A measure of short-termism and its effect on shareholder returns in the JSE

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ABSTRACT

The increased focus on short-termism was brought to the fore after the global financial crisis wherein agents of financial intermediation and policy makers alike sought to devote their time and resources towards the silent plague sweeping the economy. Short termism, is a multi-disciplinary construct, which, if distilled down to its basic form can be thought of as a systematic set of characteristics which over-values short term rewards at the expense of undervaluing long-term consequences. Arguably, the greatest cost of short termism lies in the opportunity costs associated with forgone investments.

Many scholars advocate for the sustainable benefit that managing for the long-term however this is met by scepticism and debate as empirical evidence to support this avocations are sparse. This is largely because short-termism itself cannot be quantified by a singular concept or an isolated metric.

This research study represents a quantitative, quasi-experimental, longitudinal study which aims to utilize a combination of financial measures, underpinned by financial theory to construct a measurable, composite index. This index then forms the basis of an investment style with which to track shareholder returns over a 20 year period in order to determine if short termism truly decreases shareholder value over time.

The key findings is that through the use of the index, firms did display significant differences in their patterns of investments and earnings management within the same industry, however there is no significant evidence that managing for the short (or long) term is particularly effective at generating positive abnormal returns

KEYWORDS

Short-termism, long-termism, shareholder returns, style investing, Johannesburg Stock Exchange, Investment, Accruals, Earnings manipulation

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.

Mayshani Dahya

07 November 2018

Date

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1.2 Introduction

1.2.1 The concept of short-termism

Earlier works by Marginson and Mcaulay (2007) refer to short-termism as a set of preferential actions in the near term which consequently results in detrimental effects for the long-term. Short-termism is a concept which is frequently associated with, and in some literature, used interchangeably with the term myopia, which according to Marginson and Mcaulay (2007) indicates the difficulty of assessing long-term consequences, irrespective of whether or not they are sub-optimal.

Short-termism is often regarded as a complex issue as it is difficult to measure. This is mostly because the concept of short-termism cannot be captured by an isolated metric. Rather, it is seen as a concursion of various factors or disparate activities manifested both an individual and an organisational level (Barton et al., 2017).

Although there is no consensus in existing works that point to a definitive measure of short-termism, it is generally associated with a set of behaviours. Core to these are:

- low capital investments needed for long-term payoffs (Laverty, 1996)
- low investment in research and development (Brochet, Loumioti, & Serafeim, 2015; Gopalan, Milbourn, Song, & Thakor, 2014)
- higher hurdle rates in evaluation of investment projects (Dobbs, 2009; Porter, 1992)

The studies surrounding this construct is multidisciplinary in nature with research concentrated in economics, corporate governance and performance management systems. Of particular relevance to this study is prior studies in accounting and finance that have sought to document the sources of Short-termism, exploring mechanisms like monetary incentives (Felstead, 2016; Gopalan et al., 2014; Graham, Harvey, & Rajgopal, 2005; Laverty, 2004); capital market pressures (Davies, Haldane, Nielsen, & Pezzini, 2014; Dobbs, 2009); as well as a growing body of literature aimed at quantifying the effects of short-termism on future shareholder value

(Berglöf, Von Thadden, & Bergl0f, 1994; Kang, Anderson, Eom, & Kang, 2017). Still other studies have sought to determine the influence of institutional investors in relation to Short-termism (Bushee, 1998; Bushee, 2001; Harford, Kecskés, & Mansi, 2017). Majority of the studies are confined to developed economies, particularly the United States and Europe with sparse to no research from reputable sources as it occurs in emerging economies such as South Africa.

Strong theoretical underpinnings as put forth by (Porter, 1992) have been reinforced by later studies (Brochet et al., 2015; Chae, Lee, & Wang, 2013; Solomon & Solomon, 1999) which advocate for long-term management. Concisely put by Porter (1992), if there is a divergence of interest amongst key players like shareholders, managers and subsequently the firm itself, it hinders capital flow into investments that could offer the greatest payoffs to the ultimate detriment of the firms and the broader economy. However, due to the difficulty in measuring this construct, there is an ongoing debate, compounded by the lack of comprehensive empirical data that short-term management, although intuitively discouraged, does not necessarily destroy value. Herein lies the crux of the problem surrounding short-termism.

1.2.2 Short- termism and business sustainability in South Africa

To date, South Africa's unemployment rate has seen a substantial increase from 22.5 percent in 2008 to 27.7 percent in the first half of 2017 (The World Bank, 2017, p.23). Historical data as presented in the National Budget report of 2018 highlights that private-sector job creation has fallen post 2015, yet it remains the only sustainable way to reduce unemployment. Financial and business services, which account for the largest number of private-sector jobs, contracted by 0.3 per cent in the first three quarters of 2017 (The National Treasury of South Africa, 2018, p. 17). Considering this, it is evident that South Africa remains a country in need of effective management and sustainable businesses for the purpose of job creation, yet little is known of whether any of the industries contributing to the country's GDP displays effects synonymous with short-termism, and if so to what extent? Consequently, there is little that can be done in terms of corporate governance and policy reforms that can address these issues.

Considering the current economic climate, it is essential that effective management directed towards running sustainable organisations must be promoted and enhanced towards the goal of alleviating the growing pressures of unemployment in the country

1.3   Contributions to research

This research study has a two-fold contribution. The new research, conducted by the McKinsey Global Institute (Barton et al., 2017) was geared towards understanding the magnitude of corporate short-termism in US firms, however there remains a significant gap in academic research for empirical evidence to identify short-termism in emerging economies such as South Africa, which will be the first point of address in this research study. This will contribute to the significant gap in literature regarding short-termism as it is present in an emerging economy. Furthermore, it will test if the a metric derived from literature, grounded in theory and similar to Barton et al., (2017) represents a viable measure for firms operating in an emerging economy. This will be accomplished investigating the top listed companies on the Johannesburg Stock Exchange (JSE), across different sectors of the South African economy in order to establish if the firms operating within this industry do so, with either a long or Short-term outlook. Measurements across key metrics which are grounded in existing literature will serve as a basis for classification. Through this process the study will ascertain whether or not short-termism is evident within the top firms (weighted by market capitalisation).

The second contribution of this study will be aimed at quantifying the effect of short-termism on investor returns and contributing to the existing debate surrounding if managing for the Short-term does indeed destroy shareholder value. This will add value to shareholders and investors alike as it provides quantifiable evidence to support preferential investment in either long or Short-term firms.

1.4   Research purpose

The field of study is corporate finance

The purpose of this research study was to provide a viable measure for short-termism as it is present within different industries in the JSE and to establish the extent of short-termism present in top JSE listed firms. This allows for insight into the sustainability into the top firms in the country and sheds light onto whether or not the South African economy favours Short-termism. The overarching goal of the study is to determine the effect of short-termism on total shareholder returns. In so doing, the investigation provides empirical documenting shareholder returns for both long and Short-term orientated firms.

The Global Financial Crisis (2008-2009) mobilised a wave of research directed towards understanding the mechanism behind its onset, which is why majority of studies are centred on firms in the US, however, it is unlikely that it is a problem unique to the US alone. A recent study undertaken by Barton et al., (2017) sought to measure the economic impact of short-termism with findings showing that on average long-term firms grew their revenue 47% more than other firms, they invested more in R&D spend, even during the financial crisis, they exhibited a stronger overall financial performance (on average growing their market capitalisation by $7 billion between 2001-2014) and most importantly, they added nearly 12000 more jobs on average than other firms.

With this in mind, South Africa's current population growth trajectory was reported at a 1.6% increase within 2017 (Statistics South Africa, 2018), exceeding 1.0% GDP growth of 2017 (The National Treasury of South Africa, 2018, p.17). This, coupled with the rising unemployment and stagnating Gini coefficient (0.63) is cause for growing concern. The purpose of this research will shed light regarding the extent of short-termism present in an emerging economy such as South Africa. In so doing, the research has implications for shareholders, management, firms and policy makers alike to devote further attention and resources towards the construct of Short-termism and put forth appropriate measures in the form of corporate governance and performance incentives that will equip South African firms and management to operate towards a shared goal of sustainable growth. In addition, it will have implications for shareholders to preferentially invest in firms with a long (or short) term horizon in order to maximize their long run future gains.

1.5   Research objectives

This study aims to contribute to the debate surrounding the economic impact of corporate short-termism by employing a systematic four-tiered approach:

1.   The first is to systematically differentiate long-term companies from short-term orientated companies as they occur within top 160 shares on the Johannesburg Stock Exchange. This will provide empirical evidence to assess:
     a) the extent of short-termism present in top listed firms of the JSE

2.   The research will track the performance of a portfolio comprised of long vs short-term orientated firms over a 20-year span using a graphical time series approach to determine

the effect of this construct on total investor returns.

1.6 Scope of research

The research scope will focus first measuring long vs short-term orientated firms in the JSE through the development of a composite index which will be the basis with which to classify firms. This will be computed in the style based portfolio model (Muller & Ward, 2013). The output data will provide empirical evidence to quantify the magnitude of the short-termism in top firms of the JSE as well as the rate at which it has changed over the 20-year span of the study. The total shareholder returns will also be computed through a graphical time series approach which enables further quantification of the effect of short-termism on shareholder returns over an extended time span.

The study is limited to JSE firm data between December 1997- December 2017

The following sections will provide the theoretical underpinnings from which the key metrics used to distinguish long vs Short-term firms will be discussed. Chapter 2 is structured to first highlight the various elements surrounding short-termism at different levels. This provides a foundation for the rational and theory which underpins the composite index composition. This will be followed by the proposed research design and methodology that will be employed during the investigation. The final section presents conclusions, implications and limitations.

2. CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

2.1.1 Understanding short-termism

The elementary understanding of short-termism is based on the premise that agents of financial intermediation may act in a way that prioritises Short-term gains at the expense of foregoing valuable future opportunities (Marginson & Mcaulay, 2007; Nikolov, 2018).

The work by both Marginson and Mcaulay (2007) and Nikolov (2018), goes on to further differentiate between implicit and explicit short-term behaviour. These studies state that implicit short-termism is rooted in cognitive myopia wherein managers do not grasp the future consequences of their short-termed actions, whilst explicit short-termism refers to the intentional actions of executives to manipulate Short-term gains by underinvesting in the organisations capability building tools which are geared towards long-term value generation (Marginson & Mcaulay, 2007; Nikolov, 2018).

Existing literature often makes reference to myopia and short-termism, in some cases interchangeably. The fundamental difference, is that myopia refers to a characteristic of a particular decision which over-values Short-term gains to the detriment of the long-term (due to managerial decisions and/or market pressures), whilst short-termism is regarded as a systematic characteristic at an organisational level which over-values Short-term rewards at the expense of undervaluing long-term consequences (arising due to organisational culture and/or processes) (Laverty, 2004; Marginson & Mcaulay, 2007).

A growing body of research suggests that firms are operating with an increasingly short-sighted view which are influenced by an array of factors. These influencing factors are part and parcel of larger, multi-disciplinary fields. The core disciplines, of particular relevance to this study is concerned with the way in which this construct manifests itself in capital markets of an emerging economy and how that in turn affects shareholder returns.

A comprehensive review of the literature surrounding the construct of short-termism is presented in the sections below. Firstly, the debate surrounding Short-termism will be addressed. This sets the scene for understanding Short-termism from two contrasting viewpoints.

The sections that follow will then focused on viewing short-termism from a corporate finance perspective. Where appropriate, concepts from other associated disciplines were incorporated to fully appreciate the rationale behind the linkages of financial metrics to the construct of short-termism as it presents itself at an individual and an organisational level. Each sub-section addressed below, will begin with the definition of short-termism within that particular discipline. Variations in the definitions of the term are based on the manifestation of the phenomenon in different settings.

Most importantly, the literature below captures the theory underpinning the construction of the composite index which formed the investment style used in this investigation.

2.2 The debate: short vs long-termism

In the events succeeding the global financial crises, renewed interest is being devoted towards the concept of short-termism and the detrimental role of this phenomenon on the broader economy. Attempts have been made by the OECD, the World Economic Forum and other international bodies to address this topic with probable solutions along the lines of shared value initiatives and sustainable capitalism which calls for a paradigm shift in the way corporate executives lead and invest and promotes societal benefits however both historical and ongoing research seems to suggest that Short-termism is a cause for growing economic concern (Barton & Wiseman, 2014).

Certain economies have shown a greater degree of short-term prevalence than others. This could, in part, be attributed to differences in investor time horizons which have been documented to be highly variable, across firms , industries and economic systems as well (Thanassoulis & Somekh, 2016). The US and UK, with developed capital market financing show evidence that long-term investment (in the form of R&D) is significantly lagging behind countries like Japan, South Korea and China which have been documented to increase their R&D to GDP ratio in the years succeeding 1980 (Davies et al., 2014).

Despite the strong theoretical support which encourages a long-term orientation to be considered by all affected parties, ranging from firm management to policy makers, shareholders and institutional investors alike, the question remains, does short-termism matter in practice? Does it destroy shareholder value by compromising returns?

2.3 Short-termism and total shareholder returns

2.3.1 The investors perspective

The heterogeneity of investors within an organisation has been documented through out literature and is rooted in investor's investment horizon. The purpose of this section will be focused on the link between investor-type as determined by a particular investor's time horizon and the concept of Short-termism.

It is intuitively implied that one cannot understand short-termism without devoting some consideration to the time horizon involved with this phenomenon. Short-termism is largely rooted in the time pressures affecting the strategic decision makers in organisations (Marginson & Mcaulay, 2007). The view shareholders take with regards to buying and selling their shares is dependent on their investment time horizon and whether their view is short or long-term. Bushee (1998) refers to short-term investors as transient-type investors whose behaviour mimics those of traders holding a large numbers of small stocks for a short period of time. On the other extreme, Bushee (1998) identifies long-term investors as dedicated-type investors that have large holdings in a few companies, and who behave more like owners. The middle ground between these two extreme investor types are quasi-indexers, which are characterised by low turnovers but still have diversified holdings (Bushee, 1998). This typology is broadly accepted and widely adopted and across research studies. Managers that practice myopic decision making aim to satisfy the transient-type investors with a near term investment horizon and are therefore prompted to make corporate investment decisions in accordance with this (Hess, 2010).

Investors, therefore play an influencing role regarding the extent of short-term pressures exerted on a firm's management. The investment horizon of shareholders has been documented to impact firms in several ways. To this end, existing literature, is segmented into two conflicting arguments.

2.3.2 A case against short-term investor horizons

The first is that more often than not, short-term shareholders are portrayed in a negative light due to their impact on firms. These negative impacts may be manifested in several forms.

Firms with a high degree of transient-type (or short-term) investors that behave more like traders, rather than owners and are focused on measures like high portfolio turnover, diversification, momentum trading (Bushee, 1998; Yan & Zhang, 2009), as well as stock price and market signalling (Thanassoulis & Somekh, 2016), all of which emphasise short-term earnings metrics which leads to pressure on managers of these firms to engage in myopic investment practices at the expense of long-term firm value. Transient ownership is associated with over indexing on short-term expected earnings as this trading strategy generates significant abnormal returns (Bushee, 2001).

(Gaspar, Massa, & Matos., 2005) find that investor horizons affects the affordability of takeovers such that targeted firms with short-term shareholders are more prone to receiving bids for acquisitions, are offered lower premiums on these bids and are placed in a weaker bargaining position at the time of acquisition. Furthermore, these shareholders experience poorer abnormal returns at the time of Merger & Acquisitions (M&A) announcements.

H.-D. Kim, Kim, Mantecon, & Song (2018) show that financial institutions such as banks increase non-pricing and pricing terms of bank loans for firms largely owned by short-term investors due to the expectation of higher agency conflicts between shareholders and lenders. This shows the negative impact that investors with short-term investment horizon can have on a firms cost of capital. Linkages between short-termism and increases in the cost of capital structures to sub-optimally high levels have been empirically documented in other studies as well (Davies et al., 2014; Thanassoulis & Somekh, 2016).

Additional literature also seeks to re-inforce the common sense notion of long-term investor horizons by highlighting the positive impact of these investors on firm performance. For instance, Bushee (1998); and Harford et al., (2017) find that long-term institutional investors are can strengthen corporate governance and play a monitoring role by reducing the managerial pressures which incite continued myopic practices, like R&D expense reduction and earnings decline reversals and can also reduce financial fraud.

Elyasiani and Jia, (2010) show a positive correlation between firm performance and institutional ownership stability (in terms of both shareholding proportion and stability), specifically showing that stable institutional investors, with long investor horizons improve firm performance and play an effective role in monitoring as evidenced by a decrease in information asymmetry. Longer investment horizons enables investors to understand the firm better, mitigate agency conflicts and are incentivised to act in the best interest of the firm

through ongoing monitoring and governance (Attig, Cleary, Ghoul, & Guedhami, 2012; Elyasiani & Jia, 2010).

2.3.3 A case for short-term investor horizons

Literature is sparser on the contrasting end of this argument which merits the positive abnormal returns experienced by short horizon shareholders.

Transient type institutions refer to institutions that actively engage in trading for the benefit of short-term gains. Evidence pointing to transient type investors being better informed have been well documented (Ke & Petroni, 2004; Sias, Starks, & Titman, 2006; Yan & Zhang, 2009). Yan and Zhang, (2009) investigated the relationship between an institutions investment horizons and their informational roles within the stock market. The underlying rational is that investors with different time horizons are privy to different sets of information. The study utilizes institutional portfolio turnover as a measure of investment horizon as the basis of long vs short-term institutional classification and finds a positive relationship between total institutional ownership and one-quarter, and one year ahead stock returns which are driven by transient type institutional investors. In addition to this changes in short-term institutional ownership also predict future returns particularly for small and growth stocks leading to the proposition that transient type institutions are better informed.

Two conflicting views regarding stock liquidity and managerial short-termism are that higher stock liquidity increases capital market pressures on management thereby increasing short-termism behaviour. This view directly conflicts with the alternative viewpoint that higher stock liquidity assists with block-holder control which encourages firm management to undertake a long-term orientated firm value approach (Y. Chen, Rhee, Veeraraghavan, & Zolotoy, 2015). The findings of (Y. Chen et al., 2015) collaborate the latter view in which the threat of block-holder exit acts as the governing factor which discourages earnings manipulation and aids in mitigating managerial short-termism.

Perhaps the most comprehensive study which addresses Short-termism is presented by Mauboussin and Callahan, (2015). The underlying basis put forth by (Mauboussin & Callahan, 2015) is that the stock market should be viewed as a complex, adaptive system and posits that truly understanding whether or not short-termism is a problem, requires that the construct be viewed from a macro (stock market) not a micro level (through individuals). With this in mind, the authors put forth that if short-termism is a problem, it should be evidenced in the stock market.

In light of the ongoing debate of short-termism, a deeper look into the different manifestations of the construct will be discussed in the following sections. These manifestations aid in understanding the construct as it is presented in firms.

2.3.4   The Efficient Market Hypothesis (EMH)

The efficient hypothesis was bought to the fore by Fama (1998) postulates that the market is efficient and is priced to incorporate the full value thereby making continued abnormal returns unlikely. Yet continued efforts are made to discover styles or strategies that will enable investors to beat the market (Barberis & Shleifer., 2003; Cronqvist, Siegel, & Yu., 2015; Piotroski, 2000). The contrasting strategies of transient and dedicated investors have been summarised above clearly challenge the underlying Efficient Market Hypothesis. Alternatively, these contrasting strategies could be thought to cancel each other in line with this theory. Fama (1998) states that documentation of observable positive returns is dependent on the method used and that long-term return anomalies often diminish with a change in methodology, implying that the abnormal returns are an illusion of the mode of measure.

2.4   Short-termism- A managerial perspective

Laverty (2004) and Marginson and Mcaulay (2007) recognised that short-termism is a multi-faceted construct which needed to be approached not just from an economic standpoint (through capital markets and performance measurements) but from both individual and organisational dimensions as well. The literature surrounding the managerial perspective of Short-termism is concerned with managerial behaviours, characteristics and patterns. Of particular relevance to this study is the empirical, measurable metrics that are associated with elements of management.

The theory governing most myopic managerial behaviour can be best explained through the lens of classic agency theory wherein the interests of the agents (executive management in this case), differs from those of the principal which they serve (the full suite of shareholders) in order to prioritise their individual interests. Nikolov (2018) captures the antecedents of short-term managerial decision making, into four broad categories which include external factors, intra-organizational factors, executive compensation structures and individual factors.

Each of these factors are briefly discussed below.

i.   External factors

External factors influencing short-termism mostly take the form of stock market and investor pressures in which the time horizon of the investor base incites short-term behaviour (Nikolov, 2018). These are broadly discussed in Section 2.5 below.

ii.   Intra-organizational factors

Socially influenced short-term culture can cultivated through managerial social interactions and communication channels (Laverty, 1996; Nikolov, 2018). Laverty, (1996) showed that if an organisation possesses the corporate culture and processes protect individual managers, then the firm is more likely to manage the trade-off between short and long-term results. This stems from the firm's ability to establish a trusting climate around these trade-offs which makes allowances for managers to forego some of the immense short-term performance pressures in order to pursue decisions that would benefit the firm in the longer term. X. Chen, Cheng, Lo, & Wang (2015) collaborate this view and finds statistically significant evidence showing that firms offering contractual protection to their CEOs are less likely to engage in short-term behaviour such as R&D cuts to avoid decreased earnings and real earnings management. Furthermore, in firms with transient type, institutional ownership, the effect of CEO contractual protection is stronger (X. Chen et al., 2015).

iii.   Executive compensation structures

Performance measurement systems at all levels of the organisation has immense potential for cultivating and driving behaviour amongst employees (Nikolov, 2018). The structuring of executive compensation packages represent the mechanism by which to align the interests of management and investors. Gopalan et al. (2014) noted that increasing the executive pay duration following high stock returns, is an effective way to for boards to mitigate stock price and earnings manipulation by management. Firms displaying higher growth opportunities, more long-term assets and greater R&D intensity were found have longer pay duration compensation structures (Gopalan et al., 2014). Linking this to short-termism (proxied by abnormal accruals), longer CEO pay durations were negatively related to the extent of earnings manipulations (Gopalan et al., 2014).

Palley, (1997) and Pogach, (2018) refer to the significance of managerial tenure as a key consideration in compensation contracts. This is based on the rational that the duration of

higher return projects will exceed the tenure of the managers who implement them and as such, may be foregone in favour of projects with a shorter return horizon (Palley, 1997; Pogach, 2018).

iv.   Individual factors

The final influencing factor that was linked to managerial short-termism was individual factors. Graham et al. (2005) find that corporate executives are more attentive to personal and company reputation. This is found to be rooted in agency concerns such as internal and external job prospects (Graham et al., 2005; Palley, 1997) which in turn facilitates a short-term executive focus centred around avoiding volatility in stock prices by maintaining and delivering predictable earnings in addition to disclosing transparent, accurate information (Graham et al., 2005).

Now that the debate surrounding short-termism has been presented first from an investor/ shareholder level and has been has been filtered down to manifestations at an executive level, the next aim of the literature will be focused on discussing the potential empirical metrics that can be used to capture this broad, multi-dimensional construct.

2.5   Short-termism - Towards an empirical measure

Almost every study around short-termism today, references work by the strategic veteran, Porter (1992), to provide the theoretical underpinning advocating for the merits of managing for the long-term sustenance of a firm. According to Porter (1992), the increase in globalisation coupled with the dynamism of competition requires firms to invest in both tangible and intangible assets in order to maintain a sustainable competitive advantage through innovation.

Literature may not be unanimous in either a definition of short-termism or a systematically well-established measure of the construct, however, it is generally agreed that short termism occurs in association with lack of investments or investment reductions, be it in the form of tangibles like Capital Expenditure (CAPEX) on Property Plant and Equipment (PPE) or Research and Development (R&D), advertising, marketing, even non-traditional forms of investment like human capital and relationship investing.

The sections below will focus on linking short-termism to various aspects concerning investments.

2.5.1 Investment-Assets

Davies et al. (2014) refers to the silent costs of short-termism which lies in the opportunity costs associated with foregone investment projects compromising future output and long-term firm performance. These forgone investment opportunity are systematically linked to transient investors their narrow focus on earnings metrics.

Prior literature frequently argues that short-termism is often associated with either restricted or lack of investment (in the form of CAPEX spend) of both tangible and intangible assets consequently compromising a firms long-term performance (Marginson & Mcaulay, 2007; Porter, 1992). Porter (1992) evidenced this claim by referencing the way American companies have invested at a lower rate with a short-term focus relative to those of German and Japanese competitors which ultimately negatively impacted the overall competitiveness of US firms and consequently the US economy.

An ideal scenario would require that agents of financial intermediation seek to balance the trade-off of resources such that they secure sustainable, long-term, firm value investments whilst still achieving short-term results (Marginson & Mcaulay, 2007; Nikolov, 2018) but in reality, this is the exception rather than the rule.

However, determining how firms may invest in the absence of short-term pressures must be considered. To this end, previous studies have made use of proxies such as the form of ownership (Asker & Farre-mensa, 2014; Davies et al., 2014) as an empirical method by which to study variability in firm level investments.

The premise behind such studies is that private firms are subjected to more market pressures and consequently more prone to short-term actions (like low investment rates) in order to satisfy transient-type investors (Bushee, 1998) relative to public firms. Although public firms have access to a broader pool of capital, the trade-off of such benefits firstly occurs in the form of ownership and control in which shareholders are not directly involved in management of the firm and secondly liquidity of a firms shares enables ease of selling which in itself has been shown to attract Short-term investors (M. Kang, Khaksari, & Nam., 2018).

Asker et al. (2015) collaborated these earlier views which link ownership, market pressures and investments by showing that listed firms are less responsive to investment opportunities and invest to a lower degree relative to similar, privately held firms, and that short-termism plays a key factor in explaining differences in investment behaviour particulary in industries sensitive

to earnings news. The study further suggests that myopic incentives play an important role in explaining distortions in investment decision making, however also cautions that short-termism is not necessarily the only driving mechanism behind this.

Kang, et al. (2018) link corporate investment to short-term return reversals by showing that higher corporate investments alters stock risk through the conversion of growth options into assets in place and in so doing, improves stock liquidity, ultimately leads to weaker short-term return reversals.

Existing studies capture investment in various measures. A firms investment by way of their CAPEX allows firms to increase their assets by incorporating additional capacity (buying property, plant and equipment), buying another firms existing assets (through mergers and acquisitions) or some combination thereof (Asker & Farre-mensa, 2014). The study by Asker et al. (2015) employs an investment measure which captures both CAPEX and Mergers and Acquisitions (M&A) by modelling a firms gross investment from the start-of-year total assets. Similar measures of corporate investment was employed in the study by (Fama & French, 2015; M. Kang et al., 2018)

A firms investment should be captured as a function which incorporates both tangible and intangible assets (Asker & Farre-mensa, 2014; Nikolov, 2018; Porter, 1992). Asker et al. (2015) captures the firm's intangible assets to include goodwill, R&D and advertising spend by measuring the annual change in noncurrent assets (gross or net of depreciation) and the change in total assets. They find that private-firm investment continues to be more sensitive to changes in investment opportunities when we include goodwill (captured as part of noncurrent assets) or advertising.

(Jordan, Kim, & Liu, 2016) shows that high growth firms (firms with high sales growth and R&D intensity) trade at a higher valuation (a higher Tobins Q) relative to low growth firms. Furthermore the findings make a case for firms to employ long-term growth outlooks as they benefit to a greater extent from the adoption of antitakeover provisions (like dual-class shares) so that managers can focus on creating long-term value for shareholders instead of delivering short-term results.

A potential counter argument to the decreased levels of investment is highlighted by Mauboussin and Callahan (2015) who refers to the change in market composition and sectors with shorter lived assets (such as technology sectors and even health care) taking up a more prominent position in today climate relative to the past by referencing This shorter asset lives

are suggestive of shorter time horizons over which managers should invest (Mauboussin & Callahan, 2015). With this in mind, perhaps a new measure of investment in needed to be relevant in the current climate.

2.6   Short-termism and accounting measures

In an accounting sense, short-termism may be viewed as the continued practice of manipulating real activities that are concerned with financial reporting, all of which are based on the objective of meeting targeted earning thresholds (Nikolov, 2018), or inflating current earnings (Y. Chen et al., 2015). On the basis of this, empirical research studies (Y. Chen et al., 2015) on short-termism have used earnings management as a proxies for short-termism. The established link between earnings management (in the form of real activities and accruals) and its relation to short-termism will be explored in greater detail below.

2.6.1   Earnings management

Earnings management, is concerned with the judgement manager's exercise during financial reporting and the deliberate timing of transactions with the objective of possibly misleading stakeholders either with regards to the underlying economic performance of the firm or influencing other outcomes that depend accounting numbers (Y. Chen et al., 2015; Gunny, 2010).

Graham et al. (2005) surveyed 400 CFO's, and found 78% of these executives admitted to sacrificing long-term economic value to smooth and maintain earnings and financial disclosures, thereby emphasising the importance executives place of smoothing, maintaining predictable earnings and prioritising quarterly earnings benchmarks. The rationale behind this being that by prioritizing earnings rather than cash flow bench marks, firms are able to meet earnings targets and in so doing, build credibility within the market which subsequently increases the firms share price.

Ali & Zhang (2015) show that CEOs may also engage in earnings management by overstating the earnings during the early years of their tenure in order to favourably influence market perceptions of their ability. Accrual and real earnings management are the two key mechanisms by which firms manage their earnings and has been widely used (Bhojraj, Hribar, Picconi, & Mcinnis, 2009; Cohen & Zarowin, 2010; Dichev, Graham, Harvey, & Rajgopal, 2012; Roychowdhury, 2006) to comprehensively capture earnings management and to determine earnings quality.

Accrual-based earnings management

Accruals based earnings management is concerned with the choice of accounting methods used and capitalises on manipulating these accounting methods for a set of given transactions such as the method of fixed asset depreciation, provision for bad debt or inventory cost methods (Y. Chen et al., 2015; Gunny, 2010). By engaging in such practices, managers are able to opportunistically alter the reported earnings without actually changing the economic nature of the transaction (Y. Chen et al., 2015). Accounting misconduct in the form of accrual management involves practices like off balance sheet financing, shifting classifications and murky accounting notes in reported financial statements are still within the realm of generally accepted accounting principles GAAP but represent opportunities by which managers are able to conceal, manipulate or even hoard bad news (Callen & Fang, 2015; Gunny, 2010).

Real earnings management

Real earnings management occurs by altering the firms operations and subsequently affects cash flow, thereby making the effects of such practices significantly more harmful to a firms long run capabilities (Y. Chen et al., 2015; Roychowdhury, 2006).

Surrounding literature regarding real activity manipulation can be viewed in two broad forms, operating and investment activities and financial activities (Zhaohui, Gary, & Michael, 2007).

Operating and investment activities

   i.   Manipulating discretionary expenditures. This involves reducing or even eliminating R&D, advertising, SGA (selling, general and administrative) expenses to reduce costs(Gunny, 2010; Nikolov, 2018).
   ii. Intentional timing of sales and fixed assets so as to report gains (Gunny, 2010; Nikolov, 2018).
   iii. Targeted sales manipulation through promotions, cost cutting or even extending more favourable credit terms to customers (Gunny, 2010; Nikolov, 2018; Roychowdhury, 2006).
   iv. Increasing production/overproduction with the intent to decrease cost of goods sold (Gunny, 2010; Nikolov, 2018; Roychowdhury, 2006).

Financing activities include manipulations of financial measures. For instance, EPS manipulations such as share buy backs or stock repurchasing are also know measures by which managers may avoid EPS dilutions (Gunny, 2010)

Manipulating Earnings per Share (EPS)

The net profit after tax is often expressed and interpreted on a per share basis which is normalised by the number of shares outstanding so that they may be comparable across different firms (Gupta, 2017). This measure of earnings is known as Earnings per Share (EPS).

$$EPS = \frac{Net\ profit\ after\ tax - Dividends\ on\ preferred\ stock}{Average\ Outstanding\ Shares}$$

It is well known that performance measures influence and drive behaviour. Earnings are a key component on financial statements and provide information central to firm valuations, as such, they are commonly used by stakeholders to assess and incentivise management performance through executive compensation packages.

Share buy backs reduce the number of common shares outstanding and therefore may be used by management to manipulate an increase the firm's earnings per share (Zhaohui et al., 2007). Although share-buy backs may be attributed to a variety of feasible motivations which include the distribution of excess cash, signalling of a firms future expectations or offsetting share dilution that can arise from employee option exercising, there is evidence that they are also used to favourably alter the EPS denominator to showcase a higher EPS (Bens, Nagar, Skinner, & Wong, 2003; Cheng, Harford, & Zhang, 2015). Cheng, Harford, & Zhang (2015), shows that when CEO bonus structures include earnings per share (EPS) performance measures, the firm is more likely to conduct share buybacks, particularly when the firms EPS is right below the threshold for a bonus reward.

Stock repurchases come with the opportunity costs of a firm either reducing their investments or increasing its leverage, both of which reduces future earnings (Bens et al., 2003). Cheng et al, (2015) show that bonus driven, stock repurchasing firms do not exhibit positive long run abnormal returns as these repurchases are a result of suboptimal managerial decisions which are myopic in nature. This is collaborated by (S. Kim & Ng, 2018) who find that managers with EPS-based bonuses repurchase shares at a higher average price than managers without EPS-based bonuses to the detriment of the firm.

Despite similar computations of earnings quality and earnings management being amongst the most common form of differentiation between long and Short-term orientated firms due to the rational presented in the sections above, Mauboussin & Callahan (2015) argue that it is

equally conceivable that long-term companies may engage in such forms of earnings manipulations to swap capital markets.

2.7   Conclusion

The research problem which this study aims determine whether or not short-termism is evident in JSE listed firms. This requires an empirical measure of the construct of short-termism with which to classify listed firms. To this end, the literature as presented above was focused on broadly understanding the construct, first from an investor level, through to an executive level. This provided the basis with which to begin to derive potential measures that can be used to measure short-termism. These empirical measures are underpinned financial and behavioural theory. Following on from this, the second research question was aimed at determining if short-termism does indeed diminish shareholder returns over time, or alternatively stated, whether or not a greater degree of benefit may be derived by investing in firms with a longer-term orientation.

3. CHAPTER 3: RESEARCH HYPOTHESIS

The overarching purpose of this research investigation is provide an empirical measure of short-termism to form an investment style and thereafter, to test the effectiveness of this investment style in generating positive abnormal returns for shareholders.

Throughout the report, the empirical index measure will be referred to as the 'long-termism index'. The reason for this is because short-termism, as discussed in Section 2, is constituted of an array of complex factors working together which is often difficult to measure. In contrast, literature is unanimous on key characteristics which define long-term orientated firms that can be constituted into the index with a greater degree of confidence.

The first research question is concerned with using the composite, long-termism index to systematically classify long-term orientated firms from short-term orientated firms as they occur within top 160 shares on the Johannesburg Stock Exchange.

Research Question 1: Is short-termism evident in JSE listed firms?

- **Null hypothesis (H_0):** There is no difference in proportions between firms classified as long-term vs those classified as short-term firms
- **Alternate hypothesis (H_1):** There is a difference in proportions between firms classified as long-term vs those classified as short-term firms

In order to determine whether or not the long-termism index measure was effective in classification, the difference in means between the long vs short-term classified firms will be tested using the firm's long-termism index score.

The second research question and associated hypothesis is concerned with using the long-termism index as an investment style and testing the effectiveness of this particular investment style on investor returns thereby contributing to the ongoing debate surrounding short vs long-termism.

Research Question 2: Is there a significant difference in investor returns for long-term vs short-term orientated firms in the JSE?

Research Question 2a: If so, does this increase/decrease/stay the same over time?

Hypothesis 2: Short-termism decreases shareholder returns over time

- **Null hypothesis (H_0):** There is no difference between the shareholder returns of long-term orientated firms and short-term orientated firms in the top JSE listed firms.
- **Alternate hypothesis (H_1):** There is a negative association between short-termism and shareholder returns in the top JSE listed firms

In order to determine whether or not there is a significant difference in shareholder returns generated form the long vs short-term orientated firms, the cumulative shareholder returns over the span of the study will be used.

Each of the questions and associated hypothesis will be presented with their associated results in Chapter 5 of the research report.

4. CHAPTER 4: RESEARCH METHODOLOGY

The following chapter presents a comprehensive explanation detailing the research methodology. The research study and design was formulated based on the theoretical foundations presented in Chapter 2. The section first presents a cohesive summary of the research design. The sections succeeding this then goes into the intricacies of the design specifications and the rationale underpinning it.

4.1 Research Design

The research philosophy adopted a positivism approach. This approach, as defined by Saunders, Lewis, & Thornhill (2009), utilises highly structured methods to facilitate replication from which one can attain law like generalisations. The research designed was made up of two distinct parts. The first part involved the construction of a long-termism index. The second part made use of this index as an investment style with which was used to test whether or not this particular investment style could be used to generate positive abnormal returns.

In summary, the study made use of a deductive approach with a quasi-experimental research strategy Furthermore, the investigation was a quantitative, mono method, longitudinal study. Each of the method choices constituting this design are justified in the succeeding sections. A diagrammatic representation outlining the overall research design is presented in Figure 1 below.

Formulation of Long-Termism Index — PART A

JSE
Top 160
Firms

Industry
Classification
by ICB

Metric 1
Investment
Ascending Order → Industry Classification → Score based on ranking

Metric 2
Accruals
Descending Order → Industry Classification → Score based on ranking

Metric 3
EPS – Earnings Growth
Descending Order → Industry Classification → Score based on ranking

Composite Long-term Index
Sum of ranking.
Each metric is equally weighted

The Style Engine — PART B

Create
Equally weighted quintile portfolios every quarter →

Measure
Total Shareholder Returns (TSR) →

Create
20 year graphical time series

Calculate daily returns of each portfolio
Indexed to 1.0

Retain
portfolio returns at the end of each quarter

Figure 1. Summary of research design

Source: Own research

Please note-The long-termism metric with associated calculations are presented in Table 2 of Section 4.7.

The justification of this selected research design choices are based on the use of the following:

- Data sourced from an independent institution. The relevant financial data from listed entities were taken from the Johannesburg Stock Exchange (JSE) Bulletin and INET (now known as McGregor) databases.
- Controlled, externally audited financial data for the top 160 shares (in terms of market capitalisation) for JSE listed firms operating within various industries.
- A total of three, measurable, metrics as specified in (Table 2) were calculated from the financial data using the INET database. Each of these metrics were underpinned by the theory detailed in Chapter 2 of the literature review.
- This 3 factor metric represented a firms patterns of investments and earnings management. This was used to create a long-termism index which formed the basis of differentiation of long-term orientated firms from others.
- Firms were only compared relative to their industry peers. Each metric was treated as an equally viable measure and was given an equal weighting.
- The index was calculated from the cumulative rank % of the firm on each of the three metrics. Long-termism was the investment style used to construct equal weighted quintile portfolios.
- The quintile portfolios tracked the daily shareholder returns in terms of share appreciation and dividends between December 1997 up to December 2017. Data for shareholder returns were sourced from the JSE bulletin.

The quasi-experimental research strategy was conducted with the objective of gaining insights into an area where sparse research has been conducted towards understanding the effect of short-termism on investor returns and firms performance. The investigation produced deliverables in the form of empirical evidence which allowed for quantifiable, comparisons of investor returns of both long and short-term orientated firms.

A deductive approach, as described by Saunders, Lewis, and Thornhill (2008) was suitable as the study involved the testing of theoretical constructs of long-termism and short-termism by using a research strategy specifically designed for the purpose of this testing.

The selected methodological choice was a mono-method approach. This method utilised secondary, longitudinal (20-year period), numerical, financial data which was then analysed using a quantitative approach. The audited, reported, financial data in the income and cash

flow statements were used to calculate the measures which were used in the construction of the long-termism index. The selected time horizon was December 1997 - December 2017. Although there is adequate financial data justifying a longer period of study, the time horizon selected was due to the input parameters utilised in the calculation of the investment metric. This metric calculation required at least 10 years' worth of firm investment data. This was based on a proven, ongoing investment optimisation study by (Pravin, Michael, & Chris, 2018) which was conducted for JSE listed firms.

4.2 Population

4.2.1 The Johannesburg stock exchange (JSE)

The Johannesburg Stock Exchange (hereafter referred to as the JSE) was formed in the gold rush period in 1887 and today it represents a self-regulating, multi-asset class security exchange (JSE Limited, 2017). Currently (2018) the JSE is ranked as the 19th largest stock exchange globally in terms of market capitalisation and provides an entryway for both local and international investors to gain access to capital markets within South Africa and the wider African continent. The JSE service offerings include 5 financial markets composited of equities, bonds financial, commodity and interest rate derivatives ("JSE - Johannesburg Stock Exchange," 2013)

The JSE All Share Index (ALSI) reflects the movement of the equity market and represents 99% of the market capitalisation of listed, ordinary securities. For this reason, the population of this investigation constitutes the shares making up this index (from Dec 1997-Dec 2017) as they represent all leading securities. Furthermore, by restricting the population to only those shares that constitute the All Share Index, data skewing by small or illiquid shares was prevented.

4.3 Sampling method and size

The type of sampling utilised in this investigation is non-probability, purposive sampling.

4.3.1 Firm selections and industry classifications

The JSE classifies all listed companies into one of three sectors based on their revenue. The classification is adapted from the Industry Classification Benchmark (ICB). The SA Sector

classification is mapped directly to the current global ICB methodology (JSE, 2018) and comprise 3 main sectors. These SA sector classifications appear as follows:

SA Resources: ICB Industries Oil & Gas (0001) and Basic Materials (1000)
SA Financials: ICB Industry Financials (8000)
SA Industrials: All remaining companies

Following from the broad classes above, these are then further split into 10 industries, 19 super sectors, 40 sectors and then many smaller sub sectors.

For the purposes of the research investigation, the top JSE listed firms will be classified at the industry level. Industry level classification is important as the metrics used for the creation of long-termism index is highly variable across industries. Exclusion of this step will yield false results.

The population will include all listed firms (representing the unit) which are classed under each industry. Regulated industries such as financial services and health care were excluded from the analysis. Furthermore, industry sectors with less than 5 firms per industry will also be excluded due to insufficient sample size.

The top 160 firms falling within the following industry classifications were analysed within this investigation can be found in Table 1.

Table 1. Industry selections based on JSE, ICB classification standards

Industry Name	Industry Short Code	Use in Study	Rational
Oil&Gas	J500	Excluded	Insufficient number of firms
Basic Materials	J510	Included	-
Industrials	J520	Included	-
Consumer Goods	J530	Included	-
Health Care	J540	Excluded	Regulated industries
Consumer Services	J550	Included	-
Telecommunications	J560	Excluded	Insufficient number of firms
Utilities	J570	Excluded	Regulated industries
Financials	J580	Excluded	Regulated industries
Technology	J590	Excluded	Insufficient number of firms

4.4 Unit of analysis

The specific unit being measured is the financial data of publicly listed firms on the Johannesburg Stock Exchange during the period of 31 December 1997 – 2017 (~20-years of firm data).

4.5 Measurement instrument

4.5.1 The style engine

For applications to this study the Style Engine, developed by Muller & Ward (2013), which is a Microsoft Excel ™ based model which utilises Visual Basic Applications ™ was used. All of the measurable metrics linked to the hypotheses was then incorporated into this model. The databases, construction of the long-termism index (See Table 2), style ranking and portfolio generation was performed using the Style Engine.

4.5.2 SPSS Statistics

In order to supplement the discussion and analysis of the graphical time series analysis several statistical robustness tests were also included in the investigation. These included the Shapiro-Wilk test for normality, the Kolmogorov-Smirnov test, the non-parametric, Mann-Whitney U test for differences.

4.6 Data collection process

The data utilised for this investigation comprised secondary, raw data. The downloadable data is available in the public domain and through paid subscription databases (available through institutional access).

Historical databases which included shareholder return data from the work by Muller & Ward (2013) for the period 31 Dec 1986-31 Dec 2011 were used and updated to include additional data up to December 2017 with permission from the owners. This data was sourced from the JSE bulletin and INET (now known as McGregor BFA) databases.

4.7   Data analysis

Short-termism is a result of a culmination of several complex factors working together in a firm which makes the construct difficult to measure. Long-term firms however, display several key characteristics which are unanimously agreed upon in existing literature and which can be measured using financial reported data of listed firms. Therefore, the study includes the formulation of a long-termism index following from the literature discussed in Chapter 2 of the literature review.

4.7.1   Formulation of the long-termism index – Part A

The formulation of the long-termism index forms Part A of the research design referred to in Figure 1. A large extent of empirical research utilizes either earnings management (Berger, 2011; Bhojraj et al., 2009; Brochet et al., 2015; Call, Chen, Miao, & Tong, 2014; Cohen & Zarowin, 2010; Dechow, Sloan, & Sweeney, 1995; Gunny, 2010; Lee, Li, & Yue, 2006) or investments (Marginson & Mcaulay, 2007; Porter, 1992; Asker et al., 2015; Fama & French, 2015) as proxies for short vs long-term firm classification. These academic papers provided the theory and rational for the selection of metric used in the index.

The formulation of the long-termism index was similar to the Corporate Horizon Index (CHI) used by Gumbel & McKinsey US Design Center (2017) which enabled the classification of firms into both long and short-term orientated firms based on patterns of investment, growth, and earnings quality and earnings management. This was successfully used to detect the level of short-termism present in 615 listed, US firms.

Table 2 shows a summary of the three metrics used to create the long-termism index together with a summary of the theoretical underpinnings of each measure.

Table 2. *Long-termism index metrics*

Rational Summary (detailed in Chapter2)	References	Equation
Metric 1-Investment Short-termism is often associated with either restricted or lack of investment (in the form of CAPEX spend) of both tangible and intangible assets	(Marginson & Mcaulay, 2007; Porter, 1992; Asker et al., 2015; Fama & French, 2015)	Investment was defined as the annual increase in total fixed assets (i.e., property, plant, and equipment) scaled by beginning-of-year total assets.
Metric 2-Earnings Management (Accruals) Short-termism has been linked to managers prioritizing earnings rather than cash flow bench marks so that firms are able to meet earnings targets. Accrual and real earnings management are the two key mechanisms by which firms manage their earnings and have been used as proxies to measure short-termism. Earnings driven by positive accrual adjustments (i.e., profits are greater than cash flow from operations) is a bad signal about future profitability and returns and is indicative of earnings management.	Bhojraj, Hribar, Picconi, & Mcinnis, 2009; Cohen & Zarowin, 2010; Dichev, Graham, Harvey, & Rajgopal, 2012; Roychowdhury, 2006; (Piotroski, 2000)	$Total\ Accruals$ $= Net\ Income\ before\ extraordinary\ items$ $- operating\ cash\ flow$
Metric 3-Earnings Management (EPS & Earnings Growth) Long-term firms focused less on analyst metrics (like EPS) and more on fundamental value. Short-term firms will consistently emphasise EPS over true earnings growth	(Gumbel & McKinsey US Design Center, 2017)	$EPS\ Growth - Net\ Profit\ Growth$ Where: $EPS = (Net\ Income - Dividends\ on\ Preferred\ Stock) / Average\ Outstanding\ Shares$ $Net\ Profit\ Growth\ (\%) = \dfrac{Net\ Profit_{t+1} - Net\ Profit_t}{Net\ Profit_t} \times 100$

4.7.2 Style based investing – Part B

The formulation of the long-termism index forms Part B of the research design referred to in Figure 1. Style investing is centred on groupings or classes, all of which share some common characteristic (Barberis & Shleifer., 2003). Such styles offer an attractive mode of investment for institutional and individual investors because classifications simplify the investment process and the follow systematic rules for portfolio allocation (Barberis & Shleifer., 2003).

This research investigation aimed to develop an investment style which groups firms into long and short-term orientated firms and then assessed the shareholder returns that would be derived from such a style based investment strategy.

4.7.3 Portfolio construction using style investing

The following parameters constituted the input parameters of the style engine:

- The start date of the study (set at 31 Dec 1997)
- The last day of the study (set at 31 Dec 2017)
- The number of portfolios to be generated were set at five
- The period of review was very quarter (March, June, September and December)

The specific investment style (long-termism) that was coded into the style engine model was defined as a combination of investment, accruals and EPS less earnings growth as shown in Table 2. Each metric was given an equal weighting (i.e. no metric was more indicative than another).

Firms with high levels of investments, low levels of accruals and firms which do not over index on EPS vs earnings growth were treated as 'Long-term' orientated firms.

Based on this, the top firms within their respective industries were ranked on investment (ascending order), accruals (descending order), and EPS less true earnings growth (descending order). The resultant rank percent of each of these metrics were composited into a singular long-termism index as follows:

Long-term Index = Investment rank%+Accruals rank%+EPS less Earnings growth Rank %
These were normalised to form the long-term index rank % for each firm.

The long-term index ranking, represented the investment style of this research investigation and was used to generate equally weighted, quintile portfolios. Portfolio 1 represented the returns of the most long-term orientated firms and portfolio 5 represented the returns of firms with the least long-term orientation (i.e.-Short-term orientated firms). Portfolio 5 contained firms that display low levels of investment and high levels of earnings management. Only firms operating within the same industry were ranked relative to each other as the three metrics are variable across different industries.

On a daily basis the shareholder returns were calculated for each portfolio all indexed to 1. The total shareholder returns included share appreciation plus dividends paid (in terms of dividend yield) expressed as an annualised %

$$Market\ value\ of\ equity = closing\ share\ price \times No.shares\ outstanding \qquad (1)$$
$$Shareholder\ return = \%\,\Delta\ market\ equity\ value \qquad (2)$$

 Portfolio rebalancing was performed on the final day of each quarter (March, June, September and December) of each year.

The above process was then repeated. The cumulative portfolio values (at the end of each quarter) leading up to December 2017 was retained and reinvested.

The end result was a time series graph that traced the shareholder daily returns of long vs sort term orientated firm as classified and ranked by the long-termism index and provided the cumulative returns generated during the span of the study. This enabled easy comparisons of quintile portfolios.

4.8   Data quality and controls

In order to maintain high data quality standards the following quality controls were imposed:

Share price data from the JSE bulletin and company financial data from INET was utilised for the construction of the long-termism-index and to generate the returns for the respective portfolios.

- Accounting variables were lagged by three months following the reported year end date. This is to account for the delays that companies face between the date of reporting and the release date of audited financial data. By doing this, the data is free of 'look ahead biases' (Muller & Ward, 2013)
- This investigation examines the investment style of 'long-termism' using a graphical time series approach. This method accounts for the cumulative abnormal returns in event study rather than using average monthly or quarterly returns used in inferential statistics (like T-tests) which is considered to me methodologically weaker (Muller & Ward, 2013)
- The use of quintile portfolios were used to reduce the volatility in the data and asses variability in shareholder returns generated from long vs short-term firms.
- Survivorship bias was eliminated as all newly listed shares were included at the beginning of each quarter. All delisted shares were removed.
- The dataset also included backwards adjusted changes in share price which were a result of share splits. For spin offs, the returns from the newly listed subsidiary were combined with those of the original holding firm for the quarterly review period and thereafter treated as a separate entity
- Each of the

In addition to analysing the results of long vs Short-term orientated firms through a graphical time series approach, several statistical tests for robustness were also included. These are discussed in detail below.

4.8.1   Test for normality -

Tests for normality were performed on the industry level data used to generate the portfolios for each for the four industries used in this investigation. This is because testing for statistically

significant differences in the returns require the use of certain statistical tests (such as ANOVA or T-tests) which assume normally distributed data. In order to test this assumption the Shapiro-Wilk test for normality was used.

Normal distribution through the use of the Shapiro-Wilk test is determined via the associated hypothesis:

- Fail to reject the null hypothesis for $p \geq 0.050$. This result indicates that the data are normally distributed at a 95% confidence level (Shapiro & Wilk, 1965)

-

- Reject the null hypothesis when p-value < 0.050. This result indicates that the data are not normally distributed at a 95% confidence level (Shapiro & Wilk, 1965).

4.8.2   Test for Differences –Mann-Whitney U test

Based on Field, (2013), the assumptions required for this the test include:

Assumption 1- A dependent variable measured on a continuous level- In this investigation, daily shareholder returns were used.

Assumption 2- One independent variable consisting of two categorical independent groups – In this case portfolio 1 (representing the most long-term orientated forms) and portfolio 5 (representing the least long-term orientated firms/Short-term firms)

Assumption 3- Independence of observations. Each of the portfolios were constituted of different firms. The firms present within each of these portfolios were determined by their long-term index rank.

Assumption 4 – To determine if the distribution of scores of both groups of the independent variable have similar/dis-similar shapes. This has implications for the data interpretation.

The associated hypothesis associated with these were stated as follows:

H_o – the distribution of scores for portfolio 1 and portfolio 5 are equal
H_1 – the distribution of scores for portfolio 1 and portfolio 5 are equal
OR
H1- the mean ranks of the two groups are not equal

4.9   Research limitations

The research has various limitations, which include:

- Holding-based style is not suited to predicting future fund returns (ter Horst, Nijman, & de Roon, 2004) so any future extrapolation is not advised.
- The time span of the study may not be optimal to deduce the full value effect of long-term orientated firms on shareholder value
- The sample size and sector classification is small relative to listed firms in developing countries

5. CHAPTER 5: RESULTS

The results as presented below are in accordance with the research hypothesis presented in Section 3 and is focused on establishing if the style of long-termism can be used to generate abnormal returns for shareholders. The study was controlled for by size and by industry. As such the statistics presented below are all constituted of data between the periods December 1997 to December 2017.

This section is structured as per the research questions specified in Chapter 3. For each research question, an overview of the objective will be discussed, followed by the descriptive statistics on the sample size. Other statistical tests and associated results will be presented thereafter followed by concluding remarks.

The naming convention throughout this section uses the industry codes followed by the portfolio number. For instance, the basic materials industry (J510) contains 5 portfolios with portfolio 1 representing the returns for long and Short-term orientated firms. Therefore, the portfolios are labelled J510**1**, J510**2**, and J510**3**… etc.

5.1 Research question 1

This research question sought to determine if the long-termism index could be used successfully in classification of firms into long or short-term firms and, in so doing, establish if Short-termism is present in JSE listed firms. As per the research design, based on the long-termism index score, firms were placed into quintile portfolios with portfolio 1 representing the most long-term orientated firms and portfolio 5 containing the least long-term orientated firms. The success of the metric can be ascertained by analysing the long-termism index score and then testing for statistically significant difference between the means of portfolio 1 and portfolio 5 as based on this long-termism index score.

Important Note
The definition of long-term firms utilised in this investigation are those firms which display low levels of accruals, high levels of investment and do not over index on short-term metrics such as EPS growth at the expense of real earnings growth.

Table 3. *Long-termism index definition*

Metrics	Unit	Applied Ranking
Investments	%	Ascending Order
Accruals	%	Descending Order
EPS less Earnings Growth	%	Descending Order

However, the descriptive statistics represented below were performed on the actual metric calculations. This means, this was *before* the rankings stated above were applied so the opposite will be observed. For example, accruals will be high in portfolio 1 and low in portfolio 5 instead of vice versa as implied by the definition in Table 3. The only metric that is unaffected by the reverse ranking is the investment metric. This must be considered when analysing the descriptive statistic results below.

5.1.1 Descriptive statistics results

The resultant values of accruals, investments and EPS less earnings growth were coded into the style engine. Each metric was calculated as a percentage. The same unit was required as individual metrics were then consolidated to form the long-termism index itself as described in Section 4.7.1. The descriptive statistics on each metric constituting the composite metric as well as the scores for the long-termism index itself is provided in Table 4 - Table 7 for each industry. In these tables, N represents the years of study. The study period was from 31 December 1997 up to and including 31 December 2017. This represents approximately 21 years' worth of data. The N differed slightly for industry J530 and was lower relative to the other industries. Interrogation of the data revealed that this was due to data being un-available for the calculation for at least one of the three metrics used in the calculation of the long-termism portfolio, particularly for the initial years of the study.

For the investment performance measures, the means are highly variable across the different industries which is expected. For portfolio 1, they range from 2.26-42/90 for portfolio 1 and from 0.68 up to 12.71 for portfolio 5.

For the earnings management performance measures the means for accruals in portfolio 1 range from -0.02 to 0.03 and between – 0.05 to -0.09 for portfolio 5. For the EPS less earnings metric, the means ranges from between 1.43 to 0.18 in portfolio 1 and between -1.42 to -0.38 for portfolio 5 across the industries.

For the composited, long-termism index measures descriptive statistics show that the means for the long-termism portfolios were between 0.82-0.85 relative to the means for the short-termism portfolios which ranged between 1.27-1.32. The reason for similar means across the different industries is due to the way in which the long-termism score was calculated. They represent the normalised values. Individual metrics which make up the score all display significantly different means across each of the industries.

Table 4. *Descriptive Statistics for the basic materials industry -J510*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Accruals Portfolio 1	21	-0,05	0,02	-0,02	0,02
Accruals Portfolio 5	21	-0,17	-0,03	-0,09	0,04
Investment Portfolio 1	21	2,14	21,65	7,73	5,86
Investment Portfolio 5	21	0,28	5,04	1,45	1,25
EPS less Earnings Portfolio 1	21	0,12	4,36	1,33	1,41
EPS less Earnings Portfolio 5	21	-3,93	3,22	-1,42	1,57
Long-Termism Index Portfolio 1[a]	21	0,76	0,89	0,82	0,03
Long-Termism Index Portfolio 5[a]	21	1,21	1,38	1,29	0,04

Descriptive statistics were calculated based on the normalized Long-termism Index scores. The Mann-Whitney U tests for differences were conducted on these Long-termism Index Scores

Table 5. *Descriptive statistics for the industrials industry -J520*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Accruals Portfolio 1	21	-0,05	0,11	0,02	0,04
Accruals Portfolio 5	21	-0,15	-0,03	-0,07	0,03
Investment Portfolio 1	21	2,77	45,03	13,89	14,48
Investment Portfolio 5	21	-0,15	6,51	1,45	1,70
EPS less Earnings Portfolio 1	21	-0,19	16,10	1,43	3,46
EPS less Earnings Portfolio 5	21	-1,87	0,06	-0,38	0,41
Long-Termism Index Portfolio 1[a]	21	0,80	0,94	0,85	0,04
Long-Termism Index Portfolio 5[a]	21	1,21	1,34	1,27	0,04

[a] Descriptive statistics were calculated based on the normalized Long-termism Index scores. The Mann-Whitney U tests for differences were conducted on these Long-termism Index Scores

Table 6. *Descriptive statistics for the consumer goods industry-J530*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Accruals Portfolio 1	17	-0,04	0,09	0,01	0,04
Accruals Portfolio 5	21	-0,09	0,00	-0,05	0,03
Investment Portfolio 1	17	0,65	3,65	2,26	0,79
Investment Portfolio 5	21	0,10	2,31	0,68	0,48
EPS less Earnings Portfolio 1	17	-0,10	0,57	0,18	0,16
EPS less Earnings Portfolio 5	21	-9,52	0,04	-0,81	2,05
Long-Termism Index Portfolio 1[a]	17	0,78	0,92	0,84	0,05
Long-Termism Index Portfolio 5[a]	21	1,22	1,46	1,32	0,06

[a] Descriptive statistics were calculated based on the normalized Long-termism Index scores. The Mann-Whitney U tests for differences were conducted on these Long-termism Index Scores

Table 7. *Descriptive statistics the consumer services industry-J550*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Accruals Portfolio 1	21	-0,02	0,11	0,03	0,04
Accruals Portfolio 5	21	-0,12	-0,04	-0,08	0,02
Investment Portfolio 1	21	-0,43	125,46	42,90	32,50
Investment Portfolio 5	21	4.07	22,20	12,71	5,04
EPS less Earnings Portfolio 1	21	-0,20	1,01	0,25	0,26
EPS less Earnings Portfolio 5	21	-2,23	0,21	-0,65	0,72
Long-Termism Index Portfolio 1 [a]	21	0,77	0,97	0,84	0,05
Long-Termism Index Portfolio 5 [a]	21	1,22	1,54	1,32	0,08

[a] Descriptive statistics were calculated based on the normalized Long-termism Index scores. The NoteMann-Whitney U tests for differences were conducted on these Long-termism Index Scores

5.1.2   Test for differences: Mann Whitney U test

A Mann-Whitney U test was run to determine if there were differences in the long-term index scores between portfolio 1 and portfolio 5. Distributions of the scores for portfolio 1 and portfolio 5 were not similar, as assessed by visual inspection.

Long-termism scores for portfolio 1 (mean rank = 11.00) were statistically significantly lower than those of portfolio 5 (mean rank = 32.00) for the J510, J520 and J550 industries, $z = 3.240$, $p = .000$.

The long-termism scores for portfolio 1 (mean rank = 9.00) were statistically significantly lower than those of portfolio 5 (mean rank = 28.00) for the J530 industry,
$z = 3.065$, $p = .000$.

Table 8. *Summarised Mann-Whitney U tests using the Long-termism Index*

Industry	J510	J520	J530	J550
Variable	Portfolio 1 & Portfolio 5	Portfolio 1 & Portfolio 5	Portfolio 1 & Portfolio 5	Portfolio 1 & Portfolio 5
Portfolio 1 - Mean Rank	11,00	11,00	9,00	11,00
Portfolio 5- Mean Rank	32,00	32,00	28,00	32,00
Mann-U Test Statistic	0,00	0,00	0,00	0,00
Sig. (2-tailed)*	0,000	0,000	.000	0,000
Result	Reject the null hypothesis	Reject the null hypothesis	Reject the null hypothesis	Reject the null hypothesis

Significance level 0.05

5.2   Research question 2

In order to ascertain significant differences in total shareholder returns based on the performance of portfolio 1 (containing the most long-term orientated forms) and portfolio 5 (containing the least long-term orientated firms), inferential tests for statistically significant differences between these portfolio returns were calculated. Furthermore, each of these will be compared to the returns of industry benchmark for the same period. The industry benchmark is the made up of all the firms in the industry. This allows us to ascertain if the returns are different for long-term vs Short-term firms and if these are significantly different from the returns generated by that industry over the same time period.

5.2.1   Descriptive statistics

As firms could only be measured and compared relative to their industry peers, descriptive statistics for portfolio 1-5 for each of the 4 industries investigated are presented below.

The completed results for the tests for the basic materials (J510), industrials (J520), consumer goods (J530) and consumer services industries (J550) are presented in Table 9 to Table 12 respectively. For industries J510, J520 and J550, a total of 241 months' worth of shareholder returns data was used. For J530, 193 months' worth of shareholder returns data was used based on data availability. It is visually evident that the means are variable across portfolios within the same industry and across the different industries themselves.

Table 9. *Descriptive statistics of shareholder returns of the basic materials industry (J510)*

Portfolio	N Statistic	Mean Statistic	Std. Deviation Statistic
Portfolio-J5101	241	9,14	4,79
Portfolio J5102	241	5,25	2,71
Portfolio -J5103	241	26,71	20,25
Portfolio -J5104	241	11,26	7,55
Portfolio -J5105	241	3,3	1,87
Basic Materials Total Return	241	8,25	4,63

Source: own research

Table 10. *Descriptive statistics of shareholder returns of the industrials industry (J520)*

Portfolios	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
Portfolio -J5201	241	8,46	5,09
Portfolio -J5202	241	1,45	0,77
Portfolio -J5203	241	8,96	6,35
Portfolio -J5204	241	2,58	1,93
Portfolio -J5205	241	3,21	2,13
Industrials Total Returns	241	6,82	5,11

Source: own research

Table 11. *Descriptive statistics of shareholder returns of the consumer goods industry (J530)*

Portfolio	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
Portfolio -J5301	193	5,56	3,83
Portfolio -J5302	193	8,97	7,07
Portfolio -J5303	193	2,98	1,34
Portfolio -J5304	193	5,88	4,93
Portfolio -J5305	193	9,61	6,91
Consumer Goods Total Return	193	4,99	4,38

Source: own research

Table 12. *Descriptive statistics of shareholder returns of the consumer services industry (J550)*

Portfolio	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
Portfolio -J5501	241	9,07	8,81
Portfolio -J5502	241	7,12	6,31
Portfolio -J5503	241	6,99	6,16
Portfolio -J5504	241	17,85	19,7
Portfolio -J5505	241	8,09	7,84
Consumer Services Total Return	241	7,47	8,78

Source: own research

5.2.2 Tests for normality-Shapiro-Wilk Test

The numerical method of assessing normality via the Shapiro-Wilk test was used to determine if the dataset displayed a normal distribution. The test was run for each group (portfolio 1 and portfolio 5) which represented the independent variables. The completed results for the tests for the basic materials, industrials , consumer goods and consumer services industries are presented in Table 19-Table 22 of Appendix 9.1.

A summary of the results for each industry is presented in Table 13. Both the Kolmogorov-Smirnov and the Shapiro-Wilk tests were run for each portfolio as present

within each of the industries under investigation in order to test if the distribution of scores deviates from a normal distribution (Field, 2013).

The test was performed at a 95% level of significance, meaning that the test is significant at $p<0.05$). The results show that the shareholder returns for each of the portfolios within the industry are not normally distributed.

Based on the results, the null hypothesis was rejected (p-value < 0.050) for each portfolio within each of the industries.

Table 13. *Summary of Shapiro-Wilk test results using 20 years of cumulative shareholder returns for all industries investigated*

Portfolio	Industry				Result
	J520	J520	J530	J550	
Portfolio 1	0,000	0,000	0,000	0,000	Reject null hypothesis p<0.05
Portfolio 2	0,000	0,000	0,000	0,000	Reject null hypothesis p<0.05
Portfolio 3	0,000	0,000	0,000	0,000	Reject null hypothesis p<0.05
Portfolio 4	0,000	0,000	0,000	0,000	Reject null hypothesis p<0.05
Portfolio 5	0,000	0,000	0,000	0,000	Reject null hypothesis p<0.05

5.2.3 Statistical tests for differences – Mann-Whitney U test

Based on the results obtained in Section 5.2.2, the dataset was proven to be non-normal in nature, therefore, the Mann-Witney U test was used as an alternative to the independent samples t-test which assumed normal distributions.

The Mann-Witney U test is a rank based non-parametric test which was used to determine the differences between two independent groups, namely , portfolio 1 (representing the most long-term orientated firms) and portfolio 5 (representing short-term orientated firms) as measured on a continuous scale (daily shareholder returns in this case). Assumption 4, as stated in Section 4.8.2 requires that the distributions between the two groups of the independent variables be evaluated. The results of this guides the interpretation of the Mann U test output.

This is because the test is commonly used to assess if there are differences in the distributions between two groups or if there are differences in the medians of the two groups. The output distribution scores as determined by the Mann-Whitney U test determines whether or not there are differences in the distributions of the groups. If however, the distributions are the same, the test is then used to ascertain the difference in the group's medians (Field, 2013).

<u>For the basic materials industry (J510)</u>

A summary of the results of the Mann-Whitney U tests for J530 can be found in Table 14 below

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and portfolio 5. Distributions of the shareholder returns for portfolio 1 and portfolio 5 were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 334.30) were statistically significantly higher than for portfolio 5 (mean rank = 148.70), $U = 6675.5$, $p = 0.000$

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and the industry benchmark. Distributions of the shareholder returns for portfolio 1 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 250.19) were not statistically significantly different than for those of the industry benchmark (mean rank = 232.81), U = 26945. 50, p = 0,171

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 5 and the industry benchmark. Distributions of the shareholder returns for portfolio 5 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 5 (mean rank = 171.34) were statistically significantly lower than for the industry benchmark (mean rank = 311.66), $U = 12131.50$, $p = 0.000$

Table 14. *Summary of Mann-Whitney U test results for the basic materials industry (J510)*

Variable	Portfolio 1 and Portfolio 5	Portfolio 1 and Industry Benchmark	Portfolio 5 and Industry Benchmark
Portfolio 1 - Mean Rank	334,30	250,19	-
Portfolio 5- Mean Rank	148,70	-	171,34
J510 Benchmark -Mean Rank	-	232,81	311,66
Mann-U Test Statistic	6675,5	26945,50	12131,50
Sig. (2-tailed)*	0,000	0,171	0,000
Result	Reject Null Hypothesis	Retain the null hypothesis	Reject Null Hypothesis

Significance level 0.05

Source: Own research

For the industrials industry (J520)

A summary of the results of the Mann-Whitney U tests for J530 can be found in Table 15 below

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and portfolio 5. Distributions of the shareholder returns for portfolio 1 and portfolio 5 were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 313,00) were statistically significantly higher than for portfolio 5 (mean rank = 170,00), $U = 11809,50$, $p = 0.000$

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and the industry benchmark. Distributions of the shareholder returns for portfolio 1 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 261,45) were statistically significantly higher than for those of the industry benchmark (mean rank = 221,55), U = 24233,50, p = 0,002

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 5 and the industry benchmark. Distributions of the shareholder returns for portfolio 5 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 5 (mean rank = 187,29) were statistically significantly lower than for the industry benchmark (mean rank = 295,71), $U = 15976,50$, $p = 0.000$

Table 15. *Summary of Mann-Whitney U test results for the industrials industry* (J520)

Variable	Portfolio 1 and Portfolio 5	Portfolio 1 and Industry Benchmark	Portfolio 5 and Industry Benchmark
Portfolio 1 - Mean Rank	313,00	261,45	-
Portfolio 5- Mean Rank	170,00	-	187,29
J520 Benchmark -Mean Rank		221,55	295,71
Mann-U Test Statistic	11809,50	24233,50	15976,50
Sig. (2-tailed)	0,000	0,002	0,000
Result	Reject Null Hypothesis	Reject Null Hypothesis	Reject Null Hypothesis

Significance level 0.05

Source: Own research

For the consumer goods (J530)

A summary of the results of the Mann-Whitney U tests for J530 can be found in Table 16 below

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and portfolio 5. Distributions of the shareholder returns for portfolio 1 and portfolio 5 were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 161,37) were statistically significantly lower than for portfolio 5 (mean rank = 225,63), $U =$ 12422.50, $p = 0.000$

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and the industry benchmark. Distributions of the shareholder returns for portfolio 1 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 208,56) were statistically significantly higher than for those of the industry benchmark (mean rank = 178,44), U = 15717.50, p = 0.008

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 5 and the industry benchmark. Distributions of the shareholder returns for portfolio 5 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 5 (mean rank = 234,30) were statistically significantly higher than for the industry benchmark (mean rank = 152,70), $U = 10750.50$, $p = 0.000$

Table 16. *Summary of Mann-Whitney U test results for the consumer goods industry (J530)*

Variable	Portfolio 1 and Portfolio 5	Portfolio 1 and Industry Benchmark	Portfolio 5 and Industry Benchmark
Portfolio 1 - Mean Rank	161,37	208,56	-
Portfolio 5- Mean Rank	225,63	-	234,30
J530 Benchmark -Mean Rank		178,44	152,70
Mann-U Test Statistic	12422,50	15717,50	10750,50
Sig. (2-tailed)	0,000	0,008	0,000
Result	Reject Null Hypothesis	Reject Null Hypothesis	Reject Null Hypothesis

Significance level 0.05

Source: Own research

<u>For the consumer services (J550)</u>

A summary of the results of the Mann-Whitney U tests for J550 can be found in Table 17 below

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and portfolio 5. Distributions of the shareholder returns for portfolio 1 and portfolio 5 were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 243,26) were not statistically significantly different than for portfolio 5 (mean rank = 239,74), $U = 28615.50$, $p = 0.781$

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 1 and the industry benchmark. Distributions of the shareholder returns for portfolio 1 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 1 (mean rank = 254,01) were statistically significantly higher than for those of the industry benchmark (mean rank = 228,99), U = 26024.50, p = 0.049.

- A Mann-Whitney U test was run to determine if there were differences in shareholder returns between portfolio 5 and the industry benchmark. Distributions of the shareholder returns for portfolio 5 and the industry benchmark were not similar, as assessed by visual inspection. Shareholder returns for portfolio 5 (mean rank = 254,72) were statistically significantly higher than for the industry benchmark (mean rank = 228,28), $U = 25855.50$, $p = 0.037$

Table 17. *Summary of Mann-Whitney U test results for the consumer services industry (J550)*

Variable	Portfolio 1 and Portfolio 5	Portfolio 1 and Industry Benchmark	Portfolio 5 and Industry Benchmark
Portfolio 1 - Mean Rank	243,26	254,01	
Portfolio 5- Mean Rank	239,74		254,72
J550 Benchmark -Mean Rank		228,99	228,28
Mann-U Test Statistic	28615,50	26024,50	25855,50
Sig. (2-tailed)*	0,781	0,049	0,037
Result	Retain Null Hypothesis	Reject Null Hypothesis	Reject Null Hypothesis

Significance level 0.05

Source: Own research

5.2.4 Statistical test-Graphical time series approach

A summary of the cumulative returns as they were calculated from the style engine is presented in Table 18. These represent the overall returns for the 20 year period of study for each portfolio. The returns are calculated by re-weighing the 'new portfolio' at the start of each quarter. It calculates the daily value of the total returns for that particular portfolio for the remainder of the quarter.

The graphical time series graphs are presented in Figure 2-Figure 5 for each of the industries investigated. Firms were required to be classified and analysed only relative to industry peers. This is because the individual metrics required to produce the Long-term index, and subsequently the investment style, is variable between different industries.

For the basic materials industry, Portfolio 1 (9.27%), outperformed portfolio 5 (8.96%) by 0.3% over the 20 year period. The winner portfolio was Portfolio 3 with the reported returns of 20.78% which was above the industry benchmark of 14.45% for the same period.

For the industrials industry, Portfolio 1 (12.87%), outperformed portfolio 5 (9.21%) by 3.4% over the 20 year period. Like the basic materials industry, the winner portfolio was Portfolio 3 with the reported returns of 16.43% which was above the industry benchmark of 14.48% for the same period. The worst performing portfolio, was portfolio 2 with only 1.21% of cumulative returns.

The consumer goods industry shows a reported difference in returns of -3.8% between Portfolio 1 (15.22%) and Portfolio 5 (19.74%). In this industry, all portfolios, with the exception of portfolio 3 (5.87%), displays a general upward trend. Similar returns were observed for Portfolio's 1 and 4 with returns of 15.22 and 15.63% respectively. These two portfolios displayed similar trends throughout the span of the study which casts a doubt regarding the effectiveness of the style of long-termism in this particular industry. The same was observed for Portfolios 2 (19.59%) and Portfolio 5 (19.74%), both of which were above the industry returns of 16.04%. Initially, portfolio 5, which was also the overall winner portfolio over the span of the study, was the most apparent outperformer between all 5 portfolios. It was only after the global financial crises that portfolio 2 began to display similar returns.

For the consumer services industry, Portfolio 1 outperformed relative to Portfolio 5 by 0.3% over the 20 year period. The winner portfolio was consistently portfolio 4, with documented returns of 20.47%.

Table 18. *Summary of cumulative shareholder returns for 20 years*

Industry	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Relative* (1-5)	Industry Returns
Graphical Colour Key							
Basic Materials-J510	9,27%	10,78%	20,78%	13,63%	8,96%	0,3	14,45%
Industrials -J520	12,87%	1,21%	16,43%	8,42%	9,21%	3,4	14,48%
Consumer Goods - J530	15,22%	19,59%	5,87%	15,63%	19,74%	-3,8	16,04%
Consumer Services -J550	16,47%	15,34%	14,32%	20,47%	16,15%	0.3	18,83%

Relative calculated as the returns of Portfolio 1 less Portfolio 5*

Source: Own research

Figure 2. Graphical time-series graph displaying 20 years of total shareholder returns across quintile portfolios representing long-term vs Short-term investment styles within in the basic materials industry (J510)

Source: Own research

Shareholder Returns Industrials (J520)

Figure 3. Graphical time-series graph displaying 20 years of total shareholder returns across quintile portfolios representing long-term vs Short-term investment styles within in the industrials industry (J520)

Source: Own research

Shareholder Returns -Consumer Goods Industry (J530)

Figure 4. Graphical time-series graph displaying 20 years of total shareholder returns across quintile portfolios representing long-term vs Short-term investment styles within in the consumer goods industry (J530)

Source: Own research
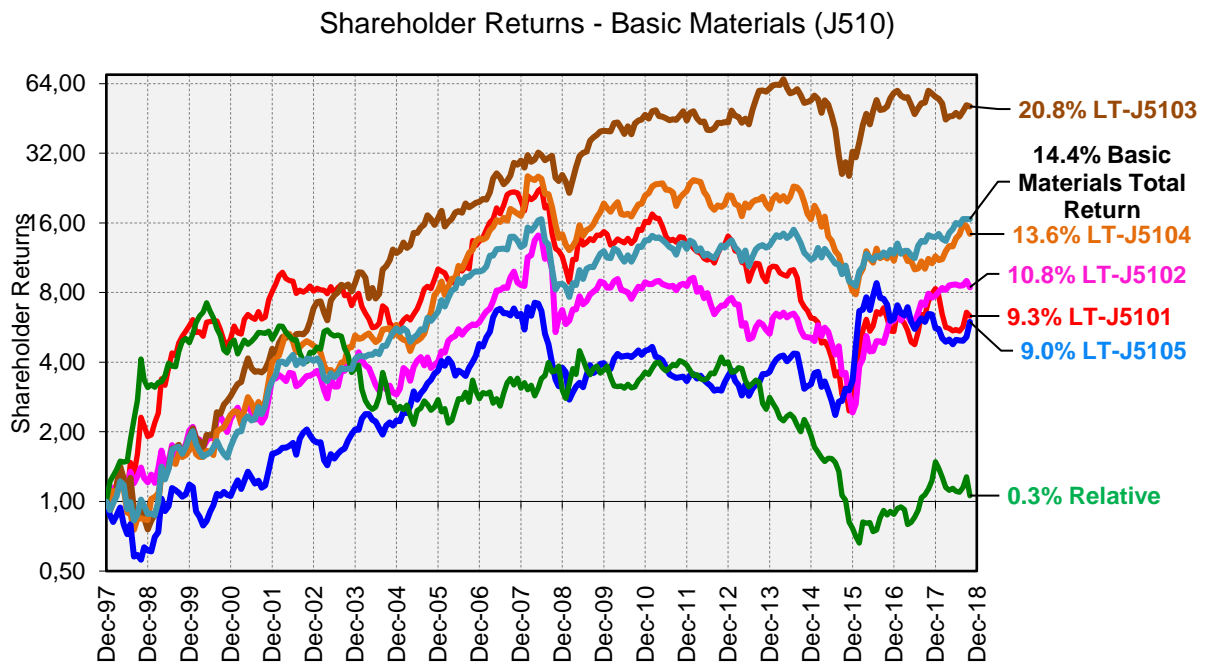
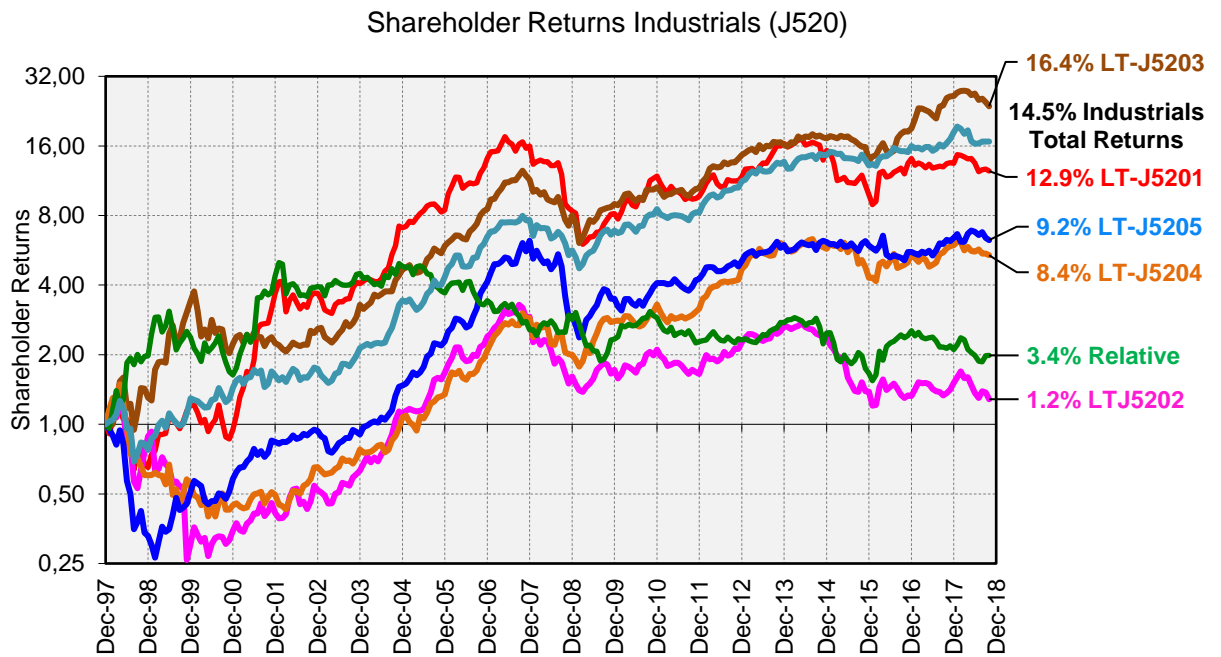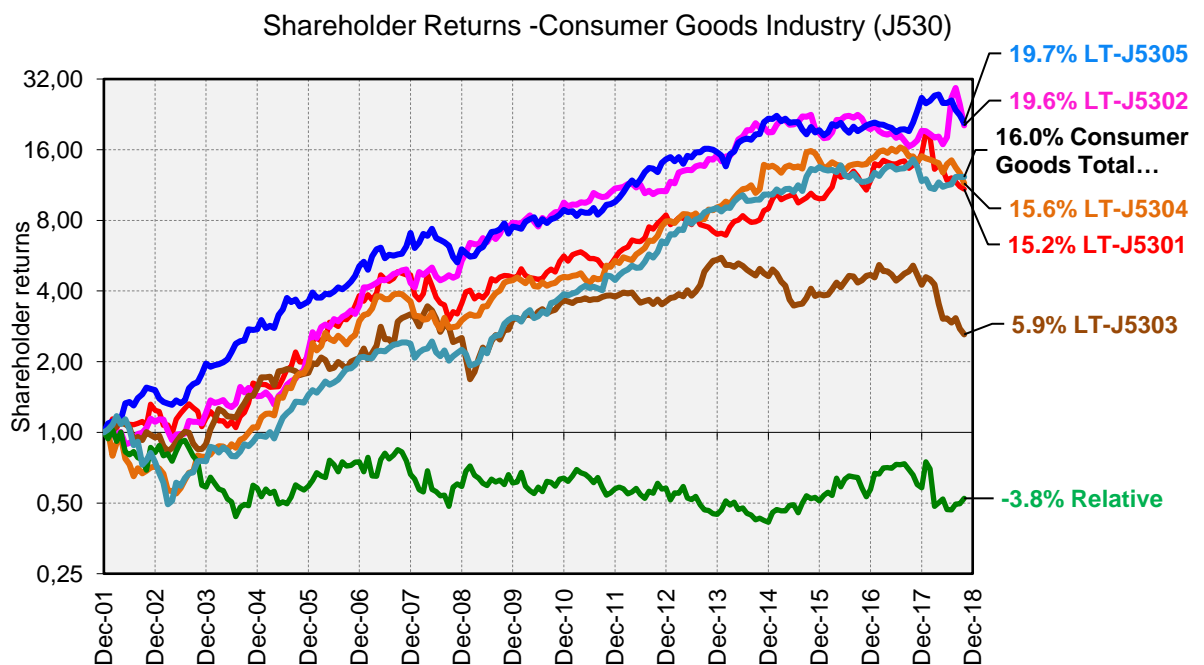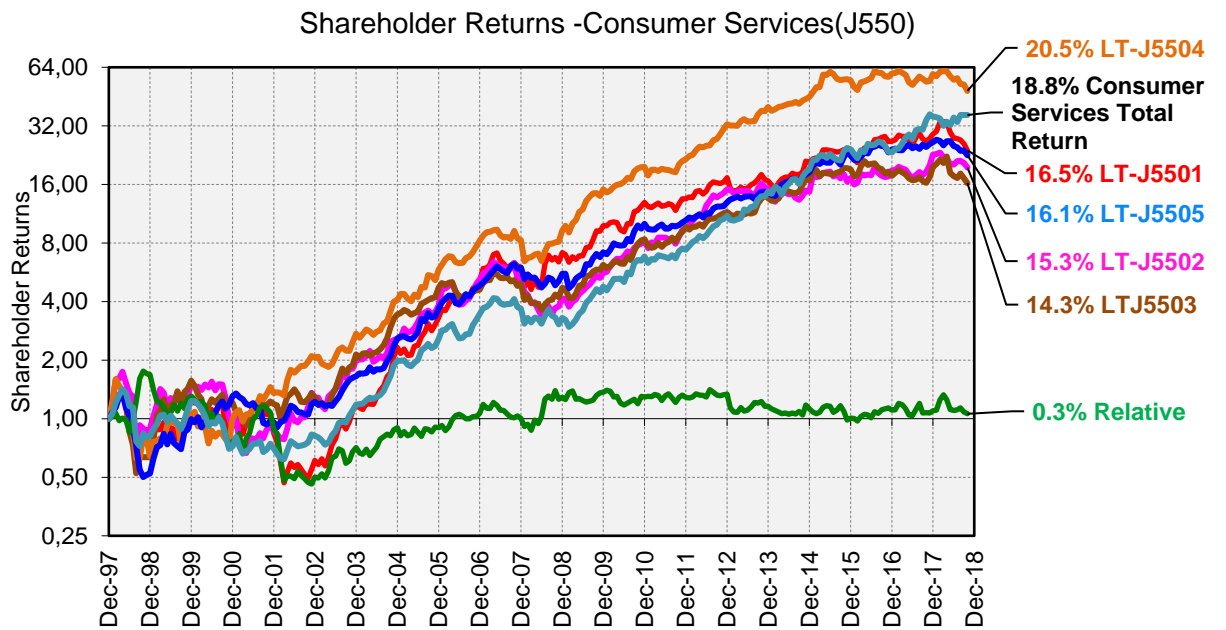**Shareholder Returns -Consumer Services(J550)**

Figure 5. Graphical time-series graph displaying 20 years of total shareholder returns across quintile portfolios representing long-term vs Short-term investment styles within in the consumer services industry (J550)

Source: Own research

6. CHAPTER 6: DISCUSSION OF RESULTS

6.1 Introduction

This chapter seeks to bring together the results of the investigation as presented in Chapter 5, with the theoretical underpinnings put forth in Chapter 2. Through the use of quantifiable, empirical evidence, this chapter will be geared towards answering the overarching question of whether or not short-termism decreases shareholder returns over time, specifically for listed firms operating within South Africa, as an emerging economy.

The structure of this Chapter is presented in two parts in order to address the findings of each of the two research questions. A discussion of the key findings and the insights gained from the investigation will be discussed in relation the relevant literature for each research question. Emphasis will be placed on noting where the research findings agree, or disagree with existing literature. Where results deviate from literature, possible explanations will be reviewed accordingly.

6.2 Research question 1: Is Short-termism present in JSE listed firms?

To date, most research studies concerning the construct of Short-termism has been largely focused on the US (Barton et al., 2017; Graham et al., 2005; Porter, 1992) and European (Thanassoulis & Somekh, 2016) regions with minimal attention devoted to measuring the construct in emerging economies such as South Africa.

Research question 1, and the associated hypothesis 1 therefore focuses on determining whether or not Short-termism is evident in the listed firms on the JSE All Share Index (ALSI).

In order to answer the research question, a basis of classification of long vs Short-term firms was first required. This was achieved through the creation of a composited metric, referred to as the long-term index. Each of the top firms, per industry was measured, and given a subsequent index score which formed the investment style tested in this investigation. Based on a firms index score, they were placed into one of 5 portfolios. The scores were analysed in order to ascertain if there were significant differences

between the scores of long-term (portfolio 1) vs Short-term (portfolio 5) orientated firms. If the score differences were statistically significant then the index was deemed successful in differentiating firms on this basis.

Throughout this section, results will discussed, compared and contrasted by referring to long-term orientated firms (Portfolio 1) and the least long-term orientated (referred to as short-term) firms represented by Portfolio 5.

The findings of the Mann-Whitney U test shows a statistically significant difference in means of the long-term vs the Short-term portfolios and shows that the metric was able to successfully differentiate firms on the basis of their long-termism score.

The long-term index of firm classification was composited of three metrics which comprehensively accounted for a firms patterns of investment and earnings management. Metrics 1 and 3 represented empirical measures of earnings manipulations that may be linked to Short-termism.

Existing research documents the use of accruals both theoretically (Dichev et al., 2012; Porter, 1992) and empirically (Bhojraj et al., 2009; Call et al., 2014; Cohen & Zarowin, 2010; Dechow et al., 1995; Roychowdhury, 2006) as a successful differentiator of long vs short-term orientated firms. As such, accruals as measured by Piotroski, (2000) was the first metric constituting the long-term index. The measure of accruals selected for differentiation between long and Short-term orientated firms are therefore in line with previous studies with established links of the accounting measures to the construct of Short-termism and are based on the theoretical rational that higher levels of accruals are indicative of greater degrees of accrual based earnings management which are characteristic of short-termism firms. Descriptive stats showed a clear difference in the accrual means across the portfolios.

Investments was the second measure used in the creation of the long-term index. The theory behind the metric is that that short-termism is often associated with either restricted or lack of investment (in the form of CAPEX spend) of both tangible and intangible assets (Marginson & Mcaulay, 2007; Porter, 1992). The calculation of investment utilised in this study followed the widely accepted Fama and French (2015) approach. While measures of R&D and intangible assets would have added richness to the data, the availability of these measures as they were reported in available financial statements of JSE listed firms presented a problem. Therefore the use of this metric is

in line with established financial measures of investment and the measure is well established to be linked to long-term orientated firms (Bushee, 2001; Gunny, 2010). Descriptive stats showed a clear difference in the investment means across the portfolios.

The final metric, represents another form of earnings manipulation. Graham and Harvey, (2004) is frequently referenced in short-termism literature as it provided scholars with evidence and guidance into the mind set of executive management and their continual focus on smoothing earnings and prioritising earnings benchmarks, which was a useful point of departure, giving way to newer literature focused on measuring these exact short-termed benchmarks in an effort to empirically capture the elusive construct of short-termism. Using a similar approach to Gumbel and McKinsey US Design Center, (2017), and based on the rational highlighted by Graham and Harvey, (2004) which showed that executives prioritize earnings rather than cash flow bench marks in order to meet earnings targets, an EPS metric was incorporated into this research study. Incorporating this metric into the current research study was also supported by works by Bens et al. (2003) as well as Cheng et al. (2015) which linked EPS manipulations in the form of share buy backs to favourably boost EPS rather than true earnings growth to satisfy transient-type investors. Descriptive stats showed a clear difference in the EPS manipulation metric across the portfolios.

On the basis of these established metrics and their corresponding link to the construct of Short-termism, each metric, representing an equally likely basis of classification was successfully used in combination to differentiate JSE listed firms into long vs Short-term orientated firms. This equal weighted ranking for each metric was further justified by looking at the variability in the means for each of the metrics within same industry. In line with the existing literature, the composite long-term index derived from these individual metrics were able to classify firms into distinct groups based on their patterns of investment and levels of earnings management.

6.3   Research question 2: Is there a significant difference in investor returns for long-term vs short-term orientated firms in the JSE?

The concept of style investing is a broadly studied, well documented method of generating abnormal returns by groupings or classifications of stocks based on some commonality (Barberis & Shleifer., 2003; Muller & Ward, 2013) . In keeping with this, the investment style of long-termism was investigated with the objective of establishing if it can be used to generate positive abnormal returns. There is sparse literature to date, especially within emerging economies, which looks at the explicit effect of long vs short-termism on generating excess returns. This study therefore aims to investigate whether or not investors are better off (in terms of generating positive abnormal returns) routinely investing in firms with an either long-term or a Short-term orientation?

6.4   Long-termism style investing: A graphical time series approach

Throughout this section, results will discussed, compared and contrasted by referring to long-term orientated firms (Portfolio 1) and the least long-term orientated (referred to as short-term) firms represented by Portfolio 5. Furthermore, in order to understand the difference in performance between the two portfolios over the span of the study, they will be discussed specifically in terms of their '*returns-relative*'. This relative represents the difference between portfolio 1 and 5 which was included in the graphical time series for the purpose of understanding the effectiveness and facilitating comparison of the style of long-termism.

Finally, winner portfolios refer to the best performing portfolio (in terms of cumulative returns for the study year period) and loser portfolios represent the worst performing portfolios for the same period. The period of study was 31 Dec 1997 – 31 Dec 2017.

The findings per sector are discussed below. Thereafter, a cohesive review of the style of long-termism results and its effect on shareholder returns will be assed in terms of the relevant literature will be discussed together.

6.4.1 The basic metals industry

The basic materials sector on the JSE includes the chemicals and basic resources super sectors (Johannesburg Stock Exchange, 2009) representing high capital investment sectors.

Cumulative shareholder returns over the period of 1997-2017 showed that the long-termism portfolio outperformed the short-termism portfolio by only 0.3%, however, it was Portfolio 3 that consistently displayed an upward trajectory with the highest returns across all 5 portfolios for the study period. According to the returns-relative, the long-term portfolio initially performed better than the short-term portfolio, but this positive outperformance was only up to Dec 2000. Two distinct slumps were evident from the time series analysis in which all portfolios unanimously experienced a decline in returns. This was the 2008 global financial crisis and 2015. The declines experienced in 2015 are explained by the slump in 2015 commodity process as well as increased cost pressures

In the periods succeeding the financial crisis, the long-term portfolio and medium term portfolio (portfolio 3) appears to have recovered the fastest relative to other portfolios.

In an overall context, the long-termism style, initially exhibited clear outperformance relative to all other portfolios, however this out performance was short lived (1997-2000) and diminished over time.

6.4.2 The industrials industry

The time series graph for industrials indicated that between the period 1997 to 2001 there was an upward trend of outperformance of the long-termism portfolio relative to the short-termism one. After this period, the returns-relative then decreased slightly and thereafter remained steady culminating in a 3.4% outperformance for the 20 year period. Overall there were 3 notable periods of decline (1999/2000, 2008 and 2015) affecting all portfolios. Similar to the basic materials industry, portfolio 3 was the winning portfolio overall for the span of the study. Neither the long-termism nor the short-termism portfolios beat the overall industry benchmark returns for the period of investigation.

6.4.3 The consumer goods industry

With the exception of portfolio 3, all portfolios returns within this industry displayed a similar performance in terms of shareholder returns. In this industry however, it was the short-termism portfolio that outperformed the long-termism portfolio as evidenced by the overall returns relative of -3.8%. Furthermore, the short-termism portfolio outperformed the cumulative industry-benchmark returns for the period of study and was the clear outperformer up to 2008, after which it performed similarly to portfolio 2. The returns-relative remained fairly steady throughout the study period. This time series analysis revealed just one period of decline for all portfolios, which was during the 2008 financial crisis.

Overall, the time series initially reveals outperformance of the Short-termism portfolio, does not justify the success of the style (even though in this particular industry, short performers appear to have the highest returns as any initial outperformance diminishes over time.

6.4.4 The consumer services industry

Portfolio 4 consistently out-performed all other portfolios from around December 2000 with cumulative portfolio returns surpassing the industry benchmark returns for the same period. Portfolio 1 and 5 displayed similar returns overall however a closer inspection into the time series analysis reveals that the long-termism portfolio initially outperformed the Short-termism portfolio for a brief period from 1997-2000, after which there was a period of decline. Two notable trough periods occurred between Dec 2001-Dec 2002 and once again during the financial crises. After the 2002 however, the long-termism portfolio displayed a steady upward trend and once again, began to outperform the Short-termism portfolio between 2007 till 2012. The long-termism portfolio shares also recovered faster relative to the Short-termism portfolio post the financial crises.

6.5   Literature Linkages

Style based investing strategies have been explored and exploited towards the goal of generating excess abnormal market returns. As such, there is significant research is dedicated to understanding and optimising various style based investment strategies. Muller & Ward, (2013); Piotroski, (2000) test the effectiveness of a variety of financial-ratio based styles, market based styles and even behavioural based styles in generating excess abnormal returns. The increased interest in style investment has resulted in both

pension fund and mutual fund managers adapting to the needs of individual investors who affiliate themselves with particular forms of investment styles such as growth or value investors (Barberis & Shleifer., 2003). This research study, utilised a long-termism investment strategies to assess the potential in generating abnormal returns.

Based on this style, results of the portfolios across the industries of investigation, long-termism firms displayed statistically higher overall performance than short-termism firms over the span of the study, however they were never the winner portfolio across any of the industries. Furthermore, any outperformance was seen to decrease over time as documented via the returns-relative. This was true for all industries with the exception of the consumer goods industry, in which the Short-termism portfolio outperformed the long-termism portfolio. This may be explained within the context of the Efficient Market Hypothesis. Fama (1998) state that continued abnormal returns become marginal and diminish over time and that these returns are depended on the model that measures it. No observable trend in terms of constantly outperforming portfolios were observed for any of the industries. Distinct dips, between 2008 and 2015 were experienced across all industries and were experienced unanimously for all portfolios. However, post these periods of declines, no particular portfolio recovered consistently faster or to a greater extent than any other portfolio.

A surprising result was observed only in terms of the performance of portfolio 3 specifically. Based on the way in which the portfolios were created, portfolio 3 represents firms which are neither long nor Short-term orientated. In the basic materials and the industrials industry, portfolio 3 represented the winner portfolios with significant outperformance across the entire time series analysis. For the consumer goods and services industry, portfolio 3 however represented the exact opposite and was the worst performing portfolio over the time span of the study.

The literature most pertinent to this study are those which are concerned with the heterogeneity of investors as defined by their respective investment horizons. Literature is mixed with regards to potential benefits derived (in terms of positive abnormal returns) by transient investor's vs long-termism investors. The existing results show that neither of these styles are particularly more or less successful than any other portfolio over long periods of time.

7. CHAPTER 7: CONCLUSION

The purpose of this chapter is to comprehensively review the key takeaways of the study and to address areas for future research in light of the outcomes ascertained and the limitations experienced.

7.1 Principal findings

7.1.1 Research question 1

Research question 1 of this investigation sought to develop an empirical index with which to measure short-termism for the top 160 listed firms on the JSE from the period of 1997-2017.

The composite long-term classification index was defined, based on literature, as firms with high levels of investments, low levels of accruals and firms which do not over index on EPS growth at the expense of true earnings growth. On the basis of these definitions, these metrics were calculated and ranked accordingly, ultimately forming the long-term index, which served as the investment style used to measure shareholder returns in research question 2. The long-term index classification enabled firms to be placed in 5 portfolios with portfolio 1 representing the most long-term orientated firms and portfolio 5 representing the least long-term orientated firms.

The principal findings following from research question 1

Firstly, variability of the metrics were evident in three ways:

a. Each of the metric-means from the same portfolio were different between industries highlighting that industry classification is necessary to avoid false results.

For example, consider the *measured mean (μ)* of the accruals metric across industries:

Portfolio $1_{(Basic\ Materials)} \neq$ Portfolio $1_{(Industrials)} \neq$ Portfolio $1_{(Consumer\ Goods)} \neq$ Portfolio $1_{(Consumer\ Services)}$

b. Within the same industry, and for the same portfolio, each of the metric-means were different from each other showing that each metric provides a unique measure

For example, consider the *measured mean (μ)* for each of the three metrics within the basic materials industry

Portfolio 1$_{(Accruals)}$ ≠ Portfolio 1$_{(Investments)}$ ≠ Portfolio 1$_{(EPS\ less\ Earnings\ Growth)}$

c. Within the same industry, statistically significant differences in the long-term index score of portfolio 1 and portfolio 5 were documented. This is intuitive considering that the metrics used to create this index were all different.

For examples, consider the *measured mean (μ)* of the long and Short-term portfolios in the basic materials industry

Portfolio 1$_{(Long-term\ Index\ Score)}$ ≠ Portfolio 5 $_{(Long-term\ Index\ Score)}$

Secondly, the long-termism index was successfully used to show that short vs long-term orientated firms are evident in the JSE based on the variability in a firms patterns of investment and earnings management within the same industry. This is evidenced by the statistically significant differences in the long-term index scores of the extreme portfolios.

7.1.2 Research question 2

This question sought to provide empirical evidence that contributes to the ongoing debate of whether or not short-termism increases or decreases shareholder returns over time. In other words, is there any real benefit to be had, if shareholders continuously invest in firms with a long-term orientation?

The principle findings of research question showed the following:

1. The long-termism portfolio constantly outperforms the Short-termism portfolios in all industries with the exception of the consumer goods industry (J530). In this industry, the exact opposite trend was noticed wherein the Short-termism portfolio outperforms all others.

2. Although the long-termism portfolio outperforms that of the short-termism portfolio, the long-termism portfolio is never the winning portfolio across all five portfolios for any of the industries.

3. Although statistical evidence does document differences between the long and Short-term portfolios, there is no consistent, observable trend that can provide conclusive evidence with regards to the effectiveness of this investment style as being particularly useful in generating predictable constant, abnormal returns. This holds true whether the style is viewed from a long or a Short-term investment strategy perspective.

Although existing literature does not provide one measure of short-termism or agree on a unified approach to understanding this multidisciplinary contract, there is a general consensus that this phenomenon does exist and is broadly perceived as being harmful, to individuals, organisations and investors alike.

Results from the above investigation contributes to literature in three ways:

First, it contributes to existing literature by providing a potential measure of Short-termism for JSE listed firms within an emerging economy. Secondly, it is one of the first studies that attempts to test short-termism (and long-termism) as an investment style for JSE listed firms. It contributes to the on-going debate surrounding literature which is dominantly geared towards advocating for the benefits of long-termism. It provides empirical evidence, using a substantial time span, which uses the same metrics underpinning the dominant academic literature currently in circulation, however finds no evidence that supports the view that neither short nor long-termism is can be used to increased shareholder value, either through share appreciation and dividend yield over time.

7.2   Limitations of research- define these based on method

Studies linking short-termism to a firms measures of investments (Asker & Farre-mensa, 2014; Harford et al., 2017) often use measures of R&D and other intangibles (human capital, patents) in their study. These studies however were performed on US listed firms which present a much larger sample size. For instances where this data could not be sourced from the firm's financial statements, these firms were excluded from the overall analysis.   Due to the significantly smaller sample size of this investigation, these additional measures for investment were therefore were not utilized to prevent cases of high exclusions which would then compromise the strength of the index. Correlations

between listed firms and the chosen metrics should be determined prior to the use of the metric as a likely proxy with which to measure the construct.

The style based, graphical time series considered the performance of cumulative shareholder returns between the periods 1997-2017. The core purpose was to determine whether or not the style of long-termism could. Since the objective of the study was mostly focused on determining if the style itself worked, transaction costs were excluded from the study. However this of course is not reflective of reality.

Although long-termism portfolio constantly outperformed Short-term portfolio in all industries other than the consumer goods industry, where the opposite was noted, the non-extreme portfolios (meaning portfolios 2-4) displayed highly variable returns. This shows that the style of long-termism is not particularly successful in generating excess returns. Due to the time constraints and the lack of computing power, a Bootstrap test (which would have confirmed that the style is not particularly useful at generating excess returns) could not be performed.

7.3   Suggestions for future research

Several suggestions for future recommendations are suggested below to add depth to the findings and address the limitations of the study.

While this study follows Piotroski, (2000) measure for total accruals which is commonly used in financial literature, it is recommended that a more comprehensive model of accruals testing, similar to that used by (Y. Chen et al., 2015) be utilised. The study measures accruals through a combination of discretionary accruals and real earnings management. Real earnings management is composited of abnormal production costs, abnormal discretionary expenses and abnormal operating expenses. The division of accruals into both real and discretionary accruals allows for other short-termism linked variables such as R&D, advertising, selling, general & administrative expenses to be captured as part of the abnormal discretionary expenses of a firm.

Another potentially area for future research is concerning the recovery of the long-termism portfolios relative to Short-termism portfolios after periods of decline. It is recommended that future research focus on event studies such as global recessions, or

black swan events to assess the shareholder returns recoveries between long and short-term firms in these periods.

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9. APPENDICES

9.1 Research Question 1

Table 19. *Normality tests-20 years of cumulative returns for the basic materials industry (J510)*

Portfolio	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LT-J5101	0,09	241	0,00	0,96	241	0,00
LT-J5102	0,09	241	0,00	0,96	241	0,00
LT-J5103	0,13	241	0,00	0,91	241	0,00
LT-J5104	0,15	241	0,00	0,92	241	0,00
LT-J5105	0,08	241	0,00	0,94	241	0,00

Source: own research

Table 20. *Normality tests- 20years of cumulative returns for the industrials industry (J520)*

Portfolios	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LT- J5201	0,123	241	0,000	0,928	241	0,000
LT-J5202	0,105	241	0,000	0,955	241	0,000
LT-J5203	0,134	241	0,000	0,918	241	0,000
LT-J5204	0,137	241	0,000	0,877	241	0,000
LT-J5205	0,175	241	0,000	0,877	241	0,000

a. Lilliefors Significance Correction

Source: own research

Table 21. *Normality tests- 20years of cumulative returns for the consumer goods industry (J530)*

Portfolio	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LT-J5301	0,119	193	0,000	0,915	193	0,000
LT-J5302	0,146	193	0,000	0,888	193	0,000
LT-J5303	0,092	193	0,000	0,948	193	0,000
LT-J5304	0,203	193	0,000	0,855	193	0,000
LT-J5305	0,149	193	0,000	0,897	193	0,000

a. Lilliefors Significance Correction

Source: own research

Table 22. *Normality tests- 20years of cumulative returns for the consumer services industry (J550)*

Portfolio	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LT-J5501	0,164	241	0,000	0,850	241	0,000
LT-J5502	0,166	241	0,000	0,844	241	0,000
LT-J5503	0,177	241	0,000	0,848	241	0,000
LT-J5504	0,222	241	0,000	0,798	241	0,000
LT-J5505	0,177	241	0,000	0,835	241	0,000
a. Lilliefors Significance Correction						

Source: own research

Table 23. The Mann-Whitney U test for differences for the basic materials industry (J510)

Portfolio Group		N	Mean Rank	Sum of Ranks
J510 Returns	1	241	334,30	80566,50
	5	241	148,70	35836,50
	Total	482		

SPSS Legacy procedure

Source: own research

Table 24. The Mann-Whitney U test for differences for the industrials industry (J520)

Portfolio Group		N	Mean Rank	Sum of Ranks
J520 Returns	1	241	313,00	75432,50
	5	241	170,00	40970,50
	Total	482		

Source: own research

Table 25. The Mann-Whitney U test for differences for the consumer goods industry (J530)

Portfolio Group		N	Mean Rank	Sum of Ranks
	1	193	161,37	31143,50
J530 Returns	5	193	225,63	43547,50
	Total	386		

Source: own research

Table 26. The Mann-Whitney U test for differences for the consumer services industry (J550)

Portfolio Group		N	Mean Rank	Sum of Ranks
J550 Returns	1	241	243,26	58626,50
	5	241	239,74	57776,50
	Total	482		

Source: own research

9.2 Gibs ethical clearance approval letter

Gordon Institute of Business Science
University of Pretoria

Dahya Mayshani

Dear Mayshani

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee