COPYRIGHT AND CITATION CONSIDERATIONS FOR THIS THESIS/ DISSERTATION

How to cite this thesis

THE IMPACT OF AN ECONOMIC RECESSION ON THE WORKING CAPITAL MANAGEMENT OF SMALL AND MEDIUM ENTERPRISES IN SOUTH AFRICA

by

LEDILE SHADUNG

MINOR DISSERTATION

submitted in partial fulfilment of the requirements for the degree

MAGISTER COMMERCII

in

FINANCIAL MANAGEMENT

in the

FACULTY OF ECONOMIC AND FINANCIAL SCIENCES

at the

UNIVERSITY OF JOHANNESBURG

SUPERVISOR: Professor NJ Smith

JULY 2014

Abstract

Working capital management (WCM) is considered critical for the success of all business and especially for small businesses. A recession (such as the one that took place in 2009) complicates the working capital management of small businesses.

Working capital management of a sample of small and medium enterprises in South Africa were investigated to determine how they manage their working capital during challenging economic conditions. The impact of the 2009 economic recession on WCM was specifically investigated by following a quantitative descriptive research approach. The study sample consisted of 44 companies listed on the JSE Ltd AltX Index.

A trend analysis was applied on WCM variables to determine significant changes over the study period. Because variables were not normally distributed, the Mann Whitney U test was conducted to determine the statistical significance of the WCM mean ranks pre-, during and post-recession phases. The trend analysis of working capital management over the six-year study period exhibited a significant improvement in the working capital management level during the economic recession. This was largely attributed to delaying payment to creditors.

The analysis of the WCM variables pre-, during and post-recession phases indicated that there were no significant changes in WCM that can be attributed to the 2009 economic recession.

It was concluded that although there were changes in working capital management over the study period, the changes could not only be attributed to the 2009 recession.

Key words

Working capital, Working capital management, Economic recession, Johannesburg Stock Exchange, AltX Index

Declaration of Original Work

I, Ledile Shadung, declare that this minor dissertation is my own unaided work. Any assistance that I have received has been duly acknowledged in the dissertation. It is submitted in partial fulfilment of the requirements for the degree of Master of Commerce at the University of Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

_____   _____

Signature   Date

Acknowledgements

"It always seems impossible until it is done." – Nelson Mandela

This minor dissertation would not be possible without the assistance and support of a number of people. My first gratitude is directed to my Maker for His goodness, mercy and constant love throughout the development of this dissertation.

My sincerest gratitude goes to my supervisor, Professor Nico Smith, for his thoughtful direction, advice and insight into the development of this study. He was very patient, always available and constructive in his supervision. I could not have asked for a better supervisor.

I thank my husband for the significant role he played in ensuring that I remain focused throughout the study and for encouraging, understanding and supporting my dream.

I am forever indebted to my grandmother, mother, brother and late father for being my sources of inspiration and for reminding me to strive for more in life and to never give up.
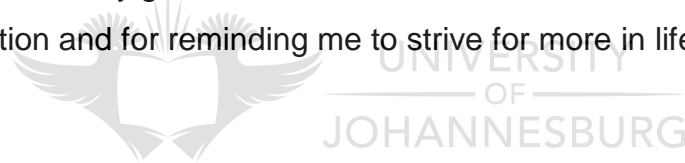
TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

Introduction and background to the study

1.1 Introduction

Working capital is regarded as one of the core elements for the successful existence of any business. Yet, managers still devote too little time to the management of working capital (Agyei-Mensah, 2012:573–574; Mohamad & Saad, 2010:140). The problem is exacerbated by the fact that working capital management (WCM) is influenced by different economic circumstances such as economic recessions. The influence of an economic recession on WCM of SMEs is considered in this study.

Ramachandran and Janakiraman (2009:61) define working capital as:

> The flow of ready funds necessary for the working of a concern. It comprises funds invested in current assets, which in the ordinary course of business can be turned into cash within a short period without undergoing diminishing in value and without disruption of the organisation. Current liabilities are those liabilities which are intended to be paid in the ordinary course of business within a short time.

Working capital is therefore indicative of the underlying short-term health of an organisation through its ability to meet current liabilities with current assets. Working capital management involves the maintaining working capital at efficient levels. The process entails ensuring that an organisation has sufficient cash flow to pay for maturing short-term debt as well as recurring operating expenses (Mohamad & Saad, 2010:140).

1.1.1 Significance of WCM

The significance of WCM stems from the impact it has on an organisation's profitability, risk, and consequently on shareholder value (García-Teruel & Martínez-Solano, 2007:164; Mathuva, 2010:2).

WCM forms an important part of any organisation's financial management practices and could make the difference between a business's success and failure (Agyei-Mensah, 2012:568; Mohamad & Saad, 2010:140). These findings were confirmed by Palombini and Nakamura (2012:56, citing Smith, 1973) who asserted that many businesses fail due to the incapability of financial managers to plan and control current assets and current liabilities.

1.1.2 WCM efficiency

It is clear from the importance of WCM that management should strive to obtain an optimal working capital relationship. WCM efficiency involves keeping an optimum balance between current assets and current liabilities. For instance an organisation that holds moderate levels of current assets, such as inventory, runs the risk of disturbance in operations, which may occur as a result of stock shortages (Mathuva, 2010:8). Conversely, excessive inventory may result in wastage and substandard return on investment (Mathuva, 2010:8).

1.1.3 Measuring the quality of working capital management

The cash conversion cycle (CCC) is widely accepted as a useful and comprehensive measure of WCM (Enqvist, Graham & Nikkinen, 2012:9; Napompech, 2012:228, Gill, Biger & Mathur, 2010:2; Palombini & Nakamura, 2012:61). Enqvist et al. (2012:9) explain that CCC, which is measured in days, is the length of time between a corporation's expenditure for the procurement of raw materials and the collection of sales of finished goods. The CCC therefore reflects the duration between cash disbursement and collection (Gill, et al. 2010:2).

CCC consists of three variables namely, average collection period, inventory turnover in days and average payment period (Raheman & Nasr, 2007:283–284). The formulae for calculating each variable is summarised in Table 1.1.

Table 1.1: Formulae for calculating variables of WCM

Variable	Calculation
Cash Conversion Cycle (CCC)	Inventory Turnover in Days + Average Collection Period – Average Payment Period
Average Collection Period (ACP)	$365 * \dfrac{\text{Accounts receivables}}{\text{Sales}}$
Inventory Turnover in Days (ITD)	$365 * \dfrac{\text{Inventory}}{\text{Cost of goods sold}}$
Average Payment Period (APP)	$365 * \dfrac{\text{Accounts payable}}{\text{Cost of goods sold}}$

Source: Napompech (2012); Raheman & Nasr (2007)

The "average collection period" is the time taken to collect cash from patrons, "Inventory turnover in days" refers to the time it takes to convert inventory held into sales, while "average payment period" is the time taken to pay the corporation's suppliers (Mathuva, 2010:1–2). According to Duggal and Budden (2012:753) and Mathuva (2010:8), WCM should strive to minimise the CCC.

1.2 Review of working capital management

Most literature focuses on the relationship between WCM and profitability, particularly the impact WCM has on profitability (Raheman & Nasr, 2007; García-Teruel & Martínez-Solano, 2007; Mathuva, 2010; Enqvist et al., 2012; Napompech, 2012; Mohamad & Saad, 2010; Gill et al., 2010; Kadumi and Ramadan, 2012).

A study that is of particular importance in terms of the methodology that was applied in this study was conducted by Kadumi and Ramadan (2012). They examined 49 Jordanian industrial companies between 2005 and 2009 to asses WCM's effect on company performance. They concluded that there was significant positive correlation between WCM and company performance. They also concluded that efficient management of the working capital can add value to the shareholders' wealth.

1.2.1 The importance of WCM to SMEs

The researcher of this study considered the management of working capital in small-and medium-sized businesses. There is consensus that, relative to larger companies, WCM is particularly significant for small and medium enterprises (SMEs), because smaller companies typically struggle or fail to stay in business (Berryman, 1983 cited in Agyei-Mensah, 2012:568; Padachi, 2006:2; García-Teruel & Martínez-Solano, 2007). Brink, Cant & Ligthelm (2003:2) indicate that less than half of newly established businesses survive beyond five years. In South Africa, the small business failure rate ranges between 70 and 80% (Brink et al., 2003:1; Goosain, 2004). Mabaso (2008:2) states that one of the reasons for the high failure rate of start-up and small businesses in South Africa is the lack of sufficient working capital (quoting Monk, 2000:1).

Padachi (2006:46) points out that one of the factors that prevents SMEs from remaining operational is limited access to long-term capital markets. As a result of this limited access, SMEs tend to rely more on owner financing, trade credit and short-term bank loans to finance their cash, accounts receivables and inventory needs. Agyei-Mensah (2012:567) claims that in many instances owners and managers of SMEs are the main barriers to good WCM practices. The study found that 'the operators of small firms possess limited formal education, weak managerial and financial management skills' (Agyei-Mensah, 2012:567). They also lack qualified accounting staff and suitable accounting software.

1.2.2 WCM studies on SMEs

Although numerous WCM studies have been carried out across the globe, most of them focus on large companies. Studies that focus on the WCM of SMEs are limited (García-Teruel & Martínez-Solano, 2007; Padachi, 2006; Agyei-Mensah, 2012). Studies that focus on SMEs include research by García-Teruel & Martínez-Solano (2007) who evaluated the effect of WCM on the profitability of Spanish SMEs. Their study reveals that WCM is particularly important to SMEs and that managers can improve profitability by shortening the cash conversion cycle.

Padachi (2006) also examined trends in WCM and the impact on the performance of 58 small Mauritian companies. This particular study only focused on the manufacturing industry containing five sub-industries namely: food and beverages, leather garments,

paper products, prefabricated metal products and wood furniture (Padachi, 2006). The findings indicate that there is a negative relationship between investment in inventories and receivables and profitability.

1.2.3 Impact of economic recession on WCM

The focus in this study was on the impact a recession has on WCM, therefore other literature surrounding this phenomenon were consulted. CFO Research Services (2010; cited in Kaddumi & Ramadan, 2012:218) conducted a survey on WCM of US finance executives. They found that the WCM patterns of most companies had changed since the 2009 economic recession. Post-recession trends indicate that most corporations are taking a conservative stance on managing working capital and managing businesses in the aftermath of the economic downturn. A study by Duggal and Budden (2012) consented to this view. Their research is based on the effect of the recession on WCM practices. It was found that most companies are more cognisant of WCM performance and therefore retained more net working capital in order to cope with new economic challenges.

The role of business cycles was also examined by Enqvist et al. (2012) where the function of various economic environments on the working capital-profitability relationship was examined. The research is based on a sample of Finnish-listed companies over a period of 18 years. The findings indicate that the impact of the business cycle on the capital-profitability relationship is more prominent in economic downturn than under good economic conditions. The fact that managing working capital is especially essential during periods where credit availability is a problem, such as during economic recession, was highlighted in the study.

1.3 Problem statement

SMEs are the economic drivers of developing countries. The World Bank (2013:18) states that these enterprises are the "key drivers of competition, growth and job creation, particularly in developing economies". The literature also reveals that SMEs have the highest operational failure rate which, among other reasons, is partly attributed to lack of financial management skills and more specifically, due to poor WCM (Mabaso, 2008:2).

Studies also emphasise the negative impact of an economic recession on overall business performance. To adjust to the demands of an economic recession, financial decision-makers are paying closer attention to WCM (Duggal & Budden, 2012; Enqvist et al, 2012). Although WCM is highlighted in research as a challenge for SMEs in South Africa, the problem is that limited knowledge exists in South Africa on actual WCM trends and the impact an economic recession has on WCM trends of SMEs.

1.4　Goal of the study

The goal of this study was to investigate the WCM performance patterns of SMEs throughout the 2009 economic recession to determine whether the recession had a significant impact on the WCM performance patterns.

1.5　Research question

In order to accomplish the goal of the study, the following overarching research question was formulated: What is the impact of an economic recession on the working capital management of SMEs in South Africa?

To break the research question into a researchable component, the following sub-questions were formulated:

1. How are South African SMEs performing with regards to cash conversion cycle, inventory turnover, receivables turnover and payables turnover?
2. How do various industries rank with regards to WCM performance?
3. Did the 2009 economic recession have an impact on the WCM performance pattern of SMEs?
4. What did the most successful industry change in their WCM to overcome the challenges of the recessionary period?

1.6   Research methodology

1.6.1 Study approach

According to Leedy & Ormrod (2010:94) quantitative research entails a view at amounts or quantities with the objective of measuring variables in order to establish, confirm or validate relationships and to develop generalisations that contribute to existing theories. The aim of this study was to use the financial data of SMEs to measure their WCM performance. The study topic and objectives are therefore quantitative in nature and a quantitative approach was followed in this study.

1.6.2 Population

The study population consists of companies listed on the Johannesburg Stock Exchange Limited (JSE Ltd) AltX. According to the JSE Ltd, the AltX is an alternative index to the main board index, which strictly focuses on "good quality, small- and medium-sized high growth companies" (JSE, 2012).

At present there are 63 SMEs listed on the JSE Ltd AltX.

1.6.3 Sample

The research aim was to present a view of South African SMEs' working capital management, therefore only SMEs on the JSE AltX that were founded in South Africa and do not belong to the financial industry, were taken into account for the sample. SMEs that fall within the financial industry were excluded from the study as they calculate working capital differently than other industries. Non-South African SMEs were also excluded from the study.

In order to obtain an unbiased representation of the population, the sample consists of all 44 SMEs that adhere to these requirements.

1.6.4 Data collection

David and Sutton (2004:89) describe primary research as the process where the researcher undertakes the data collection him/herself, while secondary data involves the identification of an existing dataset that has been collected from a previous study.

Based on this description, the source of data for this study was secondary in nature. Company annual reports were used to collect the companies' relevant financial data. The data that were collected, span over six years from 2007 to 2012. Data capturing was restricted to this period due to the fact that the researcher relied on information that is publicly available and many SMEs at the start of this study did not keep financial reports beyond this period.

This period also reflects the pre-recessionary, recessionary and post-recessionary periods, which made it possible to assess the WCM performance patterns during the 2009 recession.

1.7   Limitations of the study

The most evident limitation of the study was confining the study to South African SMEs that are listed on the JSE.

1.8   Contribution of this study

Previous WCM studies focus on other countries and specific research on South African companies is limited. This study bridges the gap in the literature by aligning the South African WCM research with other similar studies.

The study findings also add knowledge on WCM and its trends, which contributes to SME managers' understanding of WCM.

1.9   Chapter outline

The study is structured as indicated in Table 1.2.

Table 1.2: Summary of chapters and content

CHAPTER	CONTENT
Chapter 1:	**Contextualisation of the study** In the first chapter the study is introduced. The background to the study, which resulted in the research problem, is explained.
Chapter 2:	**Review of working capital management of small businesses** In the second chapter a review of the literature on WCM is presented.
Chapter 3:	**Research methodology** The research design and methodology used in the study is explained in the third chapter. The chapter commences with a discussion of the research design, the methods for collecting and measuring the data. Techniques to ensure the validity and reliability of the data are also considered.
Chapter 4:	**Data analysis and interpretation** The results of the study are presented in the fourth chapter. The data are presented and interpreted.
Chapter 5:	**Conclusion and recommendations** Conclusions are drawn on the basis of the results of the study. Limitations and recommendations for further study are also addressed.

Source: *Own deductions*
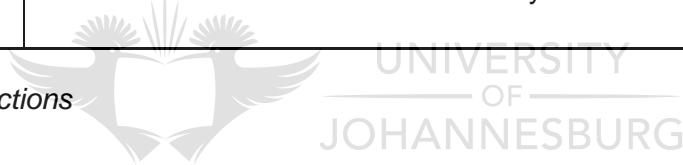
Chapter 2

Review of working capital management of small and medium enterprises

2.1 Introduction

In the previous chapter the study problem, the goal of the study and the research methodology were contextualised. Working capital management is reviewed in this chapter, with specific reference to small and medium enterprises (SMEs).

The chapter is structured to provide context to:

- the definition and composition of the small and medium enterprise industry, the significance of the industry, and the problems encountered in the industry;
- the 2009 economic recession and its impact on SMEs; and
- the definition, significance and measurement, of working capital management in SMEs.

2.2 Definition and contextualisation of SMEs

2.2.1 Definition and categorisation

There is no generally accepted definition of SMEs (Department of Trade and Industry (DTI), 2008; Agyei-Mensah, 2012; Smit & Watkins, 2012).

Various institutions and countries define SMEs differently. In South Africa, the National Small Business Act 29 of 2004 (replacing the Act 102 of 1996) defines an SME as:

> a separate and distinct business enterprise, together with its branches or subsidiaries, if any, including co-operative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in *column 1 of the Schedule* and classified as a micro, a very small, a

small or a medium enterprise by satisfying the criteria mentioned in *columns 3, 4 and 5 of the Schedule.*

The different sizes of small enterprises is recognised in this definition and four categories are classified, namely, micro, very small, small, and medium enterprises (DTI, 2008:2).

The classification of small enterprises into the categories is based on the following four criteria: the type of industry in which a small business operates, total number of full time employees employed, annual turnover and the gross asset value of that particular business.

The following summarises each category (Phenya, 2011:22)

- **Micro enterprises** are survival activities typically undertaken by people who are unable to secure formal employment for income generation. These are typically informal in nature (DTI, 2008:2; Phenya, 2011:23).
- **Very small** enterprises are generally family-owned businesses. These businesses are typically managed informally and have no formal business premises, tax registrations or follow any accounting process. Operators of these businesses lack general business skills (Phenya 2011:22).
- **Small enterprises** operate formally, therefore the business is typically run from business or industrial premises and are also registered for tax purposes. Small businesses often have five to 50 employees. (Phenya, 2011:23).
- **Medium enterprises** are formally managed. They are reported to have an average capital base of around R5 million and a staff count of roughly 200 people. However, these businesses are still largely owner- or manager-controlled (Phenya, 2011:23).

The classifications of small enterprises in industries according to the standard industrial classification in South Africa is indicated in Table 2.1.

Table 2.1: Classification of small enterprises according to industry

Industry or sub-industry in accordance with the Standard Industrial Classification	Size of class	Total full-time equivalent employees	Total annual turnover (R'm)	Total gross asset value (fixed property excluded) (R'm)
Agriculture	Medium Small Very small Micro	100 50 10 5	5.00 3.00 0.50 0.20	5.00 3.00 0.50 0.10
Mining and Quarrying	Medium Small Very small Micro	200 50 20 5	39.00 10.00 4.00 0.20	23.00 6.00 2.00 0.10
Manufacturing	Medium Small Very small Micro	200 50 20 5	51.00 13.00 52.00 0.20	19.00 5.00 2.00 0.10
Electricity, Gas and Water	Medium Small Very small Micro	200 50 20 5	51.00 13.00 5.10 0.20	19.00 5.00 1.90 0.10
Construction	Medium Small Very small Micro	200 50 20 5	26.00 6.00 3.00 0.20	5.00 1.00 0.50 0.10
Retail and Motor Trade and Repair Services	Medium Small Very small Micro	200 50 20 5	39.00 19.00 4.00 0.20	6.00 3.00 0.60 0.10
Wholesale Trade, Commercial Agents and Allied services	Medium Small Very small Micro	200 50 20 5	64.00 32.00 6.00 0.20	10.00 5.00 0.60 0.10
Catering, Accommodation and Other Trade	Medium Small Very small Micro	200 50 20 5	13.00 6.00 5.10 0.20	3.00 1.00 1.90 0.10
Transport, Storage and Communications	Medium Small Very small Micro	200 50 20 5	26.00 13.00 3.00 0.20	6.00 3.00 0.60 0.10
Finance and Business Services	Medium Small Very small Micro	200 50 20 5	26.00 13.00 3.00 0.20	5.00 3.00 0.50 0.10
Community, Social and Personal Services	Medium Small Very small Micro	200 50 20 5	13.00 6.00 1.00 0.20	6.00 3.00 0.60 0.10

Source: Schedule to the National Small Business Amendment Bill of 2003:5

In Table 2.1, 11 business industry groupings are identified each with different criteria that vary according to the enterprise's size. Across all industries, an enterprise is classified as a micro enterprise if it has at most five full-time employees, a turnover of R0.20 million, and total gross asset value of R0.10 million.

In the case of very small, small, and medium enterprises, the criteria vary depending on the type of industry. For instance, regarding the total turnover criteria, in the manufacturing industry, an enterprise is medium if it has a turnover of R5 million, while in mining and quarrying the requirement is R39 million.

For the sake of this study, a small enterprise is defined and classified in accordance to the criteria applied by the Johannesburg Stock Exchange limited (JSE Ltd).

The JSE Ltd's definition of small enterprises focuses solely on SMEs falling within the "small" and "medium" categories of the small enterprise definition stated above. According to the JSE Ltd, SMEs with a good track record can be listed on the alternative board, the AltX.

2.2.2 SME landscape in South Africa

The DTI (2008:62) reported that, based on annual turnover, SMEs constituted 15% of the 536 240 registered and economically active businesses in South Africa. The number grew by 95% for small enterprises and 208% for medium enterprise over the four-year period from 2004 to 2007. Table 2.2 summarises this growth.

Table 2.2: Small enterprises distribution and growth

Category	Distribution of business (2007)	Percentage growth (2004–2007)
Micro enterprises	36%	-5.6%
Very small enterprises	46%	47.9%
Small enterprises	11%	95.1%
Medium enterprises	4%	207.5%
Large enterprises	3%	275.3%

Source: DTI (2008).

2.2.3 Economic contribution

The small enterprise industry is recognised as the growth vehicle of world economies, particularly for developing economies (World Bank, 2013:18). In South Africa, the small enterprise industry (excluding medium enterprises) contribute 27–34% of the country's Gross Domestic Product (GDP) (DTI, 2008:95).

According to Goosain (2004:13), the small business industry contributes approximately 68% of South Africa's employment, of which 36% is added by SMEs and 32% contributed by micro and survivalist enterprises. Therefore, it is evident that the SMEs industry is the driving force of the South African economy both in terms of GDP and contribution to employment.

2.2.4 Failure rate

Despite noteworthy economic contribution, the small business industry faces a high rate of failure. Brink, Cant and Ligthelm (2003:2) state that in South Africa, the small business failure rate ranges between 70% and 80%, with fewer than half of the newly-established businesses surviving beyond five years. This view is supported by the DTI (2008:46; citing Radipere & Van Scheers, 2005:402), who state that around 40% of small enterprises fail in the first year of operation, 60% in the second year, while 90% fail within the first 10 years of operation.

Small businesses in South Africa fail due to macro environmental reasons. Some of these reasons include, economic factors (such as interest rates and inflation), technological issues, socio-economic problems and change (Brink, Cant & Ligthelm, 2003:10–11).

Olawale and Garwe (2010:734) also conducted a study on factors that hamper SME growth. They identified 30 variables that limit SME growth, with the main obstacle found to be financial aspects.

2.2.5 Financial management

As indicated above, one of the central challenges facing the small business industry is poor financial management (Brink, et al., 2003:5; Olawale & Garwe, 2010:734). According to Phenya (2011:28), financial management of SMEs consist of three main

functions – financing, investing (short and long term), and efficient cash management. This study focuses on the working capital management of SMEs over a recessionary period.

2.3   Economic recession

Economic recessions tend to exert greater pressure on SMEs because of slow demand, late payment and limited access to credit (Kitching, Smallbone, Xheneti & Kašperová, 2011:3).

According to Kitching, Smallbone and Xheneti (2009:1) organisational factors such as available resources and other external influences determine how small businesses adapt and perform during an economic recession.

2.3.1 Background to the 2009 economic recession

The most recent economic recession started in mid-2007 and ended in 2009 (Duggal & Budden, 2012:753; Verick & Islam, 2010:12). However, according to Polak (2013:141) there was a time lag between the start of the recession in United States (US) and other countries. Polak indicates that the economic recession commenced during 2007 in the US, thereafter it spread to other countries globally in 2008 and 2009 (Polak, 2013:141).

In the case of South Africa, the consensus is that the economy went into full recession during 2009 (Steytler & Powell, 2010:2; Padayachee, 2010:4).

2.3.2 Impact of the 2009 economic recession on SMEs

Kitching, et al. (2009) studied the impact of the 2009 economic recession on SMEs. They found variations in how SMEs experience the recession and how they responded to it. They determined that the adaption and performance of SMEs during weak economic times is dependent on organisational factors such as resources available and external influences, including product, labour and capital market conditions. Their study concluded that there is no single strategy that guarantees business survival, or success, during a period of economic recession.
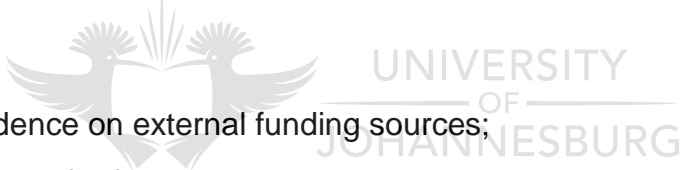
Although SMEs reacted differently to the 2009 economic recession, closer attention should be paid to working capital management during recessionary periods (Kitching, et al., 2009).

2.4   Working capital management

Working capital management is defined by Samson, Mary, Yemisi & Erekpita, 2012:62 as:

> A management accounting strategy focusing on maintaining efficient levels of both components of working capital – current assets and current liabilities – and in respect to each other. Working capital management ensures that a company has sufficient cash flow in order to meet its short-term debt obligations and operating expenses.

The working capital management process involves a risk and returns balancing of inventory, accounts receivables and accounts payable (Polak, 2013:154). Polak (2013:154) explains that by effectively managing these elements, company value is created by way of:

- less dependence on external funding sources;
- freeing up cash for further investments;
- reduction in capital employed; and
- increase in asset productivity.

In this chapter, the components of working capital are briefly discussed. Working capital denotes the source and use of short-term capital and is also used to measure an entity's liquidity position (Ding, Guariglia & Knight, 2010:4). Working capital is calculated as the difference between current assets and current liabilities of an enterprise. Current assets include inventory, debtors' receivables and cash, while current liabilities include creditors' payables and short-term debt.

2.4.1 Inventory

Inventory or stock refers to the goods and materials that a business holds for the ultimate purpose of resale (or repair) (Baveld 2010:7; Uremadu, Egbide & Enyi, 2012:81).

The benefit of accumulated inventory lies in the flexibility of having inventory as and when it is required, thus reducing the risk of inventory shortages. In contrast, holding smaller levels of inventory implies an enterprise can free up cash that was tied up in inventory, for investments. A summary of some of the risks an enterprise faces with regards to under- or over-stocking inventory is presented in Table 2.3.

Table 2.3: Threats of over or under investment in inventory

Threats of excess inventory	Threats of insufficient inventory

• Cost of tying up cash (lost interest)
• Storage costs
• Management costs
• Obsolescence
• Deterioration
• Insurance costs
• Protection (e.g. security patrols)
• Inventory mishandling
• Waste, theft and loss
	• High ordering costs
	• Cost of stock-outs
	  – Loss of sales
	  – Loss of profits
	  – Loss of goodwill
	  – Production dislocation

Source: Baveld (2010:9); Uremadu, et al. (2012:82)

2.4.2 Accounts receivables

Money that is owed to a company by a customer for products and services provided on credit are regarded as accounts receivable (Baveld, 2012:7).

Table 2.4 highlights the challenges of having an over- or under-investment in accounts receivables. One of the advantages of extending credit to customers is that customers can assess the quality of a product before making payments (Soekhoe, 2012:11).

Table 2.4: Threats of over or under investment in accounts receivables

Threats of excess debtors	Threats of insufficient debtors
• Opportunity costs of investing the funds in other projects • Administrative costs of managing account receivable • High bad debts • Defective credit policy • Slack collection period	• Loss of sales • Loss of customers

Source: Baveld (2010:7–8); Soekhoe (2012:11); Uremadu, et al.(2012:82)

2.4.3 Accounts payable

Accounts payable is money that an enterprise owes to vendors for products and services purchased on credit (Baveld, 2010:8). Extended payment terms afford enterprises with a source of finance that is flexible and inexpensive, and it also allows enterprises time to assess the quality of the products before they are paid for (Soekhoe, 2012:11).

The possible consequences of over or under investment in accounts receivables is indicated in Table 2.5.

Table 2.5: Threats of over or under investment in accounts receivable

Threats of excessive accounts receivable	Threats of insufficient accounts receivable
• Forfeiting price discounts • Poor reputation if late payments are made • Administration costs of managing accounts receivable	• If accounts receivable is not used alternative sources of finance may have to be used, which may be costly • Paying all bills on delivery may increase administration

Source: Baveld (2010:8)

During this study, the individual components of working capital were considered. A combination of these components influences working capital management. Some of the dangers of insufficient and excessive working capital is highlighted in Table 2.6.

Table 2.6: Threats of over or under investment in working capital

Threats of excessive working capital	Threats of insufficient working capital
1. Unnecessary accumulation of inventories, which may lead to inventory mishandling, waste, theft and losses increase. 2. Indication of defective credit policy and slack collection period may result in higher incidence of bad debts, which adversely affects profits. 3. Management inefficiency due to complacent management. 4. Accumulation of inventories tends to make speculative profits grow. This may lead to liberal dividend policy, which may be difficult to cope with in future when the firm is unable to make speculative profits.	1. Growth stagnation due to difficulty for the enterprise to undertake profitable projects due to unavailability of working capital funds. 2. Difficulty with implementing operating plans and to realise profit target. 3. Operating inefficiencies as a result of an enterprise's inability to meet day-to-day commitments. 4. Fixed assets are not efficiently utilised because of the lack of working capital funds. 5. Enterprise unable to take advantage of attractive business opportunities. 6. Tainted reputation when an enterprise is not in a position to honour its short-term obligations. As a result, the firm faces tight credit terms.

Source: Uremadu, 2012:82

Based on the information in Table 2.6, it can be concluded that there should be a balance between over and under investment in working capital.

Baveld (2010:9) explains that the method in which an enterprise manages working capital, is guided by its WCM policy. According to Polak (2013:145) 'working capital policy involves decisions about a company's current assets and current liabilities; what they consist of, how they are used, and how their mix affects the risk versus return

characteristics of the enterprise'. According to PWC (2012:4) the most successful enterprises constantly adapt to new regulatory environments and are innovative in order to optimise working capital.

2.4.4 The significance of efficient WCM for SMEs

According to Agyei-Mensah (2012:568), Padachi (2006:46), and García-Teruel & Martínez-Solano (2007:166), WCM is more important to SMEs than to larger enterprises because SMEs have limited access to financial expertise and long-term capital markets.

García-Teruel & Martínez-Solano (2007:164) emphasise that short-term investments and resources constitute the largest share of SMEs' balance sheets. They found that current assets and current liabilities contributed 69.48% and 52.82% of total assets and total liabilities respectively in their sample of SMEs.

Peel and Wilson also emphasise in 1994 (cited in Agyei-Mensah 2012:568) the importance of working capital management in SMEs and identified the following reasons why efficient WCM is more important in SMEs than in larger businesses:

- Larger reliance on trade credit and bank overdrafts for short-term financing
- Willingness to grant excessive credit terms to obtain business
- Weak control procedures
- Generally unclear policy on WCM.

The importance of efficient WCM on SMEs was further emphasised by Bradley & Rubach (2001:1). They studied the small business industry to determine the relationship between poor WCM and SME failure. Their results indicate that trade credit collection challenges are among the main reasons for SME bankruptcy.

It can be concluded that WCM is important for SMEs' success and has a significant influence on their survival. The question then arises how can WCM performance be measured?

2.4.5 Performance measure of working capital management

Various parameters can be used to evaluate the performance of WCM. Anad and Gupta (2002:6) apply cash conversion efficiency, days of operating cycle and days of

working capital to measure WCM performance. Cash conversion efficiency measures the efficiency of an organisation to convert revenues into cash flows. Days of operating cycle evaluate the efficiency of inventory and receivable management. Days of working capital measures the liquidity risk.

Despite these various approaches, the general consensus is that working capital management efficiency is best measured by the cash conversion cycle (CCC) (Lazaridis & Tryfonidis, 2005:4; Ogundipe, Idowu & Ogundipe, 2012:1196).

2.4.6 Working capital management variables

WCM involves the management of these three variables: inventory turnover in days (ITD), average collection period (ACP) and average payment period (APP) (Napompech, 2012:228; Raheman & Nasr, 2007:283–284). In order to measure WCM efficiency, these variables are combined in the cash conversion cycle (CCC).

The CCC component reflects the length of time elapsed between an enterprise's cash disbursement for raw material procurement and cash collection for finished goods sold (Enqvist, et al., 2012:9; Gill, et al., 2010:2; Raheman & Nasr, 2007:284).

The following equation demonstrates the relationship between individual components of WCM:

$$CCC = \quad Inventory\ turnover\ in\ days + Average\ collection\ period \\ - Average\ payment\ perio$$

Consensus in the literature points out that profitability is enhanced by shortening the CCC (Ogundipe et al., 2012:1196). The formulation of the individual WCM variables are considered in the following section.

2.4.6.1   Inventory turnover in days (ITD)

Inventory turnover in days indicates the days it takes to convert inventory into sales revenue.

Holding large amounts of inventory has advantages including, risk reductions relating to stock shortages, supply costs, price fluctuations and prevention of disturbances in the production process. However, it also implies that a large amount of cash is held

up in inventory and can therefore not be applied better elsewhere (Raheman & Nasr, 2007; García-Teruel & Martínez-Solano, 2007).

Inventory turnover is determined by the following equation:

$$Inventory\ turnover\ in\ days\ (ITD) = \frac{Inventory}{Cost\ of\ goods\ sold} * 365$$

2.4.6.2 Average collection period

The average collection period involves the number of days it takes to collect cash for credit sales. According to Raheman and Nasr (2007:280), credit sales has the potential to stimulate sales as it allows customers to measure the quality of the product before making payments, which in turn can strengthen customer relationships. However, extensive trade credit challenges the profitability for business survival, and particularly for SMEs as cash is tied up in receivables (Bradley & Rubach, 2001; Napompech, 2012).

The average collection period is determined by:

$$Average\ collection\ period\ (ACP) = \frac{Accounts\ receivables}{Sales} * 365$$

2.4.6.3 Average payment period (APP)

The average payment period measures (in days) the time it takes to pay suppliers for credit purchases. Similar to extending credit to customers, delaying payments to suppliers allows an enterprise to assess the quality of the product before making payments. It can also serve as a form of inexpensive and flexible financing (Raheman & Nasr, 2007:280). Raheman and Nasr (2007:280) caution that late payments can become costly if it forfeits possible discounts.

The average payment period is determined as follows:

$$Average\ payments\ period\ (APP) = \frac{Accounts\ payables}{Cost\ of\ goods\ sold} * 365$$

2.4.7 Working capital management and profitability

As discussed previously, working capital is significant with regards to the success of SMEs. The question that remains is whether a relationship exists between WCM and profitability.

Mathuva (2010:1–11) examined the influence of WCM (as presented by the CCC) on the profitability of Kenyan companies listed on the Nairobi Stock Exchange. A negative relationship between the CCC and profitability was found and therefore it was concluded that companies may gain a competitive advantage by reducing the CCC to an optimum level.

Similar results were found by Padachi (2006:45) who studied the impact of WCM on the profitability of 58 small Mauritian manufacturing companies. It was found that a negative relationship exists between profitability and a high investment in inventories and receivables.

Both these studies apply CCC, ATD, ACP and APP as control variables to determine the relationship between WCM and profitability. Based on these studies, it can be concluded that WCM has a significant impact on an SMEs profitability.

2.4.8 WCM performance in an economic downturn

The researcher of this study considered the management of working capital in a recessionary period. Literature relating to WCM during the economic recession is therefore briefly discussed in the following section.

The efficient management of working capital is particularly significant during an economic decline. This was highlighted by Enqvist, et al. (2012:3) who reviewed the impact of WCM on profitability in different economic cycles. Their research supports the view that a combination of efficient management of inventory, reduction of accounts receivable, collection days and a shorter payables period, enhances

profitability. Enqvist, et al. (2012:3) also support the view that WCM is relatively more important in economic declines than in economic booms.

This was further emphasised by PWC (2012) in a study of WCM performance trends of companies in the United Kingdom during the 2009 economic recession. The study concludes that the economic recession has resulted in companies viewing working capital as a strategic priority to generate cash.

The performance of WCM variables over the 2007–2011 in Europe is illustrated in Figure 2.1.
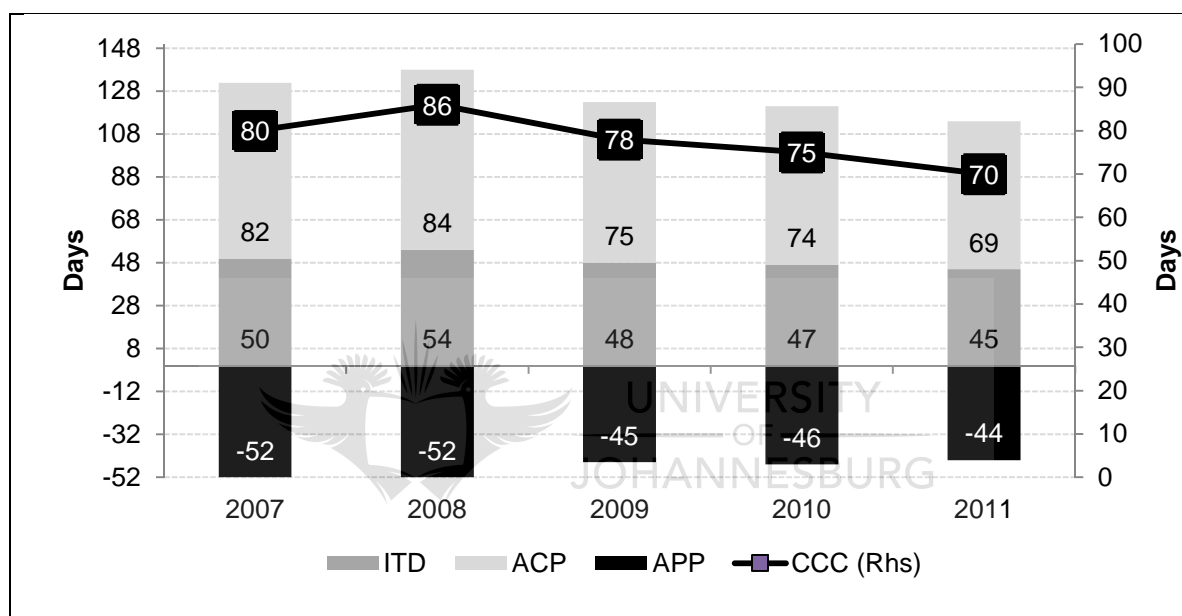
Figure 2.1: WCM performance in Europe 2007–2011

Source: PWC UK, 2012

It is demonstrated in Figure 2.1 that the CCC, with its interrelated components, ITD, ACP and APP, deteriorated in the year 2008. Nonetheless, the performance of all WCM components improved from 2009 onwards, reaching the best performance in 2011. For example, ITD moved from 50 days in 2007, to 54 days in 2008 and then steadily improved to an average of 45 days in 2011.

Similar WCM trends were found in the United States and European pharmaceutical companies during the period between 2005 and 2012 (Ernst & Young, 2012:1).

The findings indicated in this chapter point to the fact that WCM plays an important role in the success of any enterprise. It has also been found that WCM is specifically

significant in SMEs' success. Based on the theories discussed in this chapter, the the WCM trend over the study period is considered and the manner in which the 2009 recession influenced the WCM trend is discussed specifically.

2.5   Summary and conclusions

In this chapter the principles of WCM were discussed with specific reference to the WCM of SMEs. In addition, it is mentioned that the the JSE Ltd AltX's definition of SMEs were applied, which constitutes all small enterprises falling within the small and medium enterprise category. This category makes up approximately 15% of the registered and economically-active enterprises in South Africa.

In this chapter, it was concluded that these SMEs contribute significantly to the economy and employment rates of most countries across the world. In South Africa, SMEs add between 34% and 36% to the country's GDP and employment rates. The problem however is that SMEs have a high failure rate. The failure rate is reported to be at 90% in the first 10 years. Difficult operating conditions, such as the 2009 economic recession, intensify the failure rate of SMEs.

It was indicated in this chapter that poor financial management and specifically inadequate working capital management also contribute to the high failure rate of SMEs. Although WCM is important for all enterprises, it is clear that WCM is even more important for SMEs, because SMEs have limited access to capital markets, they rely largely on short-term financing, such as trade credit and bank overdrafts, and mostly have unclear WCM policies.

The researcher found that to study WCM trends and efficiency, the following components should be investigated: inventory turnover, average collection period, average payment period and cash conversion cycle (CCC).

The CCC was also discussed, which consists of three variables: ITD, ACP and APP. Management should therefore determine the combined effect of WCM variables but strive to optimise the CCC.

In conclusion, the methodology to measure WCM efficiency of SMEs were highlighted in this chapter. These methods are applied to measure trends in WCM of the sampled SMEs.

Chapter 3

Research methodology

3.1 Introduction

Literature on WCM was reviewed in general in the previous chapter and WCM was applied to recessionary circumstances. In this chapter, the research methodology that is applied in this study, is outlined.

At the outset, the research problem and goal of the study are highlighted to provide context prior to discussing the research methodology that is applied. A review of the research design, research strategy, data analysis, reliability of the analysis and limitations of the study follows.

3.2 Problem statement

SMEs are the economic drivers of developing countries as The World Bank (2013:18) states that these enterprises are the "key drivers of competition, growth and job creation, particularly in developing economies". Studies have also revealed that SMEs have the highest operational failure rate which, among other reasons, is attributed to lack of financial management skills and more specifically, due to poor WCM (Mabaso, 2008:2).

Studies also emphasise the negative impact an economic recession has on overall business performance. The problem is that limited knowledge exists in South Africa on the actual WCM trends and the impact an economic recession has on WCM of SMEs.

3.2.1 Goal of the study

The researcher's goal for the purposes of this tudy was to investigate the WCM performance patterns of SMEs throughout the 2009 economic recession to determine whether a recession has a significant impact on the WCM performance patterns.

3.2.2 Research paradigm

A research paradigm describes the approach a particular study applies. According to Leedy and Ormrod (2010:94) these approaches can be quantitative and/or qualitative in nature.

A quantitative approach is characterised by using amounts or quantities in the study, while the qualitative method involves applying qualities or characteristics (Leedy & Ormrod, 2010:94).

A quantitative research approach was followed during this study in order to answer the main research question. Quantitative research was considered appropriate for this study as the research data input and output are in the form of quantitative data. Numerical data were obtained from financial statements to measure WCM.

3.2.3 Research design

Phenya (2011:45) describes research design as a tool that maps out ways in which the primary research question is answered. Research design gives direction with regards to data sources, methods of collection and research analysis.

A descriptive analysis was employed during this study, which involved acquiring information about WCM levels of SMEs in South Africa, their characteristics, trends and previous experiences. For each sub-research question a summary of key statistics, frequency counts and statistical assessments was undertaken. Inferences wee drawn about the population from the descriptive analysis.

3.3 Research strategy

This study is secondary in nature as data were gathered from publicly available annual financial statements of the AltX JSE Ltd listed companies. Data were collected from the income statements and balance sheets by means of the McGregor BFA database. A ratio analysis was undertaken, applying Microsoft Excel and SPSS version 21 programs, to analyse performance efficiency of working capital.

3.3.1 Research method

A quantitative, descriptive research approach was used. A descriptive study describes the existent and characteristics of a problem or situation being studied without modifying or determining cause-and-effect relationships (Leedy and Ormrod, 2010:182).

This study is descriptive in nature, because it provides a description of WCM trends of SMEs during the study period and how this trend has changed over the period under consideration. In this study, the results of the descriptive research approach were used to analyse and explore the significance of the 2009 recession on WCM of SMEs.

3.4 Research instrument

The research instrument describes the instrument or method used to measure the observed concept within the research study. In this study, Microsoft Excel (a statistical analytical computer program) is applied to measure the output of the WCM variables. The following equations are used to calculate the variable results:

- $CCC = Inventory\ turnover\ in\ days + Average\ collection\ period - Average\ payment\ perio$

- $Inventory\ turnover\ in\ days\ (ITD) = \frac{Inventory}{Cost\ of\ goods\ sold} * 365$

- $Average\ collection\ period\ (ACP) = \frac{Accounts\ receivables}{Sales} * 365$

- $Average\ payments\ period\ (APP) = \frac{Accounts\ payables}{Cost\ of\ goods\ sold} * 365$

3.5   Sampling strategy

Leedy and Ormrod (2010:146) describe a sample as a subset of a larger group of units of interest from which data are acquired. The objective of sampling is to draw inferences to the population (Phenya, 2011:48).

A sampling strategy can fall within two categories, probability sampling or non-probability sampling. Probability sampling guarantees that each segment of the population is represented in the sample, while non-probability sampling gives no assurances that each segment is represented (Leedy & Ormrod, 2010:205–211).

In this study, purposive sampling was applied. According to Leedy and Ormrod (2010:212), purposive sampling is an example of a non-probability sampling strategy where people or units are chosen for a particular purpose.

3.5.1 Target population

Target population is defined as the unit of interest from which data are obtained to answer the main research question. The target population for this study consisted of all entities that were listed on the AltX Index of the JSE Ltd during the study period. This consisted of a total of 63 SMEs.

The population distribution in terms of industries is illustrated in Table 3.1. The industrial industry consists of the highest number of companies at 20 entities. The financial industry (consisting of financial services, insurance and real estate) follows at 14 entities. The telecommunication and utilities industries have the least number of listed entities at one each.

Table 3.1: JSE Ltd AltX Index listed entities

Population group (Industry)	Number of entities
Basic Materials	6
Consumer Goods	6
Consumer Services	5
Financials	14
Health Care	1
Industrials	20
Technology	9
Telecommunications	1
Utilities	1
Total	**63**

Source: JSE Ltd (2013)

3.5.2 Sample selection

A purposive sampling strategy was applied to select the sample for this study. This strategy was applied for purposes of comparability and consistency in measuring working capital across the target population. Purposive sampling was considered appropriate after taking into account the nature of the study population and the requirements of WCM.

The fact that financials (consisting of financial services, insurance and real estate) have no items of inventory in their balance sheets was considered. Entities falling within this industry wee purposefully excluded from the study.

The following additional filters were applied to select the desired sample:

- The entity must be South African
- The entity's financial year end should end by Dec 2012
- The entity's required financial data should be uninterrupted throughout the five year study duration, from 2007 to 2012.

The 2007 to 2012 period of study was selected due to the relevance of the global financial crisis of 2009.

A total of 44 entities met all the pre-conditions mentioned above and were therefore included in the study sample.

3.6   Data collection method

Data can be divided into two categories, namely data from primary and secondary sources (Leedy & Ormrod, 2010:89). Primary data are the original data that a researcher collects from data sources. Secondary data, on the other hand, are described as data that have been collected by another party for a different purpose (Leedy & Ormrod, 201:890). Financial data were used for the purposes of this study, which falls within the secondary data definition, as the data were sourced from financial statements that were readily available for listed entities and collected by the entities for reasons other than for the purposes of this study.

Financial data of the target population, spanning over six years, were collected from annual financial statements, from specifically income statements and balance sheets. The financial statements were obtained from McGregor BFM database (McGregor, 2013). Data gathered from the databases were:

- accounts receivables;
- sales revenue;
- inventory;
- accounts payables; and
- cost of goods sold.

3.7   Data analysis

For the purposes of this study, secondary data were first converted to financial ratios using the WCM variables for each entity over the six year study period.

The following working capital management variables were applied in the study:

- Cash conversion cycle (CCC)
- Average collection period (ACP)
- Inventory turnover in days (ITD)
- Average payment period (APP).

Based on the study period, these variables were statistically analysed during the study period by means of SPSS version 21, and calculated, tabulated and graphically presented with the assistance of Excel.

Data analysis consisted of descriptive statistics, normality tests and plots as well as Mann Whitney U tests. Normality tests and plots were compiled to determine whether the data are normally distributed or not. It was also necessary to determine whether parametric or non-parametric tests could be used to compare means across groups and to compare the WCM efficiency over time and across industries.

The Mann Whitney U test was applied in this study to analyse data. The Mann Whitney U test is a non-parametric test equivalent to the parametric independent t-tests and is used in situations where assumptions of the t-tests are not met. The Mann-Whitney U test is used to compare differences between two independent groups when the dependent variable is either ordinal or continuous, but not normally distributed. The test is applicable for determining whether groups come from identical distributions with similar medians (Padachi & Howorth, 2013:15).

Document analysis was undertaken to verify why certain industries are outperforming others in terms of WCM. WCM studies from different countries were also reviewed, with a specific focus on factors that lead to the best performing industries staying ahead.

3.8   Validity and reliability of data

Validity and reliability are imperative considerations in research. Validity and reliability are often used in relation to measurement to determine whether a measurement has any errors imbedded in it (Leedy & Ormrod, 2010:28–29).

3.8.1 Validity of measurement

Validity falls within two categories, namely external and internal validity (Leedy & Ormrod, 2010:97–100). Internal validity in data is accomplished when research findings accurately achieve and exemplify the research objectives as well as the other relationships within the data (Leedy & Ormrod, 2010:97). External validity relates the research findings to external world usage (Leedy & Ormrod, 2010:99).

In this study, data validity was ensured by virtue of the type of data used. Financial data were obtained from annual financial statements that were independently audited. It is a JSE Ltd requirement that all listed entities have their financial statements independently audited.

3.8.2 Reliability

Reliability of data is described as the consistency of data (Leedy & Ormrod, 2010, Phenya, 2011:56). Study reliability ensures that should other researchers use the same methodology, they would reach the same conclusions.

In order to ensure that accurate and reliable data were used in this study, it was obtained from the generally accepted quality McGregor BFA database (McGregor, 2013).

3.9   Ethical considerations

Ethical considerations in research are important and should be observed by the researcher during a study. According to Leedy and Ormrod (2010:101–109) ethical concerns in research are classified according to four categories:

- Protection from harm
- Informed consent

- Right to privacy
- Honesty with professional colleagues.

In this study, publicly-available data were used and focus was not placed on any single entity but on an entire industry. Ethical considerations as indicated above were adhered to in all aspects.

3.9.1 Anonymity and confidentiality

The analysis of publicly-available data entails that the study is based on information available to the public as provided by the entities themselves. Concerns of anonymity and confidentiality were therefore not applicable with regards to this study.

3.10 Limitations

The availability of relevant information was the main limitation of this study. In South Africa, financial information on SMEs is limited. Most SMEs do not publicly release financial information.

However, in order to be listed on the JSE Ltd, companies must release their financial statements. Since these financial statements are readily available to the public, it was decided to confine the study to JSE Ltd AltX Index listed SMEs in South Africa.

3.11 Summary

The main goal of the study was reiterated in this chapter, which was to determine the WCM performance patterns of SMEs throughout the 2009 economic recession. The aim was to determine changes in WCM patterns and to rank industries according to their WCM performance. Based on the nature and goals of the study, this study was required to follow a quantitative, descriptive, research design approach.

Secondary data were used to determine working capital management. This data were obtained from the financial statements of the JSE Ltd AltX listed entities, which is located on the McGregor BFA database.

The target population consisted of JSE Ltd AltX listed entities. Sample selection criteria were set to avoid incomparability and inconsistency in measuring working capital management.

A purposive sampling strategy was considered appropriate as not all small entities initially met the required criteria of the sample. In addition, working capital management was measured by means of the WCM variables. These variables are: cash conversion cycle, average collection period, average payment period and inventory turnover days.

MS Excel and SPSS version 21 were used to analyse the WCM data. Descriptive statistics, normality tests, plots, and the Mann Whitney U tests were applied in the analysis.

Chapter 4

Results and findings

4.1 Introduction

The previous chapter outlines the research methodology and design applied to this study. For the purposes of this study, a quantitative, descriptive study approach applying secondary data was used.

This chapter contains an analyses and interpretation of the findings of the research conducted on the sample of listed companies on the JSE Ltd AltX. The question whether the 2009 economic recession had an impact on the working capital management of SMEs in South Africa is addressed.

To contextualise the data analysis and interpretations in this chapter, the goal of the study is briefly restated. Thereafter, the research findings and analysis of the combined sample of SMEs is presented followed by an analysis of WCM per industry.

The chapter concludes with a ranking of SME industries in terms of WCM over the study period.

4.2 Reason for undertaking the research

The goal of this study was to investigate the WCM performance patterns of SMEs throughout the 2009 economic recession in order to determine whether the recession had a significant impact on the WCM performance patterns.

4.3 Sample description

Data were obtained from 44 SMEs in the sample. The sample distribution in terms of the number of SMEs in each industry is indicated in Figure 4.1. The highest number of SMEs fell within the industrials industry, which contributes 45% of the total sample, followed by the technology industry at 20% and consumer goods at 14%. The smallest number of SMEs fell within the health and telecommunications industries with only 2% of the sample.
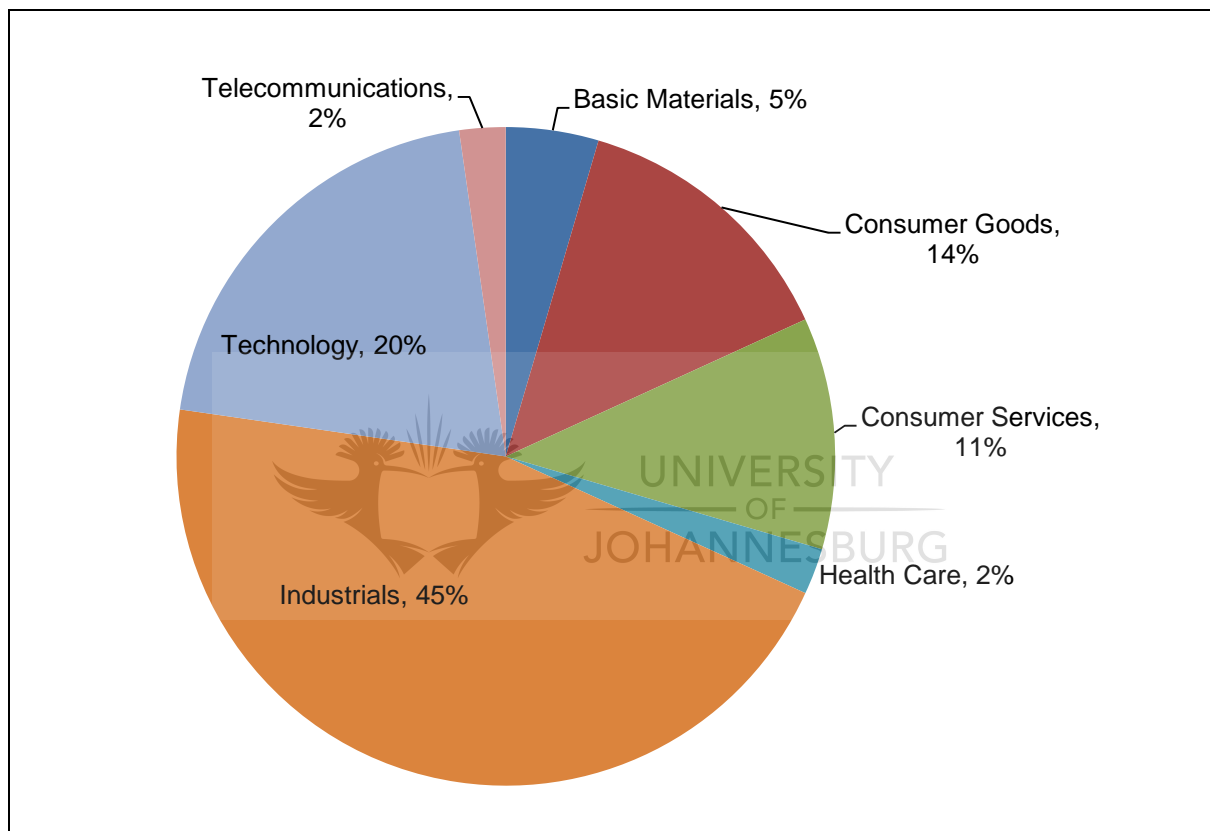

Figure 4.1: Distribution of sample of SMEs in each industry category

Source: Own deductions

4.4 Data analysis and interpretation

This section presents the WCM trend of the combined sample of SMEs over the six year (2007–2012) study period. The study period included the pre-recessionary, recessionary and post-recessionary periods.

4.4.1 Trend analysis of WCM efficiency levels of SMEs

Trend diagrams are presented for the yearly mean of each WCM element for the combined sample of SMEs. Because data were not normally distributed, a 95% confidence error bar is presented to indicate the reliability of means.

WCM was measured based on cash conversion cycle, inventory turnover, receivables turnover and payables turnover (Napompech, 2012:228; Raheman & Nasr, 2007: 283–284).

4.4.1.1 Cash conversion cycle (CCC) efficiency by year

The CCC provides insight into how efficiently an entity manages its working capital. The measure offers a reflection of the liquidity risk level of an entity by calculating the number of days it takes for an entity to translate input resources into cash flows. This is done by measuring the number of days between disbursements of cash for raw materials and collecting cash from sales (Enqvist, et al., 2012:9, Gill, et al., 2010:2; Raheman & Nasr, 2007:284). CCC is calculated by adding ACP to ITD and subtracting APP for each entity.

The average CCC performance of SMEs from 2007 to 2012 is illustrated in Figure 4.2. The average CCC efficiency of the 44 sampled SMEs ranged between -29.44 days and 41.49 days.

This was significantly lower than SMEs in other countries. European companies averaged 77.8 days between 2007 and 2011 (PWC, 2012:9)
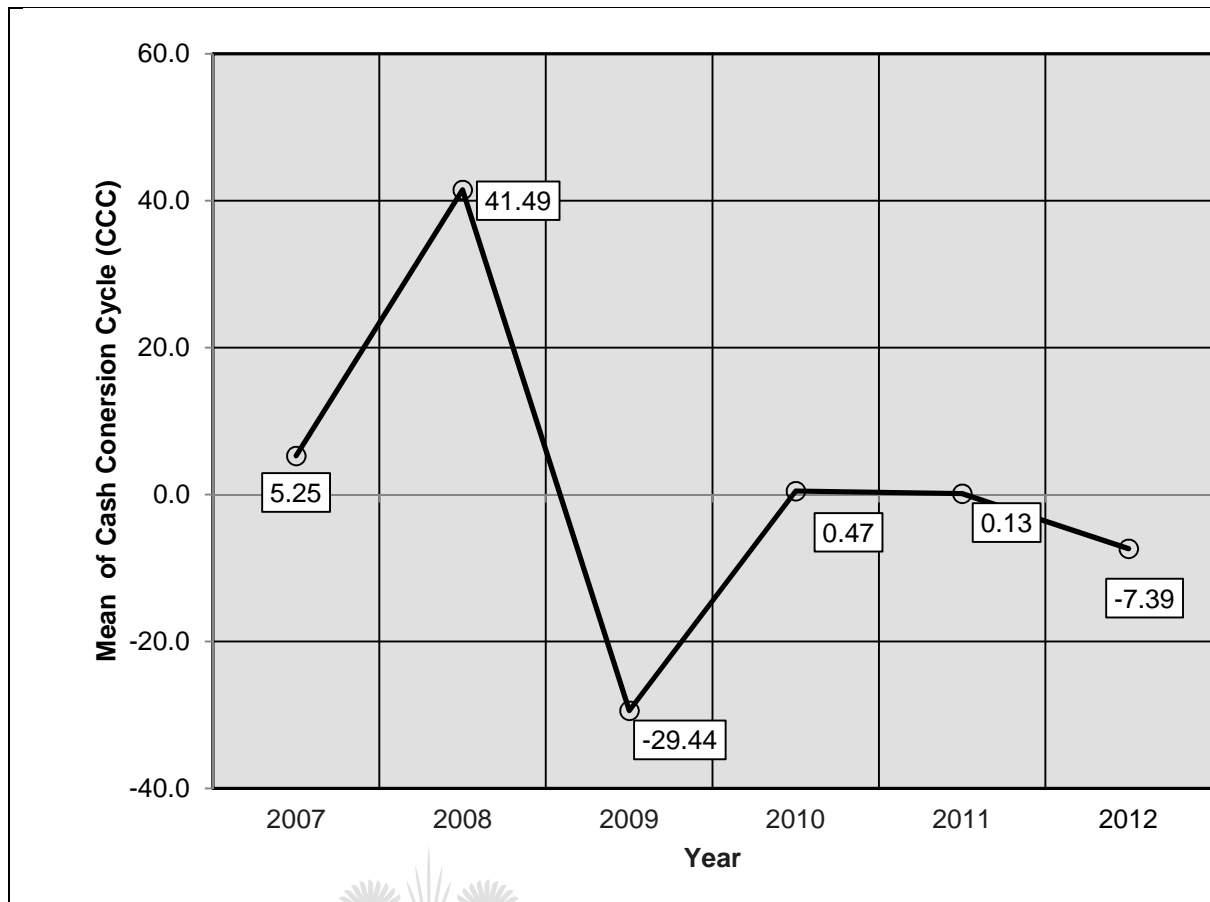
Figure 4.2: The mean CCC in days by year

Source: Own deductions

In 2009 and 2012 SMEs achieved a negative CCC of -29.44 and -7.39 days respectively. According to the data illustrated in Figure 4.2, SMEs showed the weakest CCC performance in 2008, with the CCC reaching 41.49 days. It is also indicated that after 2008, the CCC of SMEs decreased, which points to improved WCM.
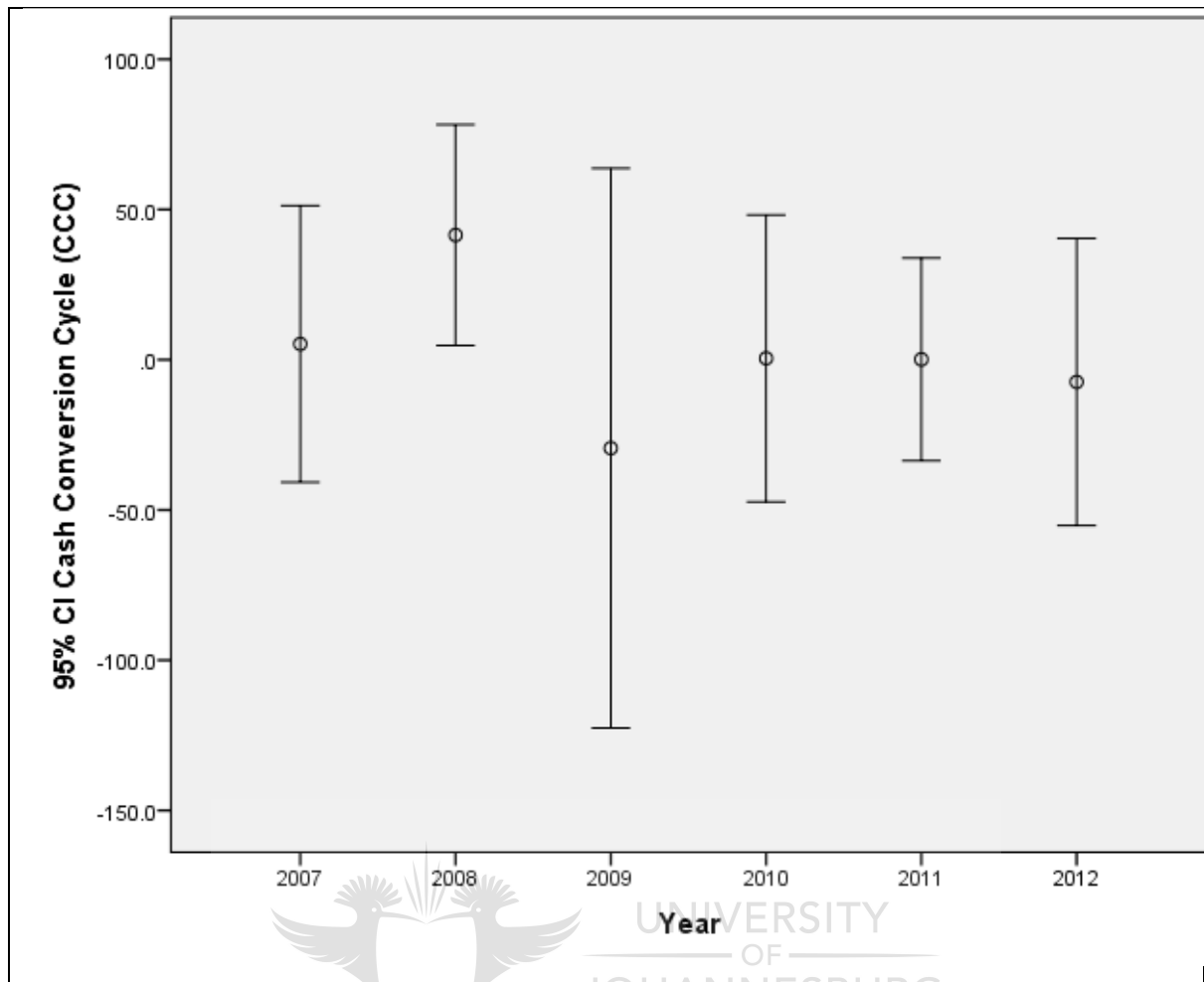
Figure 4.3: CCC – 95% confidence interval error bars

Source: Own deductions

The data illustrated in Figure 4.3 indicate the 95% confidence interval error bars for the mean CCC over the study period. It also illustrates a 95% confidence interval, with 2009 showing the largest CCC volatility.

4.4.1.2 Inventory conversion efficiency by year

Inventory turnover days (ITD) reflect an entity's efficiency in turning inventory into sales by measuring, on average, the number of days in a year an entity takes to replenish inventory (Mathuva, 2010:2).

The data illustrated in Figure 4.4 indicate that the average inventory turnover of SMEs range between a minimum of 63.32 and maximum of 83.30 days over the study period. The mean ITD over the study period of 71.50 days can be compared with ITD performance of SMEs in other countries. The mean ITD of manufacturing SMEs in Sweden was 46 days in 2006 (García-Teruel & Martínez-Solano, 2007; Abel, 2008:44). European companies averaged 48.8 days between 2007 and 2011 (PWC, 2012:9).
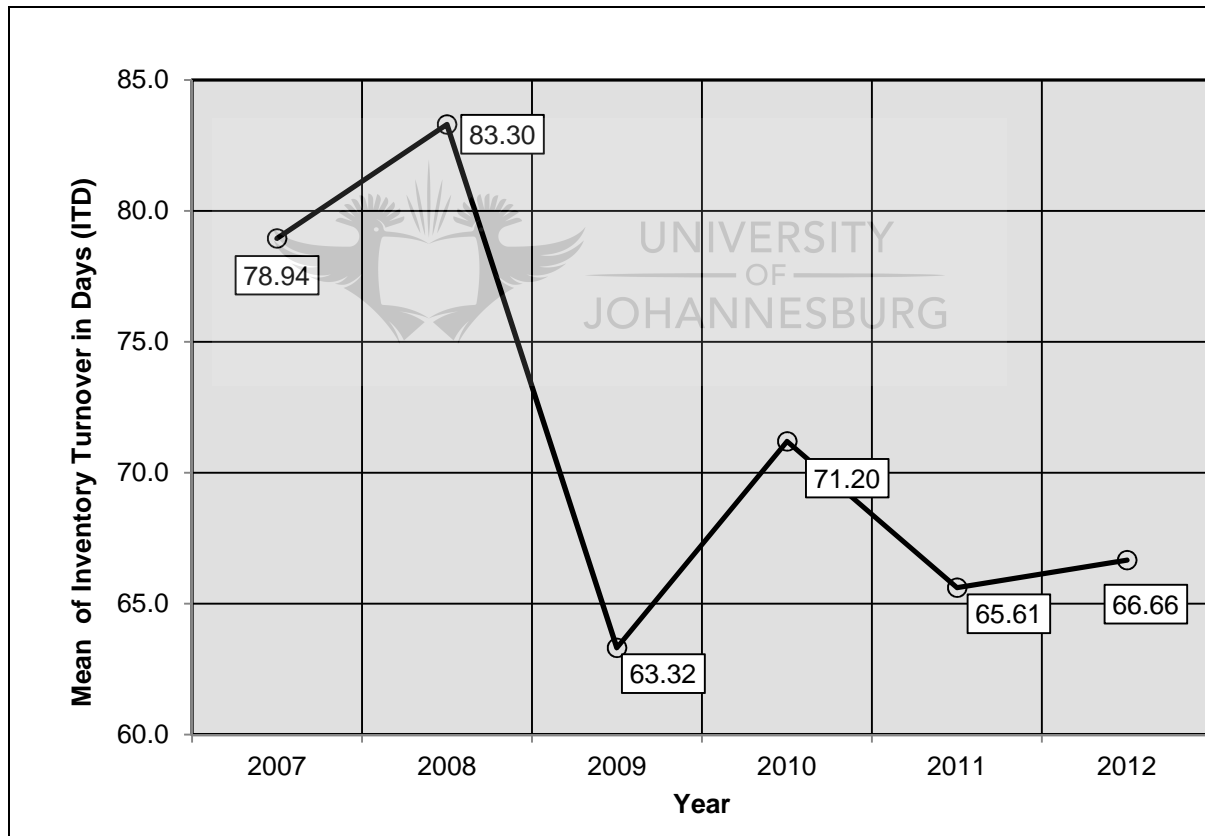
Figure 4.4: ITD by year

Source: Own deductions

In the period under study as indicated in Figure 4.4, inventory turnover performed best in 2009 at 63.32 days. The weakest ITD level was attained in 2008 at 83.30 days.

This implies that pre-2009, SMEs took longer to turn inventory into cash, while since 2009, ITD improved.

The 95% confidence interval error bars of ITD over the study period is illustrated in Figure 4.5.
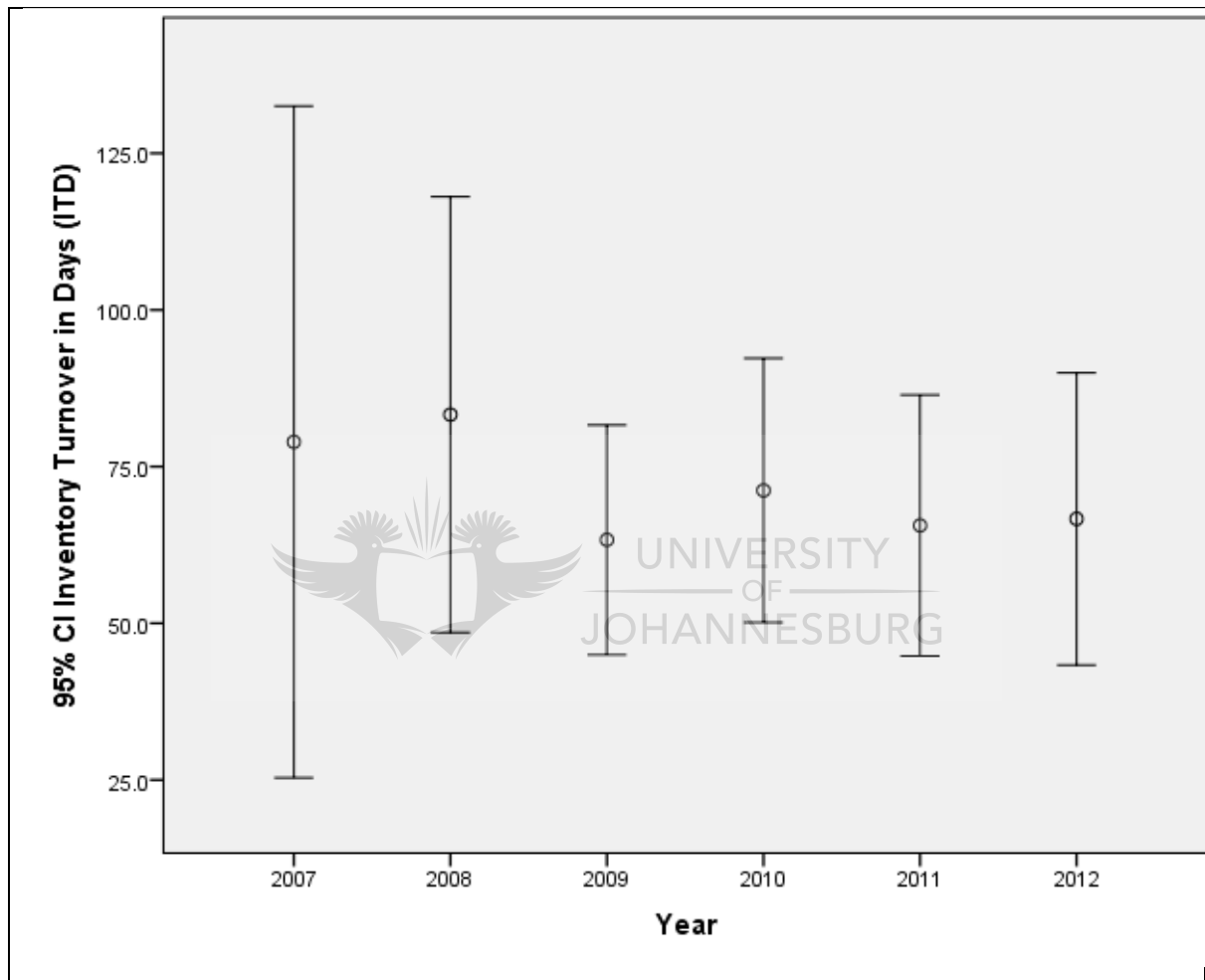
Figure 4.5: ITD – 95% confidence interval error bars

Source: Own deductions

It is illustrated in Figure 4.5 that the ITD for the years 2007 and 2008 had higher volatility than all the other years in the study period.

4.4.1.3 Collection efficiency by year

Collection efficiency expresses how efficient companies are at converting accounts receivables into cash. The level of collection efficiency provides an indication of the credit collection policies and practices of an enterprise. This measure calculates the number of days it takes to collect from debtors (Mathuva, 2010:1).

The data in Figure 4.6 illustrate that the sampled SMEs took, on average, a maximum of 94.06 days in 2008 to collect from debtors and a minimum ACP was reached in 2012 with 77.43 days. The average ACP was 84.96 days over the study period.

In comparison, European companies averaged ACP of 76.8 days between 2007 and 2011 (PWC, 2012:9).
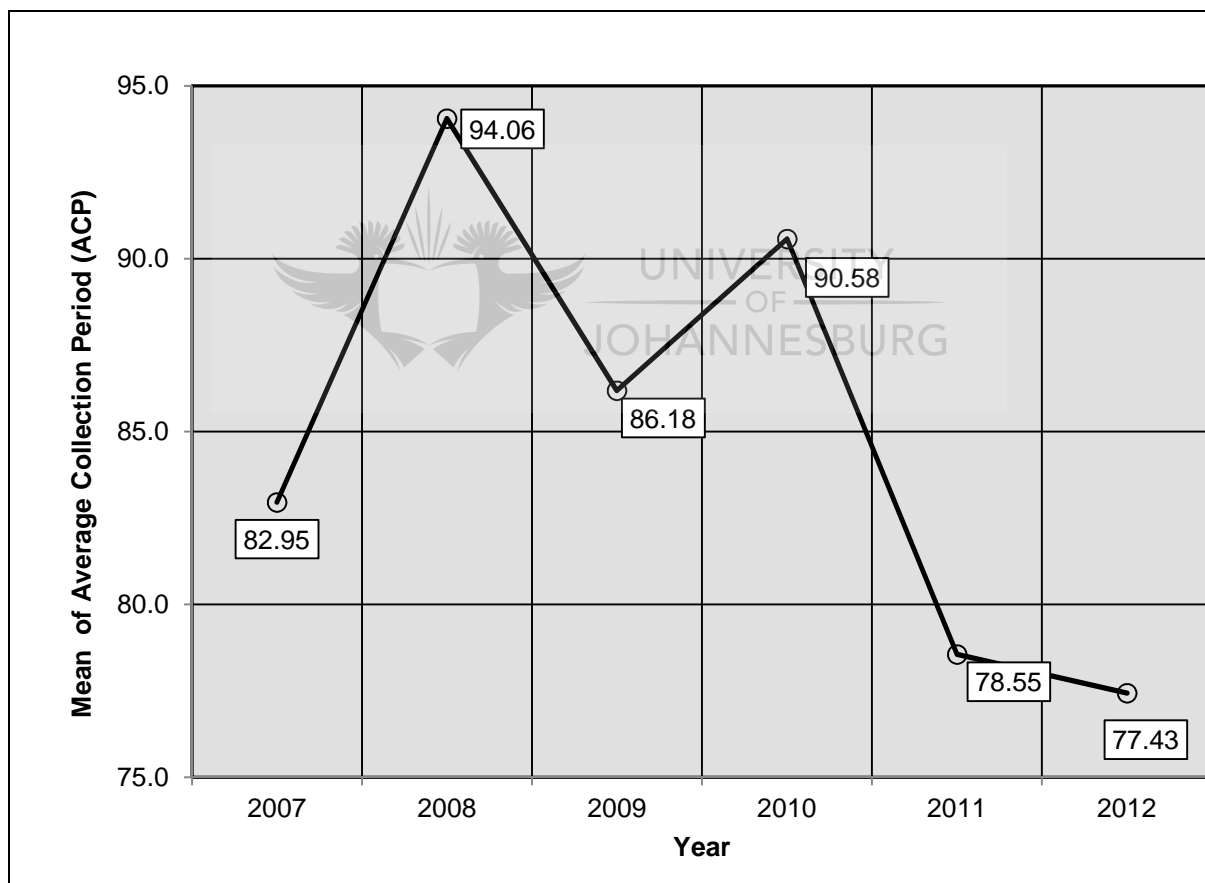
Figure 4.6: Average collection period by year

Source: Own deductions

Additionally, the ACP in the study period is illustrated in Figure 4.6. The ACP deteriorated from 82.95 days in 2007 to 94.06 days in 2008 and then gradually improved in subsequent years (2009–2012).

The 95% confidence intervals error bars of the ACP over the study period is illustrated in Figure 4.7.
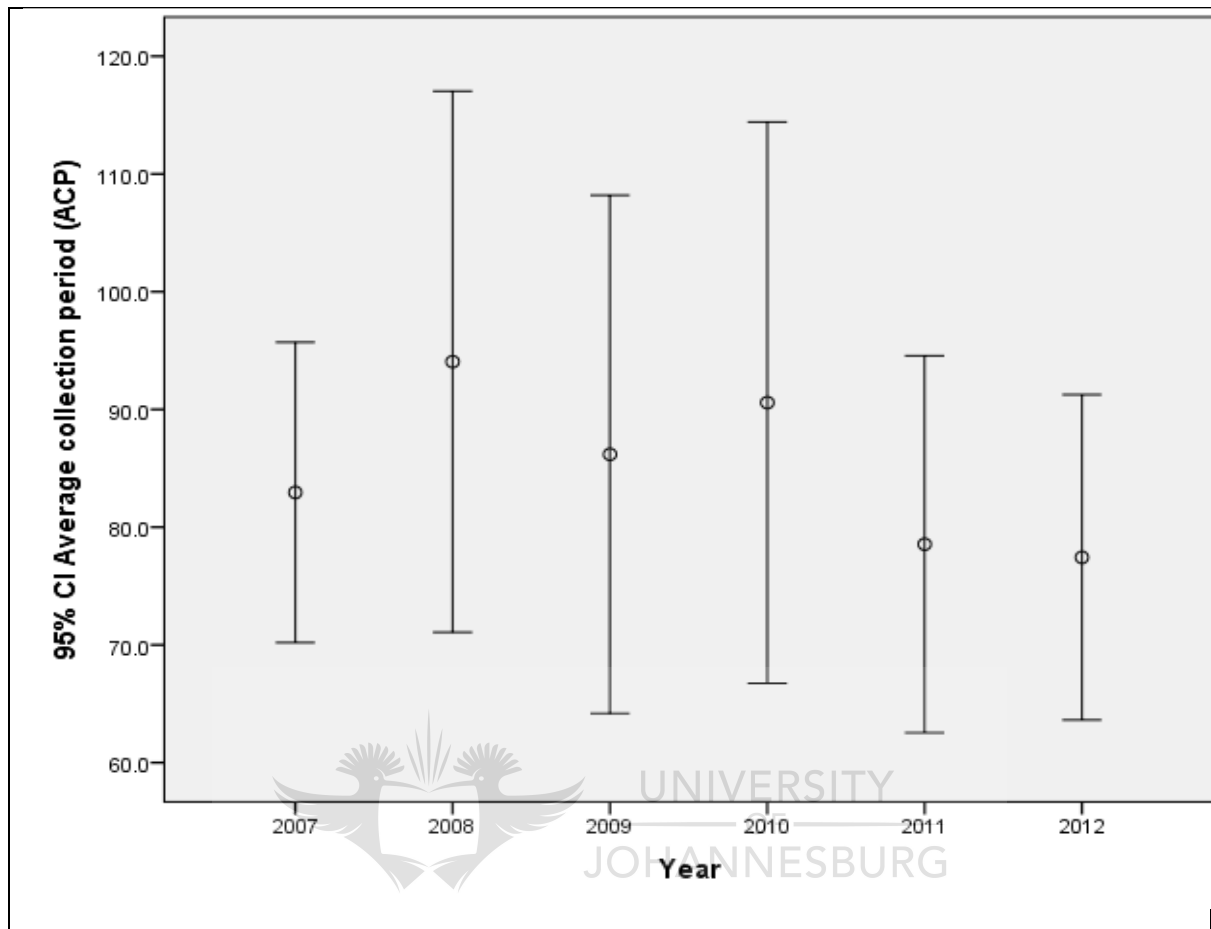
Figure 4.7: ACP – 95% confidence interval error bars

Source: Own deductions

By investigating the ACP 95% mean size confidence interval error bars in Figure 4.7, it could be concluded that the years 2008 to 2010 were the most volatile.

4.4.1.4 Average payment period efficiency by year

Average payment period (APP) is the length of time it takes an entity, on average, to pay creditors for goods or services purchased on credit (Mathuva, 2010:2). The APP can be used as an indication of the creditworthiness of an enterprise.

On average it took the sample of SMEs 152.30 days to pay creditors during the six years from 2007 to 2012. In comparison, European companies averaged APP of 47.8 days between 2007 and 2011 (PWC, 2012:9).
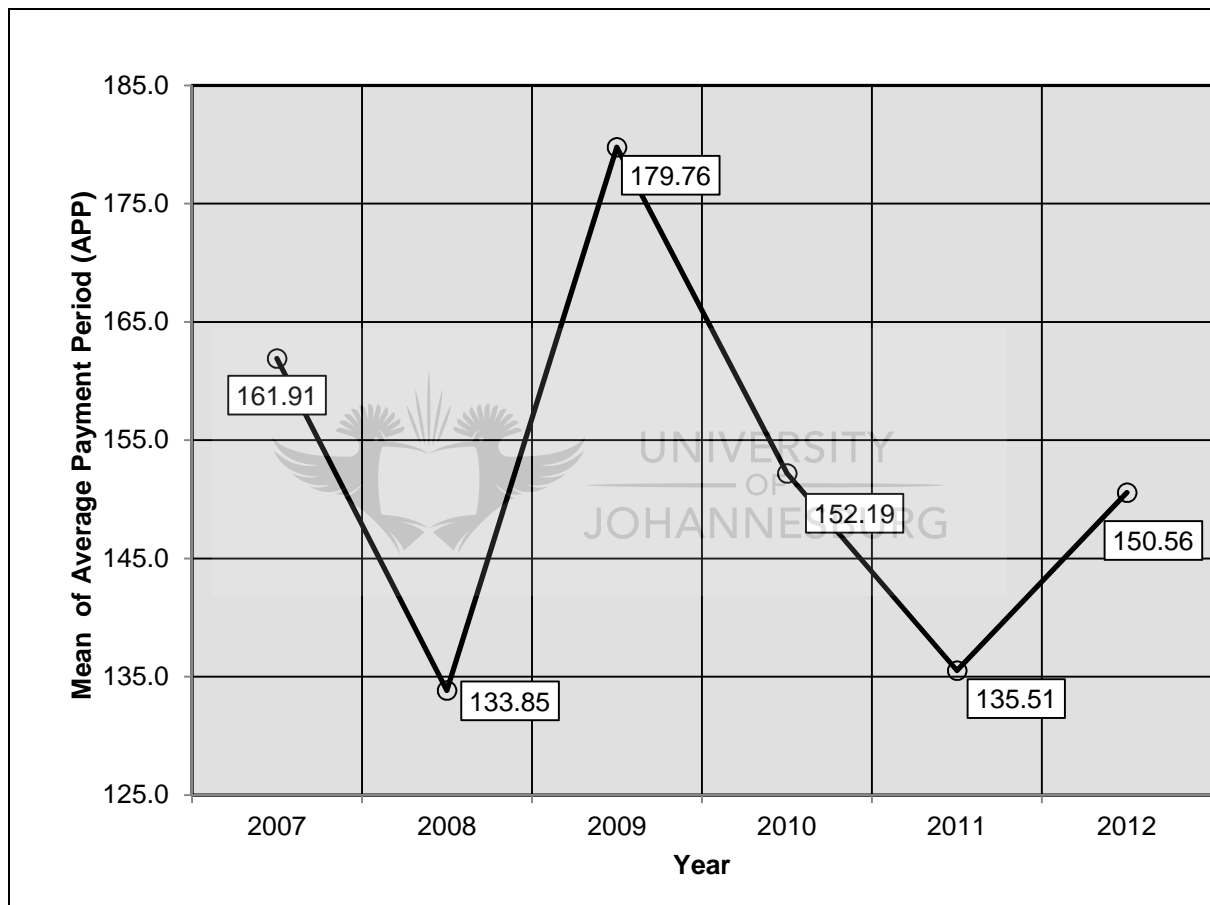
Figure 4.8: Average payment period (APP) by year

Source: Own deductions

The APP of the sample SMEs over the study period is illustrated in Figure 4.8. SMEs took 133.85 days, on average, to make payments to creditors in 2008. The number of days increased in 2009 to 179.76 days with an increase of 45.91 days. In the subsequent years, from 2010 to 2012, the trend indicates that SMEs steadily paid debtors quicker. The average APP declined from 179.76 in 2009 to 150.56 days in 2012.

The 95% confidence intervals error bars of the APP averages over the study period are represented in Figure 4.9.
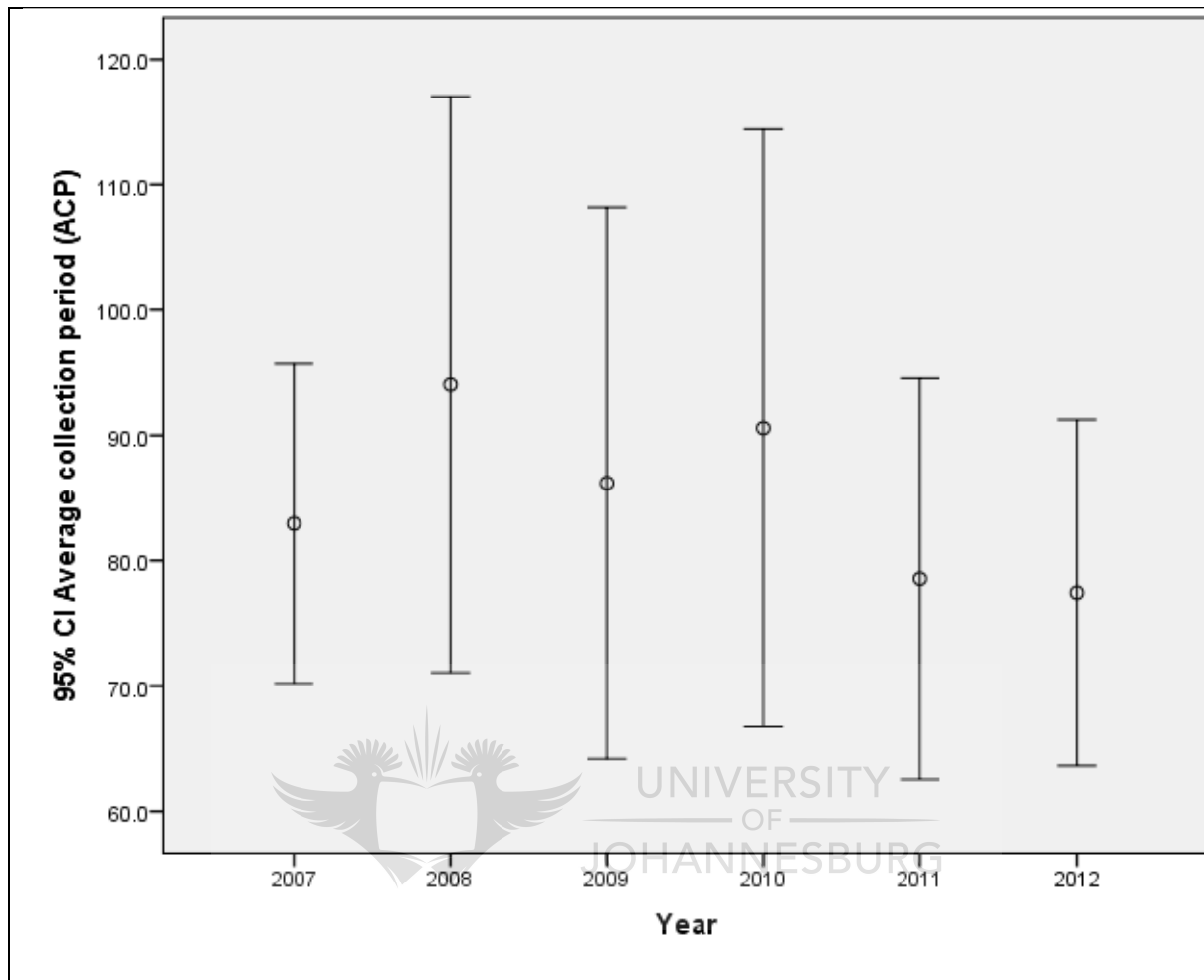
Figure 4.9: ACP − 95% confidence interval error bars

Source: Own deductions

It is clear from the data illustration in Figure 4.9 that the highest volatility in ACP was experienced in the period between 2008 and 2010.

In the following section, the combined trend analysis, with specific reference to the 2009 economic recession, is considered.

4.4.2 The influence of the economic recession on WCM efficiency patterns and post-recession WCM practices

The researcher's objective for the purposes of this section was to specifically determine the influence of the economic recession on the WCM performance patterns of SMEs. The South African economy went into full economic recession during 2009 (Steytler & Powell, 2010:2). Therefore, the year 2009 was applied as a reference for the economic recession applicable to this study.

The influence of the economic recession on WCM efficiency patterns and post-recession WCM practice was analysed in two separate ways:

1. Firstly, the trend of all the components forming part of WCM with specific reference to the economic recession wee investigated.
2. Secondly, a Mann Whitney U test was conducted to determine the statistical significance of the WCM mean ranks in pre-, during and post-recession phases.

4.4.2.1 Combined trend analysis of WCM components during the economic recession

The results of the combined WCM trend analysis are represented in Figure 4.10. For ease of reference: pre-economic recession refers to 2007 and 2008; during economic recession refers to 2009; and post-economic recession is indicated by the years 2010 to 2012.
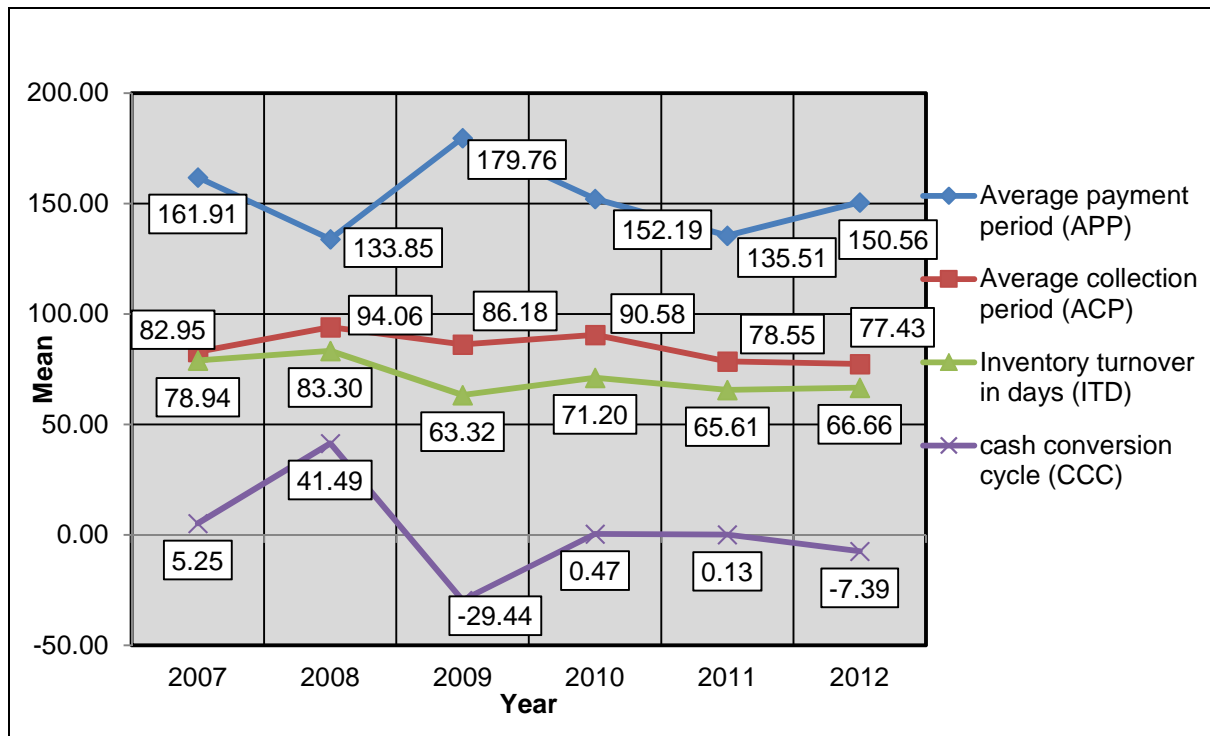
Figure 4.10: Results of APP, ITD, ACP, and CCC over the study period.

Source: Own deductions.

In the pre-recession years (2007 to 2008), inefficiencies were noted in collection days (ACP) and inventory turnover days (ITD). ACP increased from 82.95 days in 2007 to 94.06 days in 2008. The rate of converting inventory into cash (ITD) took four days longer in 2008 in relation to 2007. ITD increased from 78.94 days in 2007 to 83.30 days in 2008.

APP decreased as creditors were paid faster in 2008 (133.85 days) in relation to 2007 (161.91 days). The combination of weaker ACP, ITD and ACP lead to weaker WCM performance. CCC increased from 5.25 days in 2007 to 41.49 days in 2008.

On the contrary, the data illustrated in Figure 4.10 also indicate that during the period of full recession (2009) the sample of SMEs in South Africa became more WCM efficient compared to 2008. The WCM performance from 2008 to 2009 indicates that CCC decreased from 41.49 days in 2008 to -29.44 days in 2009.

During the full recession (2009), working capital levels were managed by accelerating debtor collections and inventory conversion into cash while simultaneously delaying payments to creditors. This behaviour is consistent with findings by PWC (2012:3) who indicate that during economic recession, when cash is expensive and difficult to

access, SMEs accessed cash from working capital before seeking alternative financing from external sources.

An analysis of the post-economic recession period, from 2010–2012, indicated that the WCM improved from 2007 to 2008 and WCM reverted to more efficient levels than before the economic recession. A similar trend was observed by the PWC (2012:5–6) study.

In conclusion, the combined trend analysis indicated that the economic recession had a positive influence on the WCM patterns of SMEs in South Africa. During this period (2009), SMEs used working capital as a way to remain liquid and continue operations. The biggest working capital driver was delaying payments to creditors from 2008 to 2009 by 45.91 days. Other measures include accelerating inventory cash conversion and debtor collection by reducing the number of inventory turnover in days and the average collection period.

4.4.2.2   Comparison of the statistical significance of the effect of the economic recession on WCM performance over combined periods

The trend analysis indicated that there were changes in WCM performances of sampled SMEs over the study period. The trend analysis was however based on mean yearly observations only.

This section presents evidence on whether mean differences in WCM performance of SMEs were statistically significant in comparison to different phases. The phases before and during the economic recession, during and post-economic recession and pre-economic and post-economic recession, were compared.

4.4.2.2.1   Significance of WCM variables before and during an economic recession

As a result of the non-normality of the data set used, the Mann Whitney U test was applied to determine whether there is a difference in WCM between the pre-economic recession and during the economic session. The hypotheses to be tested were:

H_0:   WCM performance of pre-economic recession years and WCM performance during the full economic recession year have identical probability distributions.

H_1:   WCM performance of pre-economic recession years and WCM performance during the full economic recession year differ.

Results of the comparison between phases prior to and during the economic recession are indicated in Table 4.1.

Table 4.1:   **The difference of WCM performance prior to (2007–2008) and during economic recession (2009)**

Variable	Period	Mean Rank	Mann Whitney U Test value	p-value	Decision
Average collection period (ACP)	Pre-	58.70	1 336.0	0.457	Null hypothesis is not rejected
	During	53.90			
Inventory Turnover in Days (ITD)	Pre-	45.93	903.0	0.833	Null hypothesis is not rejected
	During	44.72			
Average Payment Period (APP)	Pre-	50.66	1 162.0	0.877	Null hypothesis is not rejected
	During	51.59			
Cash Conversion Cycle (CCC)	Pre-	57.55	1 420.0	0.810	Null hypothesis is not rejected
	During	56.00			

Source: Own deductions

The findings were that none of the WCM variables exhibited any significant difference in WCM between the two phases. The average payment period (APP) was the only variable that had a lower mean rank during the pre-economic recession as compared to during economic recession. This is in line with the findings of the trend analysis that showed that payment to creditors were delayed during the recession.

4.4.2.2.2   Significance of WCM variables during and post-economic recession

The Mann Whitney U test was also applied to determine whether there is a significant difference in WCM during the economic recession and after the economic recession. The hypotheses to be tested were:

H₀: WCM performance during the full economic recession year and WCM performance of post-economic recession years have identical probability distributions.

H₁: WCM performance during the full economic recession year and WCM performance of post-economic recession years differ.

Results of the comparison between the phases during and the after the economic recession are indicated in Table 4.2.

Table 4.2:   The difference of WCM performance during (2009) and post-economic recession (2010–2012)

Variable	Period	Mean Rank	Mann Whitney U Test value	p-value	Decision
Average collection period (ACP)	During	78.48	2 121.0	0.676	Null hypothesis is not rejected
	Post-	75.11			
Inventory Turnover in Days (ITD)	During	62.22	1 463.0	0.959	Null hypothesis is not rejected
	Post-	62.60			
Average Payment Period (APP)	During	72.19	1 968.0	0.958	Null hypothesis is not rejected
	Post-	72.61			
Cash Conversion Cycle (CCC)	During	81.23	2 671.0	0.483	Null hypothesis is not rejected
	Post-	75.50			

Source: Own deductions.

Results of the hypothesised link between recessionary and post-recession WCM performance indicated that there were no significant differences in WCM performance between the two periods.

4.4.2.2.3 Significance of WCM variables pre-economic and post-economic recession

The test of difference in WCM between the pre-economic and post-economic recession periods is done by means of the Mann Whitney U test. The hypotheses to be tested were:

H_0: WCM performance of pre-economic recession years and WCM performance of post-economic recession years have identical probability distributions.

H_1: WCM performance of pre-economic recession years and WCM performance of post-economic recession years differ.

Results of the comparison between pre-economic and the post-economic recession phases are indicated in Table 4.3.

Table 4.3:   The difference of WCM performance prior (2007-2008) and post-economic recession (2010–2012)

Variable	Period	Mean Rank	Mann Whitney U Test value	p-value	Decision
Average collection period (ACP)	Pre-	98.77	3 594.0	0.196	Null hypothesis is not rejected
	Post-	88.38			
Inventory Turnover in Days (ITD)	Pre-	75.17	2 649.0	0.942	Null hypothesis is not rejected
	Post-	75.71			
Average Payment Period (APP)	Pre-	84.59	3 334.0	0.774	Null hypothesis is not rejected
	Post-	86.84			
Cash Conversion Cycle (CCC)	Pre-	99.18	3 710	0.248	Null hypothesis is not rejected
	Post-	89.83			

Source: *Own deductions*

54

The mean ranks of WCM variables between the phases before and after the economic recession indicated no significant differences. The results are in line with the trend analysis view that WCM practices of a post-recession era reverted back to 2007 levels.

In conclusion, the statistical analysis indicated that none of the WCM variables exhibited any statistically-significant difference in WCM between any two phases tested, including:

- pre- vs. during economic recession;
- during vs. post-economic recession; and
- pre- vs. post-economic recession.

The WCM performance of specific industries over the study period is considered in the section that follows. The WCM behaviour of industries and outperforming industries are identified.

4.4.3 WCM efficiency levels of SMEs by industry

The WCM of the sample of SMEs are classified per industry in order to establish whether outperforming trends and industries can be identified over the study period. The industries are ranked based on their mean performance within each WCM variable over the period between 2007 and 2012.

Because of the limited scope and explorative nature of this study, it was decided to apply mean performance per WCM variable over the study period as a basis for ranking the WCM of industries. The reliability of the WCM variable means are graphically indicated by 95% confidence intervals error bars.

4.4.3.1   Cash conversion cycle

The CCC across industries is presented in Table 4.4.

Table 4.4: Mean CCC days and ranking by industry (2007–2012)

Industry	Pre-recession (2007–2008)		Recession (2009)		Post-recession (2010–2012)		Combined (2007–2012)	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Basic materials	52.49	6	-12.65	3	95.51	7	57.42	7
Consumer goods	-11.46	2	86.12	7	11.25	6	15.71	4
Consumer services	57.19	7	-199.98	1	-59.04	1	-45.91	1
Health care	40.06	4	14.41	5	8.66	5	20.08	5
Industrials	41.41	5	45.04	6	6.27	4	24.35	6
Technology	-6.41	3	-151.62	2	-19.20	2	-40.94	2
Telecommunications	-14.72	1	2.55	4	-11.12	3	-10.04	3

Source: Own deductions

According to the data in Table 4.4, the combined ranking of CCC indicated the shortest mean CCC of -45.91 days was obtained by consumer services, while the longest mean CCC of 57.42 days was obtained by basic materials.

Prior to the economic recession the consumer services industry had the longest CCC of 57.19 days. This sector's ranking moved to first position in the recession obtaining a CCC of -199.98 days. The first position ranking was maintained after the recession at -59.04 days.

The 95% confidence interval error bars for the combined mean industry CCC are illustrated in Figure 4.11.

Figure 4.11: CCC – 95% confidence interval error bars by industry

Source: Own deductions

The data illustrated in Figure 4.11 indicate that the CCC confidence error interval bars for all industries, except telecommunication, wer overlapping. It can also be noted that consumer services were ranked number one (the best) in terms of mean CCC. At 95% confidence interval however, the consumer services industry had a more volatile CCC than all other industries.

4.4.3.2   Inventory turnover days (ITD)

The data in Table 4.5 represents the ITD of the sample of industries over the study period.

Table 4.5: ITD and ranking by industry (2007–2012)

Industry	Pre-recession (2007–2008)		Recession (2009)		Post-recession (2010–2012)		Combined (2007–2012)	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Basic materials	60.59	3	59.64	4	83.31	5	75.58	4
Consumer goods	183.71	6	107.03	5	92.93	6	122.58	6
Consumer services	74.97	4	52.61	2	59.54	2	62.29	2
Health care	100.76	5	108.11	6	68.51	4	85.86	5
Industrials	57.84	2	58.71	3	65.36	3	62.47	3
Technology	41.45	1	34.68	1	45.69	1	42.10	1
Telecommunications	-	-	-	-	-	-	-	-

Source: Own deductions

(The Telecommunications industry was purposefully excluded from the table as it had only one observation).

As illustrated in Table 4.5, the combined best performer in terms of ITD was the technology industry with ITD of 42.10 days. The technology sector maintained the number one (best) ranking, pre-, during and post-recession.

The poorest performing industry in terms of the combined mean ITD was consumer goods. It took this industry 122.58 days on average to convert inventory into cash during the six-year period under review. Consumer goods maintained the relatively poor performance in all three periods (pre-, during and post-recession).

The combined 95% confidence interval bars of industry ITD means are illustrated in Figure 4.12.

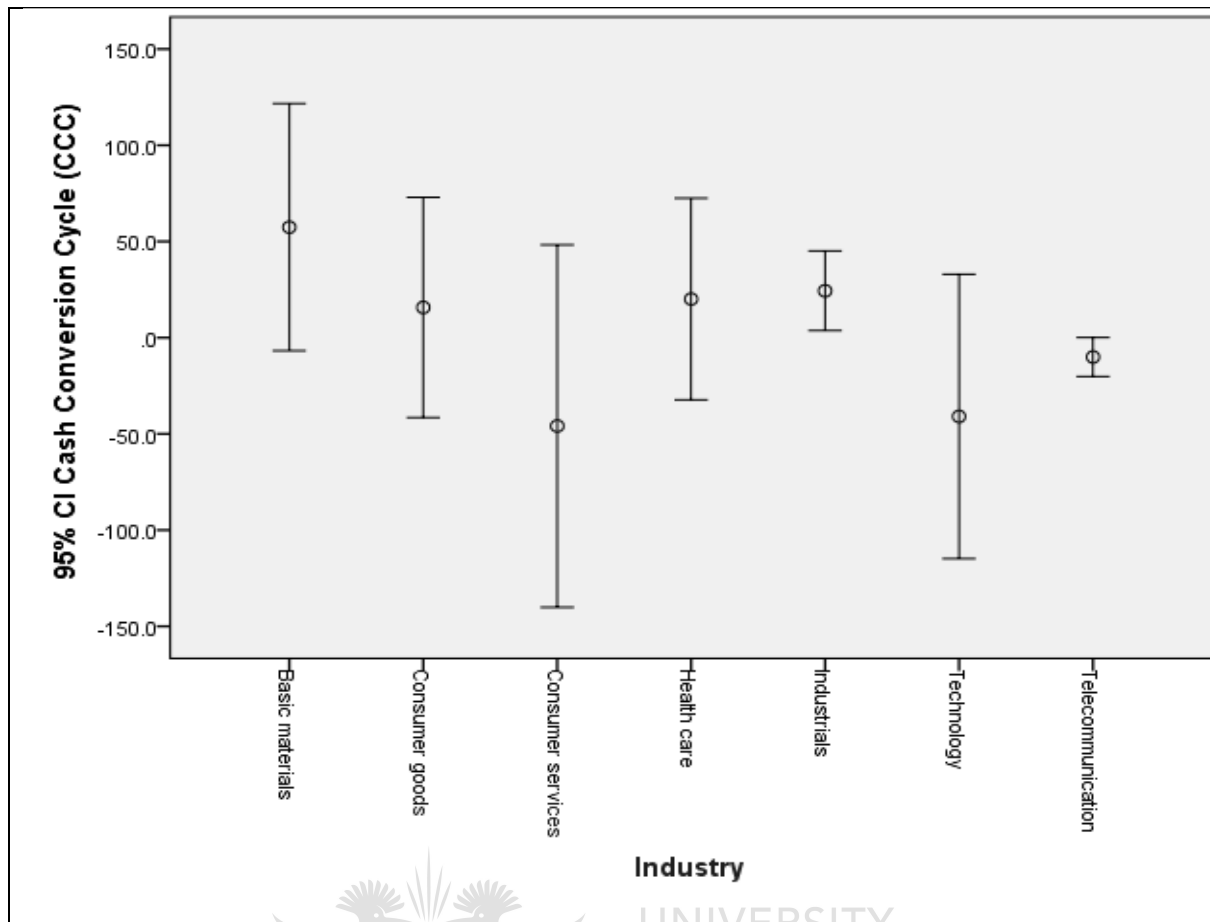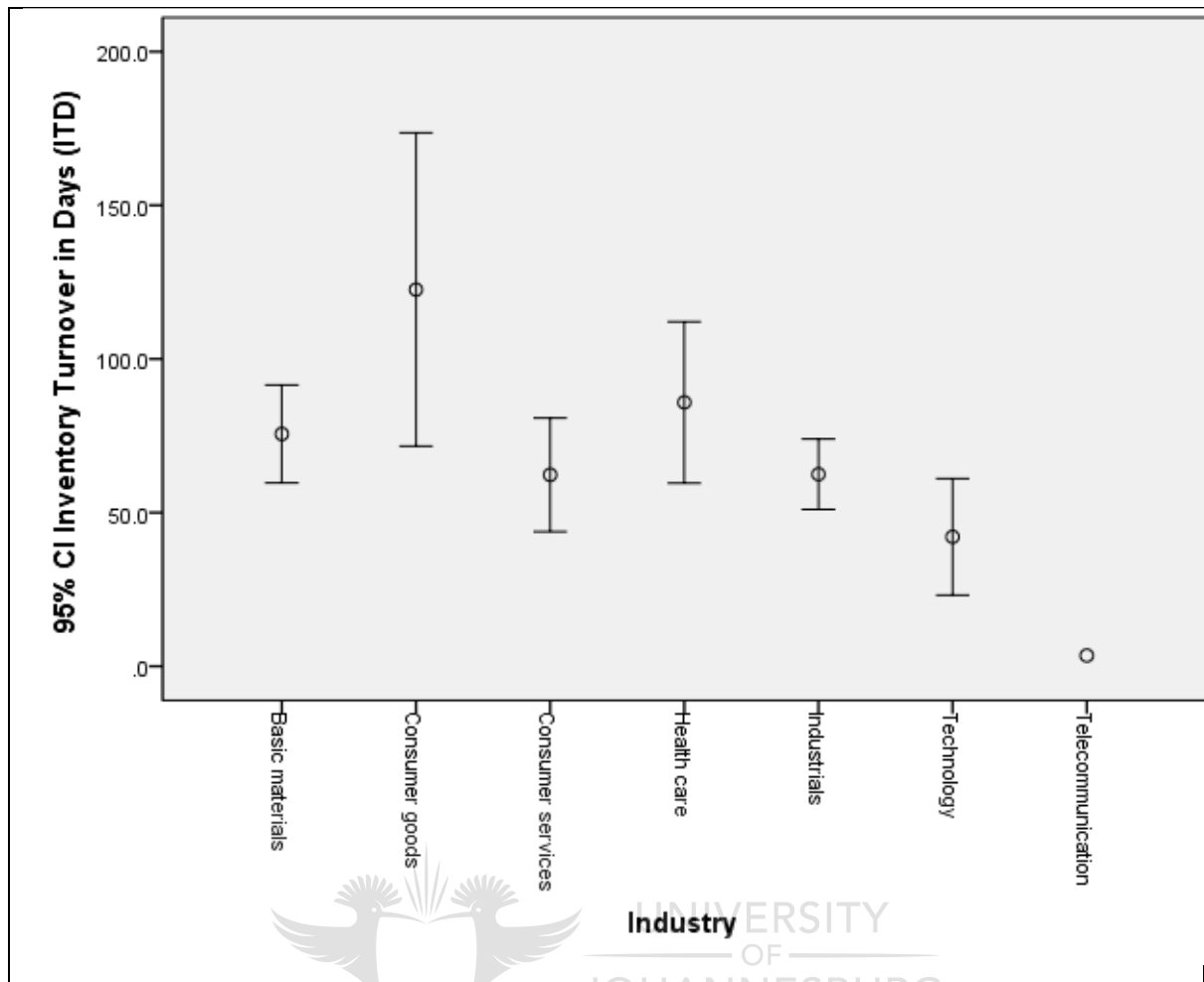**Figure 4.12: ITD – 95% confidence interval error bars by industry**

Source: Own deductions

It is illustrated in Figure 4.12 that although consumer goods are ranked last in terms of mean ITD, the confidence interval indicates high volatility ITD.

4.4.3.3 Collection efficiency

The data in Table 4.6 represent a summary of the average collection period (ACP) per industry over the sample period.

Table 4.6: ACP and ranking by industry (2007–2012)

Industry	Pre-recession (2007–2008)		Recession (2009)		Post-recession (2010–2012)		Combined (2007–2012)	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Basic materials	52.66	2	34.22	1	84.36	6	63.90	2
Consumer goods	123.76	7	159.90	7	107.11	7	120.15	7
Consumer services	108.81	6	67.96	4	72.89	3	84.37	5
Health care	74.71	3	64.79	3	57.61	2	64.51	3
Industrials	77.41	4	79.78	5	81.61	5	79.69	4
Technology	96.11	5	86.91	6	78.91	4	86.41	6
Telecommunications	28.26	1	36.37	2	27.96	1	29.46	1

Source: Own deductions

The data in Table 4.6 indicate that telecommunications performed the best in the combined ranking with an ACP of 29.46 days. The consumer goods industry performed the worst in terms of ACP in the combined ranking as it took 120.15 days to collect debtors.

During the recession, basic materials were ranked the best with an ACP of 34.22 days. However, this primary position was not maintained after the recession.

The mean ACP at 95% confidence interval error bars are illustrated by industry in Figure 4.13.
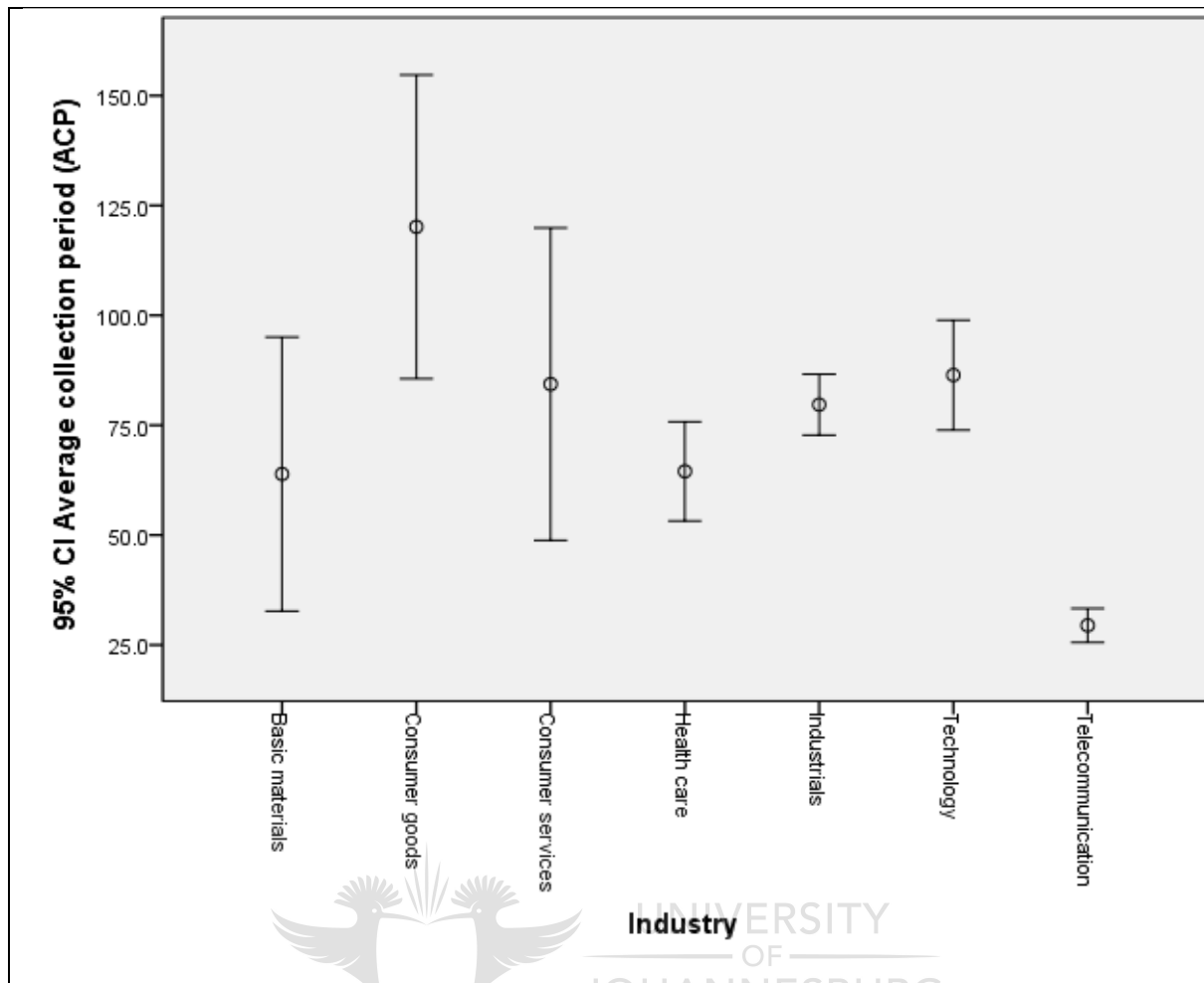
Figure 4.13: ACP – 95% confidence interval error bars by industry

Source: Own deductions

Telecommunications was ranked the best industry in terms of ACP. It is illustrated by Figure 4.13 that the telecommunications mean ACP had limited volatility. Basic materials, consumer goods and consumer services had more volatile ACPs than the other industries.

4.4.3.4 Payment efficiency

APP indicates how long it takes on average to pay creditors. Delaying payments to creditors is considered a strategy to improve the CCC. The data in Table 4.7 represent the mean APP, per industry, over the study period.

Table 4.7: APP and ranking by industry (2007–2012)

Industry	Pre-recession (2007–2008)		Recession (2009)		Post-recession (2010–2012)		Combined (2007–2012)	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Basic materials	60.93	6	76.69	6	72.16	6	72.19	6
Consumer goods	318.93	1	180.81	3	188.79	1	227.02	1
Consumer services	119.92	4	310.02	2	176.58	2	187.86	2
Health care	135.42	3	158.49	4	117.47	5	130.29	4
Industrials	96.23	5	95.62	5	141.33	3	119.34	5
Technology	173.72	2	331.46	1	134.15	4	183.24	3
Telecommu-nications	42.99	7	33.82	7	40.24	7	40.09	7

Source: Own deductions

According to the results in Table 4.7, the consumer goods industry was the best overall performer in the combined APP ranking. During the recession, the technology industry performed the best in APP, but reduced their APP after the recession. Telecommunications performed the worst with regards to APP and consistently paid creditors faster than all other industries.

The mean combined APP – 95% confidence interval error bars by industry is illustrated in Figure 4.14.
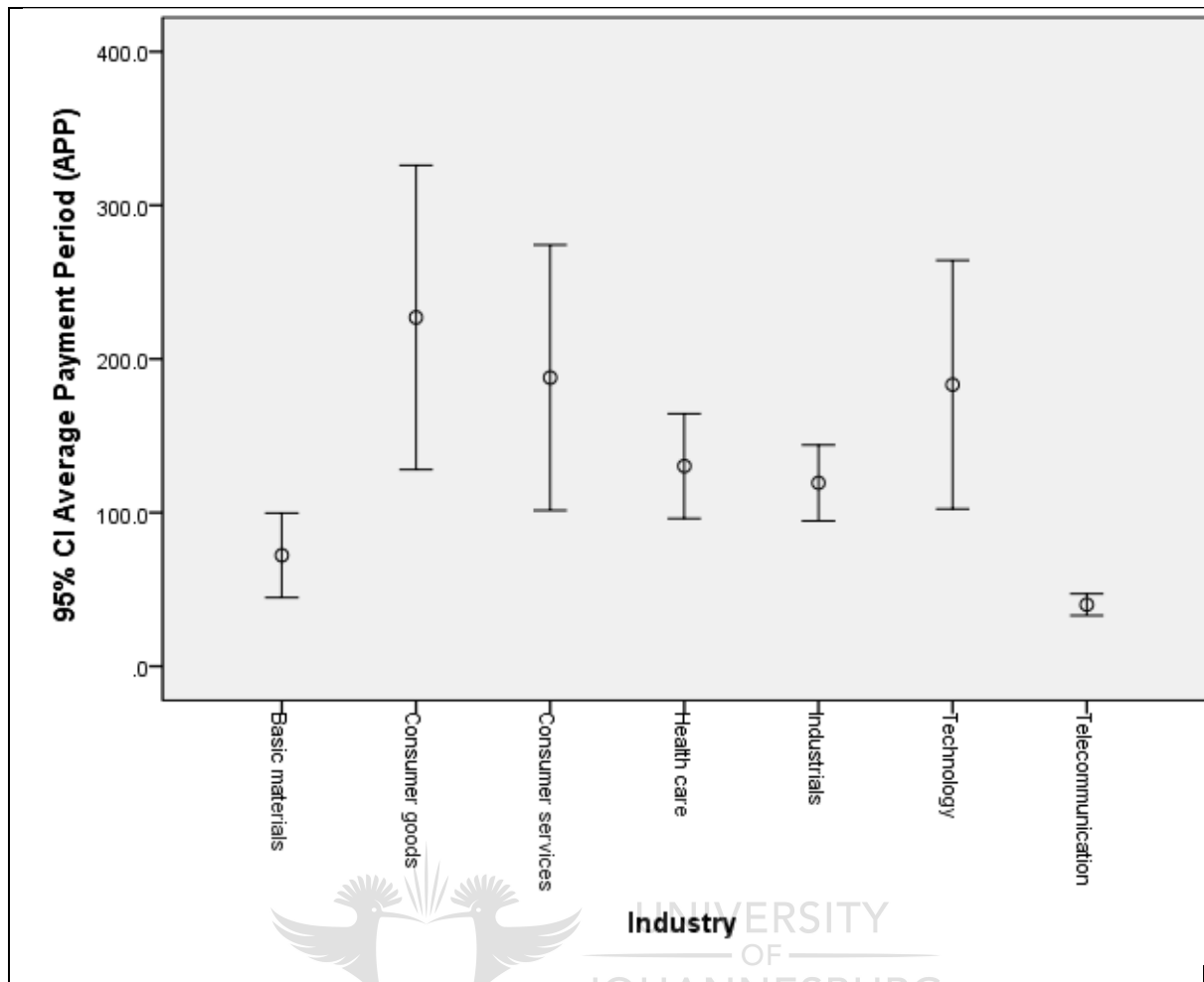
Figure 4.14: APP – 95% confidence interval error bars by industry

Source: Own deductions

The data illustrated in Figure 4.14 indicate that the APP of consumer goods, consumer services and technology were longer than the other industries, but indicated a higher volatility.

4.4.4 Combined ranking of WCM performance variables per industry

The data in Table 4.8 are a summary of the ranking of industries in terms of the WCM variables discussed in previous sections.

Table 4.8: Combined overall ranking of WCM variables per industry (2007–2012)

Industry	ACP	ITD	APP	CCC
Basic Materials	2	4	6	7
Consumer Goods	7	6	1	4
Consumer Services	5	2	2	1
Health Care	3	5	4	5
Industrials	4	3	5	6
Technology	6	1	3	2
Telecommunications	1	-	7	3

Source: Own deductions

According to the data in Table 4.8, industry ranking levels varied according to WCM variables. In terms of ACP, telecommunications was the leading industry, but performed the worst in terms of APP.

Based on the findings in Table 4.8, it can be concluded that industries had varied results in terms of WCM variables over the study period. Because CCC is regarded as the combined indicator of WCM, the ranking of industries is finally based on the CCC.

According to the CCC, the consumer services industry was ranked as the industry that exhibited the best working capital management performance over the study period. The laggard was the basic materials industry.

To contextualise the performance of the best performing industry, details of the ACP, ITD, APP and CCC over the study period of the consumer services industry is illustrated in Figure 4.15.

WCM trend data are presented for the periods pre-recession, during the recession and post-recession.
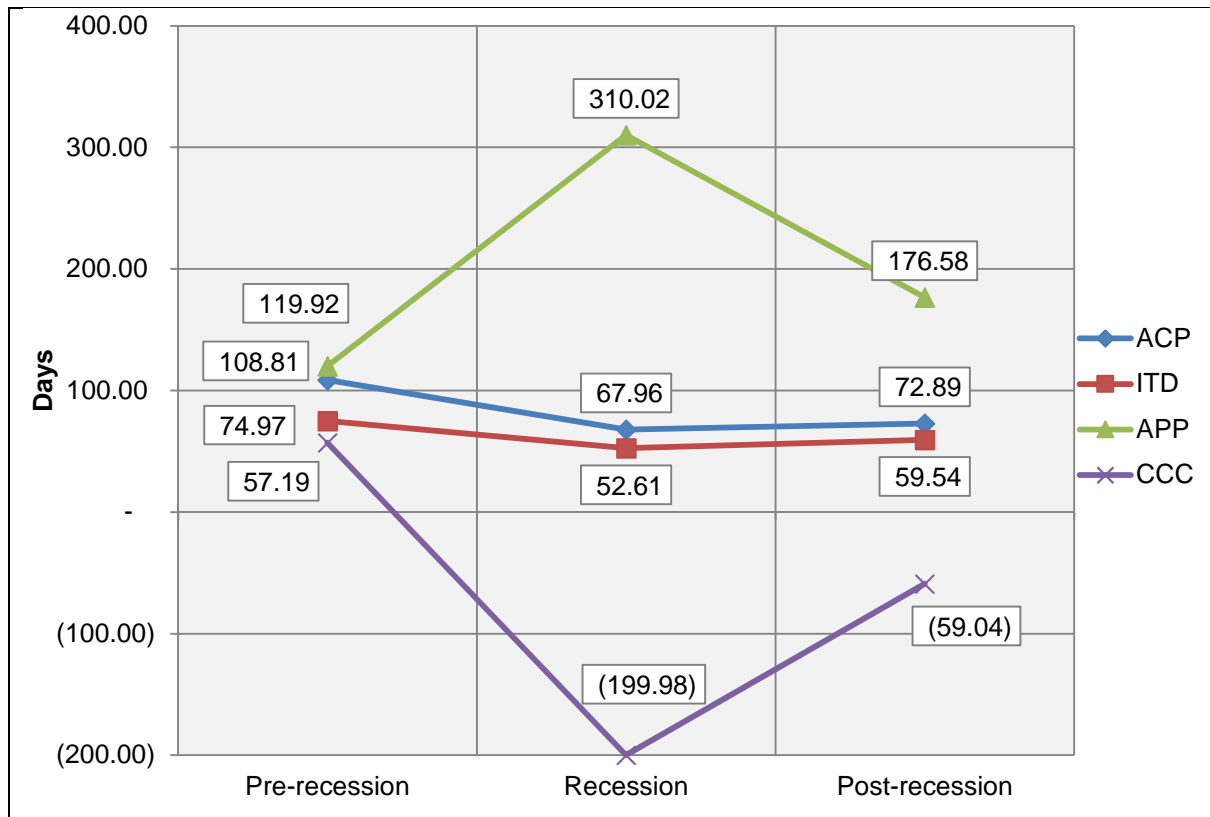
Figure 4.15: Mean ACP, ITD, APP and CCC of the consumer services industry (2007–2012)

Source: Own deductions

It is illustrated in Figure 4.15 how working capital variables of consumer services varied over the study period. Prior to the recession, the WCM variables indicated limited volatility. Debtor collections (ACP) and creditor payments (APP) differed by only 11.11 days.

During the recession ACP and ITD declined by 40.85 and 22.36 days respectively. The most significant change in working capital management came from the extended APP from 119.92 days to 310.02 days.

After the recession, ACP and ITD improved, but APP declined, which led to an increase in CCC.

The analysis concludes that the consumer services industry managed to avert the negative impact of the recession by predominantly lengthening the payment period to creditors while the collection period and inventory turnover days were kept at a minimum.

This particular analysis focused on selected WCM variables. However, other factors also influence the management of working capital. Some of these factors are indicated below.

4.4.5 Factors leading to improved WCM

From the previous discussion it can be deduced that although WCM was influenced by a combination of factors; in this study, the lengthening of the APP was significant.

An analysis of similar studies that tracked WCM trends over the recessionary period revealed the following factors that can lead to improved WCM (PWC, 2013:4–5; Ernst & Young, 2012:1).

Table 4.9: Factors leading to improved WCM

• Paying attention to key performance drivers such as:
  o commercial terms
  o process optimisation
  o process compliance
  o instilling a cash culture

• Utilising tools, such as supply chain finance
• Early adopters of legislation
• Leveraging technology to achieve optimal levels of working capital
• Applying lean manufacturing and supply chain initiatives
• Improving demand forecasting processes
• Better monitoring of rebates and other sales incentives
• Closer collaboration with suppliers and customers
• Leveraging and centralising procurement
• Build trust and develop competencies among supply chain partners

Source: PWC (2012); Ernst & Young (2012)

The factors in Table 4.9 point to a combination of factors influencing WCM. To optimise WCM, management should consider integrating different factors into their management strategy.

4.5 Summary

In this chapter, the trends of WCM of small and medium enterprises in South Africa were presented. The WCM was analysed and presented based on: average collection period (ACP), inventory turnover in days (ITD), average payment period (APP) and the cash conversion cycle (CCC).

The influence of the 2009 economic recession on working capital trends of SMEs was specifically analysed, based on two independent studies. The objective was to address the question of whether the economic recession had an influence on the WCM performance of SMEs.

A combined trend analysis was applied to present the findings in this chapter and it was concluded that during a recession period, SMEs use working capital to stay liquid. The biggest driver was delaying payments to creditors by 45.91 days. Other measures included accelerating inventory cash conversion and debtor collection by reducing the number of inventory turnover in days and the average collection period.

A separate statistical analysis using Mann Whitney U test was also conducted, because study data were not normally distributed. The analysis indicated that the 2009 economic recession had no significant influence on the WCM patterns of SMEs in South Africa. None of the WCM variables exhibited any statistically significant difference in WCM between any two periods tested, including:

- pre- vs. during economic recession;
- during vs. post-economic recession; and
- pre- vs. post-economic recession.

WCM efficiency levels of SMEs were determined by industry to determine which industries outperformed others. In terms of overall WCM performance, as indicated by CCC, the consumer services industry was ranked as the top performer while basic materials lagged behind all the industries.

Chapter 5

Findings, conclusion and recommendations

5.1 Introduction

In the previous chapter, an analysis of the WCM trends of small and medium enterprises in South Africa is presented. The influence of the 2009 economic recession on working capital trends of SMEs was specifically analysed and discussed. The objective was to address the question of whether the economic recession had an influence on the WCM performance of SMEs.

This chapter includes a summary of the research findings, conclusions relating to the WCM performance of SMEs in South Africa, and emphasis on areas for future research.

5.2 Research problem and research objectives

SMEs are the drivers of competition, growth and job creation particularly in developing economies (World Bank, 2013:18). However, SMEs have the highest operational failure rate which, amongst other reasons, is attributed to the lack of financial management skills and more specifically, due to poor working capital management (Mabaso, 2008:2). SME failure rate is accelerated during difficult operating conditions, such as the 2009 economic recession.

This study was undertaken to determine the WCM performance patterns of SMEs throughout the 2009 economic recession period and to rank sectors according to this performance.

The following sub-research questions were formulated:

1 How are South African SMEs performing with regards to cash conversion cycle, inventory turnover, receivables turnover and payables turnover?
2 How do various sectors rank with regards to WCM performance?
3 Did the economic recession have an impact on this performance pattern of SMEs?
4 What did the most successful industry change in their WCM to overcome the challenges of the recessionary period?

5.3 Summary of the findings

The definition and composition of SMEs, as well as the significance, the problems encountered and linkages to WCM of SMEs were provided for the purposes of this study. It was established that the definition of SMEs varies across the globe, therefore for the purposes of this study, the definition used by the JSE Limited on AltX listed entities was adopted.

Thereby, an SME is defined as "a separate and distinct business enterprise, together with its branches or subsidiaries, if any, including co-operative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in *column 1 of the Schedule* and classified as a micro-, a very small, a small or a medium enterprise by satisfying the criteria mentioned in *columns 3, 4 and 5 of the Schedule"* (South Africa (Republic), 2004)*.

A quantitative, descriptive, research design approach applying secondary data was applied in this study. The study population was made up of all companies listed on the Johannesburg Stock Exchange Limited (JSE) AltX. According to the JSE, the AltX is an alternative index to the main board index, which strictly focuses on good quality, small and medium sized high growth companies" (JSE, 2012). There were 63 SMEs listed on the JSEs AltX at the time of undertaking this study.

The focus in this study was on the SME sector in South Africa, therefore only companies that were founded in South Africa were considered. The financial sector (consisting of financial services, insurance and real estate) was also excluded from

the study as it calculates working capital in a different way than other sectors. Having implemented all the exclusions, 44 SMEs formed the sample group of the study.

WCM was measured and analysed by means of the WCM variables. Working capital management variables include inventory turnover in days (ITD), average collection period (ACP), average payment period (APP) and the cash conversion cycle (CCC). CCC is regarded as the overall measure of WCM, and is calculated by adding ITD and ACP and then deducting APP.

The WCM variables were analysed by means of a trend analysis and Mann Whitney U tests with the assistance of MS Excel and SPSS programs. The research results indicated the following WCM performance levels over the six year study period:

Average cash conversion cycle ranged between -29.44 days and 41.49 days. The CCC range was lower than the 77.8 days achieved (on average) by European companies between 2007 and 2011 (PWC, 2012:9).

Inventory turnover in days ranged between a minimum of 63.32 and maximum of 83.30 days with a mean of 71.32 days. European companies averaged 48.8 days between 2007 and 2011 (PWC, 2012:9; García-Teruel & Martínez-Solano, 2007; Abel, 2008:44).

The average collection period varied between 77.43 and 94.06 days with a mean of 84.96 days. In comparison European companies averaged ACP of 76.8 days between 2007 and 2011 (PWC, 2012:9).

Regarding the average payment period, it took SMEs, on average, 152.30 days to pay creditors over the six years from 2007 to 2012. APP ranged between 133.85 and 179.76 days. For European companies, APP averaged 47.8 days between 2007 and 2011 (PWC, 2012:9).

It can therefore be concluded that the WCM variables of the sample of SMEs showed mixed performance in relation to European companies. The sample of SMEs performed better in terms of CCC and APP while they fell behind with regards to ITD and ACP.

5.3.1. The influence of the 2009 economic recession

The influence of the 2009 economic recession on working capital trends of the sample of SMEs was analysed using two independent methods, trend analysis and the Mann Whitney U test.

The combined trend analysis indicated that the working capital of the sample of SMEs was well-managed during the 2009 economic recession. The most significant change in working capital management came about by SMEs delaying payments to creditors by 45.91 days. Other less significant WCM changes during the 2009 economic recession included accelerating inventory turnover and debtor collection.

In addition, the trend analysis indicated that there were changes in working capital management during the economic recession, but the significance of the WCM changes still needed to be determined.

However, because the data were not normally distributed, the Man Whitney U test was applied in order to statistically analyse the variances during these three composite periods: pre-, during and post-economic recession.

The results conclude that the 2009 economic recession had no significant influence on the WCM patterns of the sample of SMEs in South Africa. None of the WCM variables exhibited any statistically significant difference in WCM between any of the composite periods tested during the study.

5.3.2. Ranking of industries

WCM efficiency levels of SMEs were categorised by industry to determine outperforming industries through the recession. In terms of overall WCM performance, as indicated by CCC, the consumer services industry was ranked as the top performer while basic materials lagged behind all the industries.

The results indicated that the consumer services industry lengthened the payment period to creditors under the economic recession, while the collection period and the inventory turnover days were kept at a minimum. Although lengthening the payment to creditors was indicated as an important factor in the study sample to consider in WCM, it was concluded that a combination of factors influences WCM. To optimise

WCM, management should consider integrating different factors into their management strategy, such as:

- commercial terms;
- process optimisation;
- process compliance; and
- instilling a cash culture.

5.4 Conclusion

The trend analysis indicated that there were changes in the working capital management of the SMEs during the study period. The working capital management improved during the economic recession, which can largely be attributed to delaying payment to creditors.

The Man Whitney U test indicated that the sample of SMEs did not exhibit any significant changes in WCM performance that could be as a result of the 2009 economic recession.

SME industries were ranked in terms of their WCM performance over the study period. It can be concluded that the WCM performance of industries vary depending on the WCM variable that is measured. According to the CCC, the overall measure of WCM, the consumer services industry was ranked as best WCM performer. The laggard was the basic materials industry.

The study finally concludes that SMEs that were successful with regards to WCM during the 2009 recession, considered not only the WCM variables. These SMEs also considered other factors such as, building trust and collaboration with suppliers and customers, although these factors were not considered in this study.

5.5 Contribution of the study

Previous studies emphasise the negative impact of an economic recession on overall business performance. This study makes a specific contribution to the WCM literature and the impact an economic recession has on the WCM of South African SMEs.

The study also presents specific WCM trends present in South African SMEs that management could possibly use to compare and structure WCM strategies.

5.6   Limitations

The key limitation of the study was confining the study only to JSE Ltd AltX listed SMEs. It is possible that these companies exhibit characteristics that differ significantly from other SMEs that are not listed on the JSE Ltd Alt X.

Additionally, the study focuses only on the 2009 recession period. To improve the validity of the study, various crisis periods could be researched.

5.7   Recommendations for further research

The following are recommendation for future studies:

- Similar studies could be undertaken to focus on multiple financial crisis periods in order to gain a full understanding of the impact a recession has and in order to compare the effect the economic crisis has on the WCM of SMEs.
- Detailed sector-wise WCM trends analysis could be undertaken to obtain a better understanding of the changes in WCM performance levels on a year to year basis.

5.8   Final remarks

The aim of this study was to determine the WCM performance patterns of SMEs throughout an economic recession period. Additionally, the study ranked sectors according to their performance in order to determine the lagging sectors relative to outperforming sectors.

The aim of the study was achieved, because it was determined that the WCM performance of SMEs did not decline during the 2009 recession study period. Although there were changes in WCM performance patterns, the patterns were not statistically significant due to the recession.

It was furthermore concluded that the best performing sector was the consumer services industry. However, the ranking of the industries' WCM could have been influenced by factors that were not considered in this study.

List of references

Abel, M. (2008). *The impact of working capital management on cash holdings – a quantitative study of Swedish manufacturing SMEs.* Unpublished (masters) thesis. Östersund: Mittuniversitetet.

Agyei-Mensah, B. (2012). Working Capital Management Practices of Small Firms in the Ashanti Region of Ghana. *Human Resource Management Academic Research Society*, 2(1), pp. 567-583.

Anand, M. & Gupta, C.P. (2002). Working capital performance of corporate India: An empirical survey for the year 2000-2001. *Management and Accounting Research*, 1(2), pp. 43-67.

Appuhami, R. (2008). The impact of firms' capital expenditure on working capital management: An empirical study across industries in Thailand. *International Management Review*, 4(1), pp. 8-21.

Baveld,M. (2012). *Impact of Working Capital Management on the Profitability of Public Listed Firms in The Netherlands During the Financial Crisis.* Unpublished (masters) thesis. Enschede: University of Twente.

Bradley, D.B. & Rubach, M.J. (2001). *Trade Credit and Small Businesses: A Cause of Business Failures?* Conference proceedings of the Association for Small Business & Entrepreneurship. St. Louis: United States of America.

Brink, A., Cant, M. & Ligthelm, A. (2003). Problems experienced by small businesses in South Africa. Conference proceeding of the 16th *Small Enterprise Association of Australia and New Zealand. Ballarat: Australia.* Available: http://www.ftms.edu.my/pdf/Download/UndergraduateStudent/BusinessEconomics/Problems%20Experienced%20by%20Small%20Businesses%20in%20South%20Africa.pdf (Accessed 01 May 2013).

CFO Research Services. (2010). *Working capital management in a post-recession environment: The view from Europe.* Boston: CFO Publishing. Available: http://www.rbs.co.uk/Downloads/corporate/planning/Europe_Working_Capital_Final_091710.pdf (Accessed 28 May 2013).

David, M. & Sutton, C. (2004). *Social Research: The Basics.* London: SAGE Publications Ltd.

Ding, S., Guariglia, A. & Knight, J. (2010). *Investment and financing constraints in China: Does working capital management make a difference?* Published thesis. Durham: Durham University.

DTI (2008). *Annual Review of Small Businesses in South Africa 2005-2007.* South Africa: DTI.

Duggal, R. & Budden, M. (2012). The effects of great recession on corporate working capital management practices. *International Business & Economics Research Journal*, 11 (7), pp. 753-756.

Enqvist, J., Graham, M., & Nikkinen, J. (2012). *The Impact of Working Capital Management on Firm Profitability in Different Business Cycles: Evidence from Finland*. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1794802 (Accessed 28 May 2013).

Ernst & Young. (2012). *Cash on prescription: Pharmaceutical companies and working capital management.* United Kingdom: Ernst & Young.

García-Teruel, P. & Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of Managerial Finance*, 3(2), pp. 164-177.

Gill, A. Biger, N. & Mathur, N. (2010). The Relationship between Working Capital Management and Profitability: Evidence from the United States. *Business and Economics Journal*, 10, pp. 1-9.

Goosain, S. (2004). *Entrepreneurship and the impact of entrepreneurial orientation training on SMMEs in the South African context: A longitudinal approach*. Unpublished (masters) thesis. Cape Town: University of the Western Cape.

Kaddumi, T. & Ramadan, I. (2012). Profitability and Working Capital Management: The Jordanian Case. *International Journal of Economics and Finance*, 4(4), pp. 217-226.

Kitching, J., Smallbone, D. & Xheneti, M. (2009). *Have small businesses beaten the recession?* Conference proceeding of the 32nd Institute for Small Business and Entrepreneurship (ISBE) held in Liverpool: Celebrating 3 decades of excellence in education, research and practice: at the cutting edge of international entrepreneurship, Liverpool: United Kingdom.

Kitching, J., Smallbone, D., Xheneti, M. & Kašperová, E. (2011). *Adapting to a Fragile Recovery: SME Responses to Recession and Post-Recession Performance*. Conference proceeding of the 34th Institute for Small Business and Entrepreneurship (ISBE) held in Sheffield: Sustainable futures: enterprising landscapes and communities, Sheffield: United Kingdom.

Lazaridis, I. & Tryfonidis, D. (2005). The relationship between working capital management and profitability of listed companies in the Athens Stock Exchange. *Journal of Financial Management and Analysi*s, 19(1), pp. 26-35.

Leedy, P., & Ormrod, J. (2010). *Practical Research: Planning and Design, 9th edition.* New Jersey: Pearson Education International.

Mabaso, N. (2008). *An investigation into small business failures with specific reference to retrenched Telkom employees in the far West Rand (Mogale City, Randfontein and Soweto)*. Unpublished (masters) thesis. Pretoria: University of South Africa.

Mathuva, D. (2010). The influence of working capital management components on corporate profitability: A survey on Kenyan listed firms. *Research Journal of Business Management*, 4 (1), pp. 1-11.

McGregor BFA. (2013). Database. Retrieved from: http://mcgregorbfa.co.za

Mohamad, N. & Saad, N. (2010). Working Capital Management: The Effect of Market Valuation and Profitability in Malaysia. *International Journal of Business and Management*, 5 (11), pp. 140–147.

Monk, R. (2000). Why small business fail? *CMA Management*, 74(6), pp. 12-13

Napompech, K. (2012). Effects of working capital management on the profitability of Thai listed firms. *International Journal of Trade, Economics and Finance*, 3(3), pp. 227–232.

Ogundipe, S., Idowu, A. & Ogundipe, L. (2012). Working capital management, firms' performance and market valuation in Nigeria. *World Academy of Science, Engineering and Technology*, 61, pp. 1196–1200.

Olawale, F. & Garwe, D. (2010). Obstacles to the growth of new SMEs in South Africa: A principal component analysis approach. *African Journal of Business Management*, 4(5), pp. 729–738.

Padachi, K. & Howorth, C. (2013). Focus on Working Capital Management Practices among Mauritian SMEs: Survey Evidence and Empirical Analysis. *Journal of Business Management and Economics,* 5(4). pp. 97-108.

Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: An analysis of Mauritian small manufacturing firms. *International Review of Business Research Papers*, 2(2), pp. 45–58.

Padayachee, V. (2010). Global Economic Recession: Effects and Implications for South Africa at a time of Political Challenges, *Claves de la Economia Mundial*, Durban: University of Kwa-Zulu Natal. Available: http://www.pass.va/content/dam/scienzesociali/pdf/acta16/acta16-zulu.pdf (Accessed 24 May 2013).

Palombini, N. & Nakamura, W. (2012). Key factors in working capital management in the Brazilian market. *Revista de Administração de Empresas*, 52(1). pp. 55–69.

Peel, M. J. & Wilson, N (1994). Working capital and financial management practices in the small firm sector. *International Small Business Journal*, 14(2), pp. 101–121.

Phenya, A. (2011). *An Assessment of the Financial Management Skills of Small Retail Business Owners/Managers in Dr JS Moroka Municipality.* Published masters dissertation. Pretoria: University of South Africa.

Polak, P. (2013). *Emerging working capital management.* The Clute Institute International Academic Conferences. Maui: United States of America. Available: http://www.cluteinstitute.com/proceedings/2013HIPapers/Article%20192.pdf (Accessed 24 May 2013).

PWC. (2012). *European Working Capital Annual Review*. United Kingdom: PWC.

Radipere, S. & Van Scheers, L. (2005). Investigating whether a lack of marketing and managerial skills is the main cause of business failure in South Africa. *South African Journal of Economic and Management Sciences*, 8(4), pp. 402–411.

Raheman, A. & Nasr, M. (2007). Working Capital Management And Profitability – Case Of Pakistani Firms. *International Review of Business Research Papers*, 3 (1), pp. 279–300.

Ramachandran, A. & Janakiraman, A. (2009).The relationship between working capital management efficiency and earnings before interest and tax. *International Research Journal*, 7 (1), pp. 61–74.

Samson, A., Mary, J., Yemisi, B. & Erekpitan, I. (2012). The impact of working capital management on the profitability of small and medium scale enterprises in Nigeria. *Research Journal of Business Management*, 6 (2), pp. 61–69.

Shehzad, Ahmed, Sehrish, Saleem & Yasir (2012). The relationship between working capital management efficiency and ebit: evidence from textile sector of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4 (5), pp. 211-224.

Smit, Y. & Watkins, J.A. (2012). A literature review of small and medium enterprises (SME) risk management practices in South Africa. *African Journal of Business Management*, 6 (21), pp. 6324–6330.

Smith, K. V. (1973). State of the art of working capital management. *Financial Management,* 2 (3), pp.50–55.

Soekhoe, G. (2012). *The Effects of Working Capital Management on the Profitability of Dutch Listed Firms.* Unpublished (masters) thesis. Enschede: University of Twente.

South Africa (Republic) (2004). *National Small Business Amendment Act, no 29 of 2004, Government Notice 1459 Volume 474*, Government Gazette, no 27101, 15 December 2004.

Steytler, N & Powell, D. (2010). the impact of the global financial crisis on decentralized government in South Africa. *Community Law Centre: Local Government Working Paper,* 1, pp. 1-24.

Uremadu, S., Egbide, B. & Enyi, P. (2012). Working capital management, liquidity and corporate profitability among quoted firms in Nigeria evidence from the productive sector. *International Journal of Academic Research in Accounting, Finance and Management Science,* 2(1), pp. 80–97.

Verick, S. & Islam, I. (2010). The great recession of 2008-2009: Causes, consequences and policy responses. *The Institute for the Study of Labor (IZA)*, 4934, pp. 1–61.

World Bank (2013). *Doing Business 2013 Smarter Regulations for Small and Medium-Size Enterprises.* Washington: World Bank Group.

JSE (2013). Database. Available: www.jse.co.za (Accessed 05 December 2012)