Mean Growth4	Growth Variance4	Sharpe Ratio4
								IS01-Revenue									Attributable Earnings(IS23+IS43)									IS23- Headline Earnings									IS35-EPS (c) - Headline Earnings as Published				
Industria	ipl	IMPERIAL HOLDINGS LIMITED	1988	2015	1990	1991	2007	23	16	722%	27%	8%	0.93	1989	1990	2001	21	11	521%	19%	27%	0.37	2002	1988	2002	22	14	757%	28%	8%	0.98	2007	1988	2007	23	19	570%	21%	4%	1.03
Industria	apn	ASPEN PHARMACARE HOLDINGS LIMITED	1987	2015	1987	2001	2015	20	14	922%	33%	19%	0.76	1987	1998	2014	19	16	457%	16%	47%	0.24	1987	1998	2015	20	17	713%	25%	42%	0.39	1987	1998	2015	20	17	381%	14%	30%	0.25
Industria	eoh	EOH HOLDINGS LIMITED	1999	2015	2015	1999	2015	16	16	694%	43%	2%	3.05	2015	1999	2015	16	16	564%	35%	1%	2.88	2015	1999	2015	16	16	564%	35%	1%	3.46	2015	1999	2015	16	16	437%	27%	0%	5.20
Industria	ite	ITALTILE LIMITED	1989	2015	1989	2001	2008	17	7	330%	13%	2%	1.01	1989	1993	2007	19	14	487%	19%	5%	0.83	1989	1993	2007	19	14	478%	18%	5%	0.84	1989	1993	2007	18	14	453%	17%	5%	0.78
Industria	mpc	MR PRICE GROUP LIMITED	1990	2015	2015	1990	2015	25	25	513%	21%	1%	1.91	1991	2001	2015	22	14	655%	26%	5%	1.15	1991	2001	2015	21	14	651%	26%	5%	1.20	1990	2001	2015	20	14	584%	23%	4%	1.15
Industria	tru	TRUWORTHS INTERNATIONAL LIMITED	1998	2015	1999	2001	2010	14	9	206%	12%	1%	1.18	1998	2000	2013	13	13	5%	0%	24%	0.01	1998	1999	2013	14	14	324%	19%	2%	1.32	1998	1999	2013	14	14	328%	19%	2%	1.31
Banking	inl	INVESTEC LIMITED	1989	2015		1989	1989	0	bank	0%	NA	NA	NA	1999	1989	1999	18	10	424%	16%	38%	0.26	2002	1989	2002	20	13	754%	29%	8%	1.05	2002	1989	2002	19	13	471%	18%	5%	0.83
Industria	fbr	FAMOUS BRANDS LIMITED	1995	2015	2000	2002	2015	18	13	489%	24%	3%	1.45	2000	2002	2015	18	13	633%	32%	7%	1.16	2000	2002	2015	18	13	621%	31%	7%	1.20	2000	2002	2015	18	13	503%	25%	4%	1.27
Industria	pik	PICK `N PAY STORES LIMITED	1986	2015	1986	1997	2010	22	13	374%	13%	1%	1.58	1990	1998	2006	19	8	438%	15%	7%	0.58	1990	1995	2008	19	13	372%	13%	3%	0.81	1990	1995	2008	19	13	369%	13%	3%	0.80
Banking	cpi	CAPITEC BANK HOLDINGS LIMITED	2002	2015		2002	2002	0	bank	0%	NA	NA	NA	2002	2003	2015	12	12	507%	39%	6%	1.53	2002	2003	2015	12	12	506%	39%	6%	1.55	2002	2003	2015	12	12	422%	32%	6%	1.29
Banking	inp	INVESTEC PLC	1989	2015		1989	1989	0	bank	0%	NA	NA	NA	1999	1989	1999	18	10	371%	14%	41%	0.22	2002	1989	2002	19	13	753%	29%	8%	1.06	2001	1989	2001	18	12	470%	18%	5%	0.83
Banking	inhx	INVESTEC HOLDINGS LIMITED	1988	2002		1988	1988	0	bank	0%	NA	NA	NA	1988	1991	2002	10	9	429%	31%	18%	0.73	1988	1991	2002	12	11	531%	38%	13%	1.06	1988	1991	2002	12	11	429%	31%	10%	0.99
Banking	ned	NEDBANK GROUP LIMITED	1987	2015		1987	1987	0	bank	0%	NA	NA	NA	1989	1990	2000	22	10	502%	18%	46%	0.27	1989	1990	2001	23	11	631%	23%	15%	0.58	1989	1990	2001	23	11	536%	19%	14%	0.50
Industria	bcf	BOWLER METCALF LIMITED	1987	2015	1988	1994	2002	21	8	484%	17%	1%	1.50	1987	1994	2002	16	8	623%	22%	11%	0.67	1987	1991	2002	19	11	482%	17%	2%	1.11	1987	1991	2002	19	11	456%	16%	3%	1.01
Industria	spux	SPUR STEAK RANCHES LIMITED	1987	1999	1992	1993	1999	11	6	390%	33%	2%	2.07	1999	1987	1999	12	12	568%	47%	11%	1.40	1987	1987	1999	11	11	390%	33%	5%	1.43	1987	1987	1999	11	11	350%	29%	5%	1.34
Banking	sbk	STANDARD BANK GROUP LTD	1986	2015		1986	1986	0	bank	0%	NA	NA	NA	1986	2000	2007	19	7	573%	20%	6%	0.83	1986	1987	1997	24	10	526%	18%	1%	1.48	1986	1987	1997	23	10	469%	16%	1%	1.34
Industria	cls	CLICKS GROUP LIMITED	1996	2015	2006	1996	2006	15	10	289%	15%	1%	1.47	2000	1996	2000	14	4	84%	4%	24%	0.09	2002	1996	2002	16	6	329%	17%	2%	1.27	2000	2005	2015	16	10	329%	17%	2%	1.33
Industria	cmh	COMBINED MOTOR HOLDINGS LIMITED	1988	2015	1989	1992	1996	17	4	457%	17%	3%	0.93	1989	2002	2007	18	5	683%	25%	27%	0.48	1989	1997	2007	20	10	613%	23%	19%	0.52	1989	1997	2007	20	10	614%	23%	19%	0.52
Industria	qdtx	Q DATA LIMITED	1987	1997	1997	1987	1997	10	10	550%	55%	9%	1.84	1991	1992	1997	9	5	453%	45%	12%	1.30	1997	1987	1997	10	10	439%	44%	4%	2.22	1997	1987	1997	10	10	329%	33%	1%	3.81
Industria	shp	SHOPRITE HOLDINGS LIMITED	1987	2015	1991	2001	2015	24	14	611%	22%	0%	0.69	1990	2005	2013	19	8	644%	23%	48%	0.33	1990	2003	2013	22	10	580%	21%	38%	0.34	1990	2003	2013	22	10	455%	16%	34%	0.28
Industria	wbo	WILSON BAYLY HOLMES - OVCON LIMITED	1996	2015	2002	1996	2002	15	6	451%	24%	4%	1.19	1999	2002	2010	12	8	500%	26%	15%	0.67	1999	2000	2010	13	10	500%	26%	13%	0.73	1999	2000	2010	13	10	497%	26%	13%	0.73
Industria	orsx	ORION SELECTIONS LTD	1988	1997		1988	1988	0	bank	0%	NA	NA	NA	1991	1988	1991	6	3	476%	53%	95%	0.54	1997	1988	1997	9	9	320%	36%	1%	3.68	1997	1988	1997	9	9	260%	29%	0%	4.38
Banking	sbox	SAAMBOU HOLDINGS LIMITED	1988	2005		1988	1988	0	bank	0%	NA	NA	NA	1988	1992	1998	9	6	-213%	-13%	78%	-0.14	1988	1992	2001	10	9	-12%	-1%	57%	-0.01	1988	1992	2001	10	9	-144%	-8%	51%	-0.12
Industria	ahhx	AFROX HEALTHCARE LIMITED	1987	2005	2005	1987	2005	18	18	859%	48%	18%	1.13	1991	1998	2005	16	7	764%	42%	29%	0.78	1997	1987	1997	17	10	838%	47%	14%	1.25	1987	1988	1997	16	9	457%	25%	4%	1.27
Industria	casx	CADBURY SCHWEPPES (SOUTH AFRICA) LIMITE	1980	1999	1980	1981	1990	13	9	397%	21%	1%	2.12	1980	1990	1997	14	7	576%	30%	13%	0.83	1980	1990	1999	15	9	474%	25%	5%	1.10	1980	1990	1999	14	9	421%	22%	4%	1.11
Industria	dta	DELTA EMD LIMITED	1985	2014	1985	1995	2000	9	5	58%	2%	5%	0.09	1990	1985	1990	5	5	291%	10%	48%	0.14	1990	1993	2002	16	9	-83%	-3%	36%	-0.05	1990	1993	2002	16	9	-180%	-6%	33%	-0.11
Industria	finx	FINTECH LIMITED	1987	2001	1990	1994	1999	8	5	378%	27%	20%	0.61	1989	1990	1999	12	9	361%	26%	63%	0.33	1989	1990	1999	11	9	156%	11%	59%	0.15	1988	1990	1999	10	9	113%	8%	58%	0.11
Industria	gnd	GRINDROD LIMITED	1986	2015	1989	2003	2008	16	5	558%	19%	14%	0.52	1986	1999	2008	18	9	232%	8%	49%	0.11	1986	1999	2008	17	9	357%	12%	39%	0.20	1986	1999	2008	16	9	260%	9%	41%	0.14
Industria	SNH	STEINHOFF INTERNATIONAL HOLDINGS LIMIT	1999	2015	2009	1999	2009	13	10	466%	29%	8%	1.03	2001	2002	2008	13	6	499%	31%	6%	1.27	2008	1999	2008	15	9	463%	29%	4%	1.50	2008	1999	2008	12	9	286%	18%	3%	1.09
Industria	abix	AMALGAMATED BEVERAGE INDUSTRIES LIMIT	1990	2004	1992	1996	1999	9	3	226%	16%	1%	1.41	1993	1996	2004	11	4	311%	22%	2%	1.63	1993	1996	2004	12	8	322%	23%	1%	1.98	1993	1996	2004	12	8	275%	20%	1%	2.15
Industria	adcx	ADCOCK INGRAM LIMITED	1980	1999	1980	1985	1992	12	7	334%	18%	1%	1.48	1980	1985	1992	13	7	553%	29%	9%	0.99	1980	1985	1993	14	8	521%	27%	4%	1.32	1980	1985	1993	13	8	365%	19%	2%	1.54
Industria	adr	ADCORP HOLDINGS LIMITED	1992	2015	1992	1997	2002	14	5	371%	16%	2%	1.23	2000	1992	2000	16	8	428%	19%	54%	0.25	2000	1992	2000	16	8	891%	39%	21%	0.84	2000	1992	2000	14	8	538%	23%	11%	0.70
Industria	art	ARGENT INDUSTRIAL LIMITED	1994	2015	1996	2004	2009	11	5	425%	20%	11%	0.62	1996	2000	2008	14	8	225%	11%	50%	0.15	1996	2000	2008	14	8	521%	25%	37%	0.41	1995	2000	2008	13	8	325%	15%	34%	0.27
Industria	mdc	MEDICLINIC INTERNATIONAL LIMITED	1987	2015	1993	1994	2009	26	15	808%	29%	4%	1.47	1987	1999	2008	20	6	331%	12%	44%	0.18	1987	1988	2005	23	17	317%	11%	43%	0.17	1987	1997	2005	18	8	62%	2%	39%	0.04
Industria	msm	MASSMART HOLDINGS LIMITED	2000	2015	2000	2001	2008	12	7	219%	15%	1%	1.55	2008	2000	2008	10	8	307%	20%	9%	0.69	2008	2000	2008	10	8	305%	20%	10%	0.66	2008	2000	2008	10	8	235%	16%	6%	0.66
Industria	oce	OCEANA GROUP LIMITED	1985	2015	1989	1993	1998	18	5	465%	15%	2%	1.13	1988	1994	2002	22	9	509%	17%	12%	0.50	1988	1994	2003	22	9	482%	16%	4%	0.85	1988	1994	2002	20	9	470%	16%	4%	0.80
Industria	ppc	PPC LIMITED	1985	2015	1985	2000	2008	17	8	365%	12%	1%	1.28	1985	2003	2007	15	5	338%	11%	5%	0.48	1985	1999	2007	17	8	342%	11%	5%	0.52	1985	1999	2007	14	8	299%	10%	4%	0.47
Industria	tre	TRENCOR LIMITED	1985	2014	1985	1986	1990	20	4	642%	22%	11%	0.67	1993	1985	1993	18	8	283%	10%	84%	0.11	1993	1985	1993	20	8	616%	21%	54%	0.29	1993	1985	1993	19	8	597%	21%	54%	0.28
Banking	boex	BOE LIMITED	1992	2001		1992	1992	0	bank	0%	NA	NA	NA	1999	1992	1999	8	7	323%	36%	100%	0.36	1999	1992	1999	8	7	599%	67%	40%	1.06	1999	1992	1999	8	7	298%	33%	10%	1.03
Mining	snu	SENTULA MINING LIMITED	1993	2015	1994	2005	2009	9	4	354%	16%	15%	0.42	1994	1999	2006	10	7	74%	3%	78%	0.04	1994	1999	2006	11	7	-220%	-10%	85%	-0.11	1994	1999	2006	11	7	-228%	-10%	86%	-0.11
Industria	brcx	BRANDCORP HOLDINGS LIMITED	1998	2009	1999	2001	2003	6	2	164%	15%	3%	0.85	1998	2001	2006	7	5	209%	19%	25%	0.38	2000	2003	2006	7	3	150%	14%	4%	0.69	2000	2003	2006	7	3	245%	22%	12%	0.65
Industria	grf	GROUP FIVE LIMITED	1984	2015	1984	2004	2009	16	5	394%	13%	6%	0.54	1984	2000	2009	19	7	90%	3%	50%	0.04	1984	2003	2010	17	7	400%	13%	31%	0.23	1984	2003	2010	16	7	309%	10%	30%	0.18
Industria	ido	INDEQUITY GROUP LIMITED	1999	2015	2001	2010	2015	11		506%	32%	56%	0.42	2001	2008	2015	11	7	-204%	-13%	81%	-0.14	2001	2008	2015	11	7	-181%	-11%	82%	-0.13	2001	2008	2015	11	7	-191%	-12%	77%	-0.14

Interface | Banking | Industrial | Mining | Insurance | Test | Results | GraphData | Growth Outliers | Chart2 | Chart1 | Chart3 | Chart4

APPENDIX 4: GROWTH OUTLIER ALGORTHM MODULE: VBA CODE

```vba
Public ThresholdYears As Integer, IndustryInput, CountLoad As Integer
Public StartYear As Integer
Public ThresholdGrowthOveride
Public EndYear As Integer



Sub main()
    CountLoad = 0
    ClearScreen
    Load UserForm1
    UserForm1.TextBox1.Value = Worksheets("Interface").Range("B1").Value
    UserForm1.TextBox2.Value = Worksheets("Interface").Range("B2").Value
    UserForm1.TextBox3.Value = Worksheets("Interface").Range("B3").Value
    UserForm1.TextBox4.Value = Worksheets("Interface").Range("B4").Value
    UserForm1.ComboBox1.Value = Worksheets("Interface").Range("B5").Value
    UserForm1.Show
End Sub




Sub ClearScreen()
    Worksheets("Results").Range("A3:BB9999").Value = ""
End Sub


Sub test()
      CountLoad = 0
      ClearScreen
      StartYear = 2000
      EndYear = 2015
      ThresholdYears = 5

      Algorithm 0, "Test"
      CountLoad = 0
      Algorithm 1, "Test"
      CountLoad = 0
      Algorithm 2, "Test"
      CountLoad = 0
      Algorithm 3, "Test"
      CountLoad = 0
      Algorithm 4, "Test"
End Sub


Sub Algorithm(ByVal Column, Industry)

    Dim       CompanyCode,      CompanyCodeNext,      CompanyCodePrev,      CompanyName,      Year
'Company Information
    Dim  Revenue,  RevenueNext,  DiffRevenue,  StartingRevenue,  RevenueSum,  MeanGrowth,  MeanRevenue
'Revenue Amounts
    Dim  TotalGrowthYears, ConsecYearsRevenue, ConsecYearsRevenueTop, RevenueGrowthAmount, PercentGrowth
'Revenue Results
    Dim Variance, VarTemp, VarTempGrowth, Sharpe, VarianceGrowth, StdDeviation
    Dim FirstYear, DropOutYear, TempYear, CountYear
    Dim  FirstRevenueFlag, OutlierFlag, RevenueFlag, DropOutFlag, NoDataFlag, FirstYearFlag, FoundLastYear  As
Boolean                                                        'Flags
    Dim ThresholdYear As String
    Dim ThresholdGrowth As Double

    Dim JSEDataSheet As String
    JSEDataSheet = ThisWorkbook.Name
    Dim CodeCell, ResultCell As String
    Dim StartCell As Range
    Dim ConsecPeriod As String
```

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```
        CodeCell = "A2"
        ResultCell = "A3"


    Dim WkSource As Worksheet, WkLoad As Worksheet
    Windows(JSEDataSheet).Activate
    Set WkSource = ActiveWorkbook.Sheets(Industry)
    Set WkLoad = ActiveWorkbook.Sheets("Results")

    Set StartCell = WkSource.Range(CodeCell)

    Dim CountSource As Integer
    CountSource = 0


    VarTemp = 0
    VarTempGrowth = 0
    RevenueSum = 0
    StartingRevenue = 0
    RevenueGrowthAmount = 0
    ConsecYearsEarnings = 0
    ConsecYearsRevenueTop = 0
    CountYear = 0
    TotalGrowthYears = 0
    ConsecPeriod = ""

    VarianceGrowth = 0
    FirstRevenueFlag = True
    RevenueFlag = False
    DropOutFlag = True
    FoundLastYear = False
    FirstYearFlag = False
    CompanyCodePrev = "Undefined"


    Do Until WkSource.Range(CodeCell).Offset(CountSource, 0).Value = ""

      '*****Set inputs*****

      CompanyCode = WkSource.Range(CodeCell).Offset(CountSource, 0).Value
      CompanyCodeNext = WkSource.Range(CodeCell).Offset(CountSource + 1, 0).Value                    '
      If CountSource <> 0 Then CompanyCodePrev = WkSource.Range(CodeCell).Offset(CountSource - 1, 0).Value
  'sets CompanyCodePrev provided not first cell
      CompanyName = WkSource.Range(CodeCell).Offset(CountSource, 1).Value
      Year = WkSource.Range(CodeCell).Offset(CountSource, 2).Value

      Revenue = WkSource.Range(CodeCell).Offset(CountSource, 3 + Column).Value
      RevenueNext = WkSource.Range(CodeCell).Offset(CountSource + 1, 3 + Column)

      If CompanyCode <> CompanyCodeNext Then DrawLine WkSource.Range(CodeCell).Offset(CountSource,
  0).EntireRow

      If Year >= StartYear And Year < EndYear + 1 Then

        CountYear = CountYear + 1
        If CompanyCode <> CompanyCodeNext And CompanyCode <> CompanyCodePrev Then NoDataFlag = True
  'company only has one year of data

        If FirstYearFlag = False Then                                              'sets the first year
          FirstYearFlag = True
          FirstYear = Year

        End If

        If CompanyCode = CompanyCodeNext And Year <> EndYear Then 'company codes equal

          '*****Revenue Algorithm*****
          If Revenue = "und" Or RevenueNext = "und" Or Revenue = 0 Then
```

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```
            ConsecYearsRevenue = 0
            DiffRevenue = 0
            Revenue = 0
            RevenueNext = 0
        Else
            If FirstRevenueFlag = True Then
                StartingRevenue = Revenue                                    'sets starting revenue
                FirstRevenueFlag = False
            End If

            DiffRevenue = RevenueNext - Revenue
            PercentGrowth = DiffRevenue / Revenue

            WkSource.Range(CodeCell).Offset(CountSource + 1, 10 + Column).Value = DiffRevenue

            If PercentGrowth < 1.5 And PercentGrowth > -1.5 Then
                    WkSource.Range(CodeCell).Offset(CountSource + 1, 10 + Column + 5).Value = PercentGrowth
            Else
                    If PercentGrowth >= 1.5 Then WkSource.Range(CodeCell).Offset(CountSource + 1, 10 + Column +
5).Value = 1.5
                    If PercentGrowth <= -1.5 Then WkSource.Range(CodeCell).Offset(CountSource + 1, 10 + Column
+ 5).Value = -1.5
            End If

        End If

        If ThresholdGrowthOveride = "" Then
            TempYear = Year - 1900
            ThresholdYear = "K" + CStr(TempYear)
            ThresholdGrowth = CDbl(Sheets("Interface").Range(ThresholdYear).Value) * Revenue
        Else
            ThresholdGrowth = ThresholdGrowthOveride
        End If
        If Column = 4 Then ThresholdGrowth = 0.05

        If DiffRevenue > ThresholdGrowth And RevenueNext > 0 Then
            TotalGrowthYears = TotalGrowthYears + 1
            ConsecYearsRevenue = ConsecYearsRevenue + 1
            If ConsecYearsRevenue > ConsecYearsRevenueTop Then
                ConsecYearsRevenueTop = ConsecYearsRevenue
                syear = Year - ConsecYearsRevenueTop + 1
                eyear = Year + 1
            End If
        Else
            If DropOutFlag = True Then
                DropOutFlag = False
                DropOutYear = Year
            End If
            ConsecYearsRevenue = 0
        End If

    End If


    If CompanyCode <> CompanyCodeNext Or Year = EndYear Then                          'Companies
!= or year = endyear: output & move to next company


        '*****Check Data Conditions****


        If FirstRevenueFlag = False And NoDataFlag = False Then


            '*****Variance Algorithm*****

            VarianceGrowth = Application.WorksheetFunction.Var_P(WkSource.Range(StartCell.Offset(CountSource +
1 - (CountYear - 1), 10 + Column + 5), StartCell.Offset(CountSource, 10 + Column + 5)))
```

```vba
            StdDeviation   =   WorksheetFunction.StDev_P(WkSource.Range(StartCell.Offset(CountSource   +   1   -
(CountYear - 1), 10 + Column + 5), StartCell.Offset(CountSource, 10 + Column + 5)))


            StartCell.Offset(CountSource    +    1    -    (CountYear),    10    +    Column).Value    =
Application.WorksheetFunction.Var_P(WkSource.Range(StartCell.Offset(CountSource  +  1  -  (CountYear  -  1),  10  +
Column), StartCell.Offset(CountSource, 10 + Column)))
            StartCell.Offset(CountSource + 1 - (CountYear), 10 + Column + 5).Value = VarianceGrowth
            StartCell.Offset(CountSource + 1 - (CountYear), 10 + Column + 10).Value = StdDeviation


        Dim i As Integer
        i = Year
        Do While i > FirstYear
            PercentGrowth = StartCell.Offset(CountSource + 1 - (i - FirstYear), 15 + Column).Value
            RevenueGrowthAmount = RevenueGrowthAmount + PercentGrowth

'                            If PercentGrowth < 2 * StdDeviation And PercentGrowth > -2 * StdDeviation Then
'Winsorisation using 2 x Std Dev: number too large
'                RevenueGrowthAmount = RevenueGrowthAmount + PercentGrowth
'            Else
'                If PercentGrowth >= 2 * StdDeviation Then RevenueGrowthAmount = RevenueGrowthAmount + 2 *
StdDeviation
'                If PercentGrowth <= -2 * StdDeviation Then RevenueGrowthAmount = RevenueGrowthAmount - 2 *
StdDeviation
'            End If

'            If PercentGrowth < 1.5 And PercentGrowth > -1.5 Then                           'truncation if
statement
'                RevenueGrowthAmount = RevenueGrowthAmount + PercentGrowth
'            Else
'                If PercentGrowth >= 1.5 Then RevenueGrowthAmount = RevenueGrowthAmount + 1.5
'                If PercentGrowth <= -1.5 Then RevenueGrowthAmount = RevenueGrowthAmount - 1.5
'            End If

            i = i - 1
        Loop

        MeanGrowth = RevenueGrowthAmount / (Year - FirstYear)

        If VarianceGrowth <> 0 Then
            Sharpe = MeanGrowth / StdDeviation
        Else
            Sharpe = "NA"
        End If

        If ConsecYearsRevenueTop >= ThresholdYears Then RevenueFlag = True


    Else
        RevenueGrowthAmount = 0
        ConsecYearsRevenueTop = 0
        VarianceGrowth = "NA"
        MeanGrowth = "NA"
        Sharpe = "NA"
        RevenueFlag = False
        DropOutYear = FirstYear
    End If

    If RevenueFlag = True Then
        OutlierFlag = True
    Else
        OutlierFlag = False
    End If
    If DropOutFlag = True Then DropOutYear = Year


    '*****Output to results sheet****
    If FirstYear = StartYear Then
```

```
            If Column = 0 Then
                WkLoad.Range(ResultCell).Offset(CountLoad, 0).Value = Industry
                WkLoad.Range(ResultCell).Offset(CountLoad, 1).Value = CompanyCode
                WkLoad.Range(ResultCell).Offset(CountLoad, 2).Value = CompanyName
                WkLoad.Range(ResultCell).Offset(CountLoad, 3).Value = FirstYear
                WkLoad.Range(ResultCell).Offset(CountLoad, 4).Value = Year
            End If
            WkLoad.Range(ResultCell).Offset(CountLoad, 5 + (Column * 9)).Value = DropOutYear
            If Industry = "Banking" And Column = 0 Then WkLoad.Range(ResultCell).Offset(CountLoad, 5 + (Column *
9)).Value = ""
            WkLoad.Range(ResultCell).Offset(CountLoad, 6 + (Column * 9)).Value = syear
            WkLoad.Range(ResultCell).Offset(CountLoad, 7 + (Column * 9)).Value = eyear
            WkLoad.Range(ResultCell).Offset(CountLoad, 8 + (Column * 9)).Value = TotalGrowthYears
            WkLoad.Range(ResultCell).Offset(CountLoad, 9 + (Column * 9)).Value = ConsecYearsRevenueTop
            If Industry = "Banking" And Column = 0 Then WkLoad.Range(ResultCell).Offset(CountLoad, 9 + (Column *
9)).Value = "bank"
            WkLoad.Range(ResultCell).Offset(CountLoad, 10 + (Column * 9)).Value = RevenueGrowthAmount
            WkLoad.Range(ResultCell).Offset(CountLoad, 11 + (Column * 9)).Value = MeanGrowth
            WkLoad.Range(ResultCell).Offset(CountLoad, 12 + (Column * 9)).Value = VarianceGrowth
            WkLoad.Range(ResultCell).Offset(CountLoad, 13 + (Column * 9)).Value = Sharpe
            CountLoad = CountLoad + 1
        End If

        '*****Reset*****

        CountYear = 0
        ConsecYearsRevenue = 0
        ConsecYearsRevenueTop = 0
        RevenueGrowthAmount = 0
        RevenueSum = 0
        TotalGrowthYears = 0
        ConsecPeriod = ""


        FirstRevenueFlag = True
        NoDataFlag = False
        DropOutFlag = True
        FirstYearFlag = False
        FoundLastYear = False
        RevenueFlag = False
      End If
    End If
    CountSource = CountSource + 1

  Loop


End Sub
```